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Wildlife Governance in China

A DOCTRINAL ANALYSIS OF WILDLIFE LAW

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Abstract

The accelerating loss of biodiversity has intensified attention to the role of law in shaping wildlife governance. As one of the world's most biodiverse countries and a major actor in global wildlife trade, China plays an essential role in international conservation debates. This thesis examines the framework and evolution of Chinese wildlife law through a doctrinal analysis of its key legislation.

The study focuses on how conservation objectives are translated into formal legal rules. It analyses the legal definition of "wildlife", the development of legislative priorities over time, and the design of criminal offences and sentencing thresholds. In doing so, it traces a shift in Chinese wildlife legislation from a framework historically associated with regulated utilisation towards one increasingly framed in terms of ecological protection and, more recently, public health. Particular attention is paid to reforms following the COVID-19 outbreak, including changes to species classification and criminal liability standards, which illustrate how legal categories and thresholds shape the scope of wildlife governance.

In its concluding analysis, the thesis engages with debates in green criminology and conservation science by clarifying the reach and limits of crime-based regulatory responses. It highlights the distinction between the formal regulating scope of law and the broader ecological harms that may fall beyond criminal definitions. By examining the internal logic of wildlife legislation, the thesis argues that careful attention to legal detail is essential for meaningful interdisciplinary dialogue. On this basis, it provides a foundation for future research on how statutory frameworks interact with criminal justice processes and conservation practice.

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List of Abbreviations

Anti-Money-Laundering	AML
Belt and Road Initiative	BRI
Chinese Communist Party	CCP
Convention on Biological Diversity	CBD
Convention on International Trade in Endangered Species of Wild Fauna and Flora	CITES
Coronavirus Disease 2019	COVID-19
Environmental Public Interest Litigation	EPIL
Illegal Wildlife Trade	IWT
Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services	IPBES
International Criminal Police Organisation	INTERPOL
Invasive Alien Species	IAS
Non-Governmental Organisations	NGOs
Severe Acute Respirator Syndrome	SARS
Sustainable Development Goals	SDG
The 15th Conference of the Parties to the CBD in Kunming	COP15
Traditional Chinese Medicine	TCM
Wildlife Protection Law	WPL
World Customs Organisation	WCO
World Health Organisation	WHO
World Wide Fund for Nature	WWF

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My grandmother passed away the day after I arrived in the UK to begin this doctorate. I hope she would have been proud.

Author's Declaration

I declare that this thesis is my own work and has not been submitted for any other degree or professional qualification.

Parts of this thesis are based on research that has been accepted for publication. Chapters 3, 4, and 5 draw on the author's published articles, for each of which I served as first and corresponding author. These materials have been adapted and integrated into the thesis in accordance with the relevant regulations of the University.

Except where otherwise indicated, the work presented in this thesis is the result of my own research, and appropriate acknowledgement has been made where the work of others has been used.

Chapter 1

Introduction

1. Introduction

The contemporary global environmental landscape is defined by a ‘triple planetary crisis’: climate change, pollution, and biodiversity loss (UNEP, 2021; UNFCCC, 2023). While climate change often dominates political discourse and public attention due to its visible global impact, and the pollution crisis continues to threaten public health and ecosystem integrity, biodiversity loss represents a distinct but deeply interconnected emergency (UNFCCC, 2023). These three crises do not operate in isolation; they create a feedback loop where, for example, climate change alters habitats and accelerates species extinction, while the loss of resilient ecosystems (such as forests and peatlands) reduces the planet’s capacity to sequester carbon and mitigate further warming (Pörtner et al., 2021). Despite these overlaps, this thesis focuses specifically on the biodiversity crisis, arguably the most irreversible of the three (World Economic Forum, 2019; Armstrong, 2024).

Biodiversity loss has emerged as one of the most pressing global environmental crises of the 21st century, with the illegal wildlife trade (IWT) acting as a significant driver of species decline and ecological degradation (’t Sas-Rolfes et al., 2019; Hughes et al., 2022). In this context, legal frameworks play a critical role in shaping national and international responses to conservation challenges. However, the emergence of COVID-19 acted as a global catalyst, highlighting systemic vulnerabilities and the urgent need to rethink how wildlife is governed through a public health and ecological security lens (Roe et al., 2020). Within this context, China presents a uniquely significant case study, given its vast biodiversity, its influential role in global wildlife markets, and its rapid legislative response to the pandemic (Huang et al., 2021).

The research examines how laws and policies have evolved and the challenges that persist, guided by a set of questions that critically evaluate the legal definition, legislative evolution, and criminal sanctions of Chinese wildlife law to identify how legal structures potentially influence conservation outcomes. The thesis is structured around three peer-reviewed publications (Tian et al., 2023, 2024, 2025), each of which forms a core chapter and contributes to the overarching aim of enhancing legal responses to biodiversity loss through the lens of IWT.

1.1 Biodiversity loss and illegal wildlife trade

Biodiversity loss represents one of the most pressing environmental challenges of the Anthropocene (UNFCCC, 2023; Armstrong, 2024). Scientific assessments consistently show unprecedented rates of species extinction and population decline, driven by a combination of anthropogenic pressures including habitat destruction, climate change, pollution, overexploitation, and invasive species (e.g., WWF, 2024). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) estimates that approximately one million species are threatened with extinction, many within decades, unless transformative changes occur in how societies produce, consume, and govern natural resources (IPBES, 2019). This accelerating erosion of biodiversity not only undermines ecosystem resilience and planetary stability but also threatens the social, cultural, and economic foundations that depend on healthy ecosystems (Cardinale et al., 2012; Dasgupta, 2021).

Among the primary direct drivers of biodiversity loss, illegal commercial harvest and trade of wildlife is a particularly severe and complex threat (Di Minin et al., 2016; McClenachan et al., 2016). Illegal wildlife trade (IWT), valued at billions of dollars annually, spans both legal and illegal markets; local, national and international value chains; and encompasses live animals, plants, and a wide range of derivatives used for food, medicine, ornaments, and as pets (Nellemann et al., 2016; UNODC, 2020). Although there are contexts in which wildlife trade can be sustainable, legal and support conservation aims (e.g., Di Marco et al., 2020; Roe et al., 2020; TRAFFIC, 2007; UNEP, 2020), there are widespread cases where IWT contributes to population declines, particularly for species with high commercial value, slow reproductive rates, or restricted habitats (Nijman, 2009; Lenzen et al., 2012). Beyond its ecological impacts, IWT also undermines the rule of law, fuels transnational organised crime, and poses significant biosecurity and public health risks (Cardoso et al., 2021), as demonstrated by zoonotic disease outbreaks such as Severe Acute Respiratory Syndrome (SARS) and Coronavirus disease 2019 (COVID-19) (Karesh et al., 2012; Roe et al., 2020). As a result, the governance of wildlife trade has become a focal point of international conservation policy and national legal reform, demanding a more integrated understanding of how law, enforcement, and social values intersect in addressing biodiversity decline (Phelps and Webb, 2015; Naito et al., 2022; Tian et al., 2025).

1.2 The role of law in addressing biodiversity loss

Although many factors shape environmental governance and how societies respond to biodiversity loss and manage human–wildlife relations, environmental law plays a pivotal role in governing wildlife resources (Nijman, 2009; Evans, 2012). And while conservation science may help identify ecological priorities and management approaches, law often helps to translate these into binding norms, enforceable obligations, and institutional responsibilities (Fisher et al., 2009; Kotzé and French, 2018). Environmental law typically provides a framework through which the State codifies social values for nature, including defining what is protected, who bears responsibility, and how conflicts between human and environmental interests are mediated (Evans 2012; Gillespie, 2018). In this sense, law functions both as a regulatory mechanism and as a moral language that articulates society’s relationship with the natural world.

At the centre of formal, legal environmental governance architecture is ‘black-letter’ law, the formal body of laws, regulations, and judicial interpretations that gives concrete form to environmental principles (Hutchinson and Duncan, 2012). Black letter law refers to the well-established, fundamental, and technical legal rules and principles derived directly from written statutes and binding legal precedents. Its methodology focuses exclusively on the law as it is formally written and organised, thereby excluding any extra-doctrinal contestations concerning the law’s political origins, social policy considerations, or ethical shortcomings (Hutchinson, 2010). Legal definitions of terms, such as ‘wildlife’, and the ways in which offences are circumscribed, determine the scope of legal intervention, influencing which species and actions fall within the reach of legal protections (Phelps et al., 2016; Bowman et al., 2020; Tian et al., 2023). The language of law, through its definitions and classifications, thus shapes how biodiversity is conceptualised and governed, linking the abstract ideals of conservation with the practical mechanisms of enforcement.

Moreover, the ways in which black letter law is formed, interpreted, and used are not purely technical but also carry political and ethical significance, reflecting broader value choices, including those related to justice and conservation priorities (Fisher et al., 2009; Kotzé and French, 2018). Legal frameworks determine how the burdens and benefits of conservation are distributed, influencing fairness, legitimacy, and the balance between

ecological protection and social justice (Martin et al., 2016). In the context of IWT, this justice dimension extends to how laws define responsibility, assign punishment, and reconcile ecological and social objectives. As global concern over IWT intensifies and legal regulatory frameworks expand, understanding these legal constructs and their implications is essential for evaluating, developing, and revising legislation to achieve more durable and equitable outcomes.

1.3 COVID-19 and the urgency of rethinking wildlife governance

Interest in wildlife governance, notably legal regulation, expanded dramatically following the outbreak of COVID-19, which profoundly reshaped global awareness of the relationships between biodiversity, public health, and global governance. As a zoonotic disease, in which the pathogen spreads from wildlife to humans, likely through interactions that occurred during IWT (Cardoso et al., 2021), COVID-19 demonstrated how close human–wildlife contact, driven by trade and ecological disturbance, can heighten the risk of disease transmission (Daszak et al., 2000; Karesh et al., 2012; Hilderink and de Winter, 2021). While its immediate impacts were primarily on public health, the pandemic revealed how habitat loss, consumption, and wildlife trade can generate far-reaching risks that extend beyond ecological degradation to threaten human life and social stability (IPBES, 2020; WHO, 2020b). Beyond its devastating toll on public health, with more than seven million confirmed deaths worldwide by 2025, it triggered one of the most severe economic and social crises in modern history (IMF, 2022; WHO, 2025). For example, the pandemic disrupted international trade, supply chains, and labour markets, exacerbating inequality and poverty (OECD, 2021), resulting in global GDP contracting by 3.1% in 2020, which marked the deepest recession since the Great Depression (IMF, 2022).

The pandemic elevated wildlife legislation from a specialised conservation issue to a matter of global legal and policy concern across sectors. In this sense, COVID-19 did not create new challenges but revealed longstanding weaknesses in environmental governance, including how wildlife trade is regulated. It disrupted wildlife supply chains, exposed enforcement gaps, and challenged long-standing cultural and economic practices related to wildlife use. Governments and international organisations called for, and in many cases implemented, stronger legal frameworks to regulate wildlife utilisation,

improve traceability, and prevent similar ecological disruptions that increase disease risks (CITES, 2021; CBD, 2022). Emergency legal restrictions in many countries on the wildlife trade have exposed tensions between scientific uncertainty, legislative precision, and the socio-economic realities of trade regulation (Roe et al., 2020; Hilderink and de Winter, 2021). Rapid legal reforms introduced in the wake of the pandemic, ranging from temporary bans to structural amendments of national wildlife legislation to proposals for new international legislation (Gallo-Cajiao et al., 2023; Tian et al., 2024, 2025), both necessitate deeper scholarly application and provide a timely opportunity to understand the legal dimensions of wildlife governance. For China in particular, the rapid introduction of emergency measures to restrict wildlife trade in early 2020 illustrated both the potential and the limitations of existing wildlife governance frameworks (Tian et al., 2024).

1.4 Why China as a focus of this study

China is a particularly important context for understanding the legal dimensions of wildlife governance, particularly in the aftermath of the pandemic, as the suspected origin of the disease; because of its unique biodiversity; cultural and historical and economic relationship with wildlife trade and links to international markets; and because of its significant legal responses post COVID-19.

China is one of the world's megadiverse countries, harbouring roughly 10% of all plant species and 14% of animal species (CBD, 2020). This ecological richness gives China immense global conservation significance, and also a basis for a strong culture and history of wildlife use. China has a long-standing cultural tradition of utilising a diverse range of wild species for food (e.g., shark fin, bear paw) and traditional medicine (e.g., tiger bone, pangolin scales) (TRAFFIC, 2007). As a major consumer market for wildlife products, China has played a significant global role in driving demand for wildlife use, contributing to biodiversity loss both domestically and internationally (TRAFFIC, 2007; Zhang et al., 2008; Nijman, 2010; Challender et al., 2015; Pires and Moreto, 2016; 't Sas-Rolfes et al., 2019).

However, decades of rapid economic growth have exacted a steep environmental toll, including habitat loss, pollution, and poaching, resulting in significant declines in many

domestic wildlife populations (Liu et al., 2016a). These dual realities of biological wealth and ecological strain make China a compelling case to examine how legal frameworks balance conservation and development, and make its legal framework critical to both domestic conservation and international wildlife trade regulation.

Like many other countries, Chinese policy-makers have long sought to regulate and reduce IWT, and to identify governance approaches that balance consumptive uses and conservation (White 2020a, 2020b). This has included a series of domestic legislation, as well as engagement with multilateral environmental agreements that help govern wildlife resources, including the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Moreover, biodiversity protection became a core principle of governance and development with the adoption of the ‘Ecological Civilisation’ (生态文明) national policy framework that pursues harmonisation between human beings and nature (Wei et al., 2020). Moreover, China has instituted rapid legislative responses following the COVID-19 pandemic, including immediate bans on wildlife trade and the latest amendments to the Wildlife Protection Law (WPL) in 2022 (Huang et al., 2021; Tian et al., 2024).

China thus presents a globally significant opportunity to examine legal approaches to the governance of wildlife resources, including in the context of responses to public health crises and shifting governing priorities.

1.5 Research aims and questions

The aim of this thesis is to explore how China’s evolving legal framework shapes the governance of biodiversity by examining the conceptual, legislative, and enforcement dimensions of wildlife law, with particular attention to the interplay between ecological objectives, economic development, public health, and social justice. It evaluates the role of law as a central mechanism for achieving a balanced, sustainable, and just approach to biodiversity conservation in China.

This research specifically analyses the importance of the legal definitions, the development of institutional frameworks, and shifts in enforcement mechanisms. A key

focus is the role of ‘black letter law’, such as legislative concepts and criminal sanctions, in shaping China's response to both biodiversity loss and zoonotic risk. While grounded in the unique Chinese context, this research contributes to broader international debates on how legal frameworks organise conservation priorities and mediate complex tensions between ecological protection, public health, cultural tradition, and socio-economic development.

The aims of this research are both timely and significant. Global biodiversity loss is accelerating, yet conservation law remains under-examined compared to ecological or scientific approaches for conservationists. Legal frameworks determine what constitutes ‘wildlife’, which harms are criminalised, and how trade-offs between conservation and economic development are managed. However, many conservation practitioners are unfamiliar with legal reasoning, categories, and institutional logics. By clarifying how law shapes and constrains wildlife governance, this research helps bridge disciplinary gaps and contributes to more legally informed and socially responsive conservation efforts.

The research is structured around three peer-reviewed articles, each addressing a distinct facet of China’s wildlife governance. These are framed by five core research questions:

Question 1: How do legal definitions of the term ‘wildlife’ differ across jurisdictions, including China and what are the implications of these definitional differences on conservation and enforcement? (Addressed in Chapter 3, Tian et al., 2023.)

This question is important because legal language shapes conservation in a number of ways: legal language plays a crucial role in shaping conservation by defining enforcement scope, protection levels, offence categories, and how wildlife is conceptualised. However, legal definitions often fail to reflect the scientific understanding of ecological threats, resulting in protections that fall short of conservation needs. Despite that, conservation professionals frequently rely on ecological frameworks that diverge from legal categories or treat legal language as somewhat of a ‘black box’. Therefore, bridging this gap is essential for aligning legal instruments with conservation goals and for bridging across disciplines.

Question 2: How has China’s wildlife legislation evolved over time, what key factors have driven these changes, and in what ways did the COVID-19 pandemic shape recent legal reforms in wildlife legislation? (Addressed in Chapter 4, Tian et al., 2024.)

China is a significant case study for examining wildlife legislation due to its exceptional biodiversity, substantial wildlife market, and increasing engagement in global conservation governance. Home to over 10% of the world’s species, China faces the complex challenge of reconciling biodiversity protection with strong socio-economic demand for wildlife use. Tracing the evolution of its wildlife laws provides insight into shifting conservation priorities, regulatory philosophies, and governance mechanisms. This is particularly salient in light of the rapid legislative responses during the COVID-19 pandemic, which catalysed unprecedented reforms in wildlife governance. These pandemic-era changes did not arise in isolation; rather, they reflect and accelerate longer-term legal and policy trends, particularly the integration of ecological values under the banner of ‘ecological civilisation’. Investigating how COVID-19-related reforms fit within these broader ideological and legal trajectories offers critical insight into the drivers of legal transformation and the future orientation of China’s wildlife governance.

Question 3: How do recent changes to China’s criminal legislation affect the scope, thresholds, and sanctions of wildlife-related crimes? (Addressed in Chapter 5, Tian et al., 2025.)

Understanding how recent changes in China’s criminal legislation impact the governance of wildlife-related crimes is crucial for assessing the country’s evolving approach to wildlife governance and for bridging the gaps between conservation practice and legal enforcement. Over the past several decades, China has repeatedly revised both its Criminal Law and wildlife regulations in response to growing ecological concerns, international commitments, and public health crises such as COVID-19. However, these legal reforms have also raised complex questions about how criminal provisions affect wildlife offences – including how they define the thresholds of punishment, determine the severity of offences, and align with broader conservation objectives and social justice concerns. Meanwhile, conservation practitioners often call for more vigorous enforcement, and a growing political ecology literature interrogates the risks of over-criminalisation – but often without focusing on the details of how criminal legislation is

structured. This analysis reveals the complexities and trade-offs inherent in wildlife crime regulation, enabling conservationists and green criminologists to better understand the governance of wildlife crime and refine their conservation strategies accordingly.

Question 4: How do legal reforms in China seek to strike a balance between ecological protection and competing concerns, such as economic development, zoonotic risk, and social justice? (Primarily addressed in Chapters 4 and 5, Tian et al., 2024, 2025.)

This question spans the thesis and considers how different policy domains overlap and sometimes conflict, as explored through China's wildlife governance. Law is an appropriate focus for exploring these, as it often functions as a central mechanism through which competing values are negotiated and reconciled. This is true in the context of China, where rapid growth and environmental degradation intersect, and there is heavy reliance on central government legislation. Law not only defines the boundaries of permissible economic activity but also embeds ethical and ecological considerations into governance structures. However, tensions persist over whether existing legal instruments adequately integrate ecological and social priorities or continue to privilege economic objectives. Examining this dynamic is therefore essential to assess the transformative potential of law as a unifying framework for achieving sustainability and justice both within and beyond China.

Question 5: When existing legal frameworks, particularly criminal law, fall short in fully recognising harm, victimhood and remedying harm in wildlife offences, what alternative legal mechanisms merit further exploration for addressing these limitations? (Explored in Chapter 6 as a basis for future research.)

Legal responses to illegal wildlife trade and biodiversity loss have predominantly relied on criminal law instruments, which focus on punishing offenders as a means of deterrence. However, criminal law often fails to capture the full spectrum of ecological harm, especially when such harm is diffuse, indirect, or not clearly defined as a criminal offence. Meanwhile, this also means that victims of wildlife offences, whether wildlife itself, ecosystems, or affected communities, are rarely clearly identified. Moreover, while criminal sanctions aim to penalise offences, they seldom provide pathways for remedying damaged ecosystems or addressing the condition of harmed wildlife. These limitations

open up directions for future research by highlighting the potential of legal mechanisms beyond criminal law, such as civil or restorative frameworks, that can more effectively recognise harm, articulate victimhood, and provide remedies. Such exploration supports the development of a more comprehensive and justice-oriented biodiversity governance system.

1.6 Summary of three publications

These research questions are explored through three published papers that comprise the core of this thesis (Table 1).

Table 1 of Chapter 1: References of the three publications and their arrangement in the thesis.

PhD content	Paper reference	Citation stats
Chapter 3	Tian, M., Potter, G.R. and Phelps, J., 2023. What is ‘wildlife’? Legal definitions that matter to conservation. <i>Biological Conservation</i> , 287, 110339. doi: https://doi.org/10.1016/j.biocon.2023.110339 .	30 cites (as of March 2026), including article published in <i>Nature Reviews Biodiversity</i> (Chaplin-Kramer et al., 2025)
Chapter 4	Tian, M., Potter, G.R. and Phelps, J., 2024. Tracing seven decades of Chinese wildlife legislation from 1950 to the COVID-19 pandemic era. <i>Biological Conservation</i> , 299, 110817. doi: https://doi.org/10.1016/j.biocon.2024.110817 .	1 cite
Chapter 5	Tian, M., Potter, G.R. and Phelps, J., 2025. Conservation criminalisation and China’s evolving wildlife sanctions. <i>Biological Conservation</i> , 308, 111238. doi: https://doi.org/10.1016/j.biocon.2025.111238 .	1 cite, cited by a policy analysis published in <i>Science</i> (Hu et al., 2025)

These three papers examine different legal dimensions of conservation in the context of illegal wildlife trade, with a particular focus on China and on how wildlife resources are being governed post-COVID-19 pandemic. They form a coherent story about the evolution of China’s wildlife governance as explored through legislation, and examine

how legal language and legal frameworks have interacted to shape the protection and management of wildlife in the context of IWT, and within China’s broader environmental agenda, policy priorities and evolving institutions.

Chapter 6 (integration chapter) further explores the shared doctrinal approach across these publications. In summary, the research reveals the central contribution of the thesis: that close attention to legal detail is essential for understanding how conservation objectives are articulated, constrained, and prioritised within formal legal governance. At the same time, this chapter clarifies the methodological boundaries of this approach: as the analysis remains focused on black-letter law, it does not assess how these legal frameworks operate in practice or their ecological effects.

1.6.1 Chapter 3: What is “wildlife”? Legal definitions that matter to conservation

This publication explores how the term ‘wildlife’ is defined and used as a key to understanding wildlife governance within and across jurisdictions. The term ‘wildlife’ is widely used across legal, scientific, and policy frameworks, yet its definition varies significantly between jurisdictions and disciplines. These definitional differences have profound implications for conservation outcomes. This paper examines the legal definitions of ‘wildlife’ across jurisdictions and their impact on conservation law and governance. Focusing particularly on China and the United Kingdom (UK), the paper highlights the significant inconsistencies in how countries define wildlife, ranging from narrow interpretations limited to species under legal protection to broader definitions that encompass animals, plants, and birds out of human control, and demonstrates how these variations materially affect the scope and types of legal protection afforded to these entities.

Based on this, the study compares how different legal traditions and governance philosophies shape species classification, conservation priorities, and human–wildlife relations. China’s framework tends to adopt a management-oriented and utilitarian approach, emphasising state ownership and resource use, whereas the UK model reflects a more comprehensive and welfare-based orientation. The analysis also explores how these definitional differences influence governance responses to biodiversity loss and public concerns. The paper concludes that understanding these legal divergences is

crucial for conservation practitioners, policymakers, and enforcement bodies, as they directly affect cross-border cooperation, implementation of international obligations, and the overall effectiveness of biodiversity protection efforts. It further argues that developing a language-clear, more ecologically informed, harmonised, and internationally coherent definition of ‘wildlife’ would strengthen conservation governance, facilitate collaboration across jurisdictions, and promote a more inclusive and sustainable approach to protecting the natural world.

One reviewer commended this article for addressing a challenging and conceptually complex topic with depth and clarity. The reviewer noted that the paper ‘demonstrates a strong body of research on what is always a difficult subject’ and that it ‘brings out the underlying legal and ecological complexities very nicely.’ While observing that variations in legal usage of the term ‘wildlife’ are perhaps unsurprising, given that legislators seldom intend to encompass the full ecological meaning of the term, the reviewer emphasised that the analysis remains valuable precisely because it offers particularly useful insights for scholars and practitioners conducting comparative analyses of domestic legislation, highlighting its broader relevance to cross-jurisdictional conservation governance.

1.6.2 Chapter 4: Tracing seven decades of Chinese wildlife legislation from 1950 to the COVID-19 pandemic era

This article provides a comprehensive analysis of the evolution of China’s wildlife legislation from 1950 to the post-COVID-19 era, highlighting the country’s gradual shift from utilitarian exploitation toward conservation-oriented governance. Employing Kingdon’s policy window framework, the paper examines how political attention, problem recognition, and policy alternatives converged at critical historical moments to open opportunities for legislative change. Through this lens, it identifies three key phases in the trajectory of legal governance on wildlife in China:

- (1) Resource-oriented regulation (1949–2007), when wildlife was treated primarily as a state-owned natural resource and an essential part of economic development;
- (2) Conservation and ecological civilisation phase (2007–2019), characterised by a growing emphasis on species protection and ecological values; and

(3) Public health-driven reform period (2019-present), catalysed by the COVID-19 pandemic and a renewed policy focus on biosafety and ecological security.

While these reforms marked essential turning points in China's approach to wildlife governance, the article finds that legal and policy progress has often been motivated by human interests, such as economic growth or public health, rather than a direct concern for biodiversity itself. Nonetheless, it argues that appealing to these interests can strategically open policy windows for advancing conservation agendas. The paper also demonstrates how China's centralised political system and its 'ecological civilisation' framework facilitate rapid legislative responses, although persistent cultural and economic support for wildlife use remains a significant challenge.

By combining historical narrative, doctrinal legal analysis, and policy window theory, the study elucidates the complex drivers behind China's wildlife legislation and the dynamic interactions between law, governance, and socio-political context. Within the broader doctoral research, this article contributes to understanding the temporal and institutional dynamics of biodiversity governance, providing critical insights into how policy windows can be leveraged to align legal change with conservation objectives and to strengthen the connection between environmental science and effective lawmaking.

One reviewer commented that this article provides a comprehensive and well-structured account of China's wildlife policies, supported by a clear analytical framework. The reviewer noted that the manuscript 'offers a thorough overview of China's wildlife policy development, accompanied by a well-explained periodisation based on the policy windows framework.' While observing that the period divisions themselves might appear somewhat predictable, the reviewer emphasised that the interpretive analysis underpinning the periodisation adds genuine insight and scholarly value. The reviewer further commended the paper's thoughtful reflections on the unique political dynamics of China's governance model, particularly the influence of human interests and the centralised one-party state. Overall, the reviewer regarded the article as a significant contribution to understanding how political structures and policy opportunities shape conservation governance in China.

1.6.3 Chapter 5: Conservation criminalisation and China's evolving wildlife sanctions

This article examines the evolving role of criminal law in China's environmental governance, with a particular focus on its influence on biodiversity loss and wildlife crime. Centring on legislative reforms enacted between 2020 and 2022, it analyses how China's criminal justice system has recalibrated the structure of liability and punishment in response to escalating ecological degradation, public health risks, and growing expectations for fairness and accountability in law enforcement.

Using the metaphor of the 'fishing net' (Cohen, 1985; Eglė, 2004) the paper described China's reform of wildlife sanctions as bifurcated transformations: a process that simultaneously widens/narrows the 'net of criminalisation' and tightens/ thickens the 'legal mesh' through which wildlife-related offences are captured. This transformation manifests not only in the expansion and contraction of offence categories, but also in the redefinition of conviction thresholds and sentencing benchmarks. On the one hand, the net has been reinforced to capture more serious ecological offences through broader definitions and harsher penalties; on the other hand, new exemption clauses, monetary valuation-based thresholds, and discretion mechanisms have been introduced to avoid overcriminalisation and to align punishment with the economic loss resulting from actual harm. These dual movements create a more adaptive yet intricate legal architecture: one that seeks to balance deterrence, proportionality, and social justice.

A central innovation in this evolving framework is the adoption of monetary valuation as a legal criterion for determining both criminal liability and the severity of sentencing. By quantifying ecological loss, the law aims to establish a clearer evidentiary basis for prosecution and to enhance the consistency of judicial decision-making. However, this development also exposes a deeper normative tension: while monetary valuation strengthens coherence and clarity, it risks reducing biodiversity to a calculable commodity, potentially sidelining its intrinsic ecological value. By tracing these shifts, the study illuminates the complex trade-offs underlying conservation criminalisation and the evolving role of law in mediating between ecological protection, deterrence, and distributive fairness.

The editor and reviewers described this paper as a timely analysis of China's wildlife criminal legislation reforms between 2020 and 2022. They highlighted its relevance to researchers in green criminology and its insightful discussion of wildlife crimes, conservation, and social justice. One reviewer particularly noted that the figure illustrating 'the fishing net analogy' clearly conveyed complex criminological concepts in a way that helps conservation scholars and practitioners better understand the dynamics of criminalisation within wildlife law.

1.6.4 Notes on journal selection and author contributions

All three papers are published in the journal *Biological Conservation*, selected because it is a leading peer-reviewed journal in the field of conservation science that is recognised for its methodological rigour and interdisciplinary scope. With an Impact Factor of 4.9 and a CiteScore of 8.9, *Biological Conservation* maintains a strong academic standing. Its publications are frequently cited and often inform both scholarly debate and policy development. As such, the journal provides a high-impact platform for research addressing urgent conservation challenges, and publication in this outlet reflects the broader relevance of the work and substantive contribution to the discipline.

We chose to publish in this journal because it is among the highest ranking in the sector that is widely read among practitioners; allows longer word counts that would accommodate this type of scholarship, and is interdisciplinary and so would accept contributions focused on law and criminology. Notably, the thesis focuses on exploring legal dimensions of conservation for a conservation audience, rather than a legal or criminological audience, and so the journal provided an appropriate platform. Nevertheless, law is still not a common feature of conservation journals, including *Biological Conservation*. These three publications thus speak to a growing recognition that legal analysis can enrich conservation science and practice. By bringing questions of legislation, enforcement, and justice into a journal traditionally focused on ecological research, conservation practice and the social dimensions of conservation, these papers fill an important disciplinary gap. They help bridge between legal and conservation scholars as they work to understand how laws are written, interpreted, and implemented is essential for achieving effective biodiversity protection. More broadly, this interdisciplinary dialogue underscores the importance of integrating legal scholarship with the natural sciences to strengthen theory, policy development and practice.

The three publications include the same three authors: the author of this thesis, Miaomiao Tian (MT), is the first and corresponding author of all three papers. Her PhD supervisors, Prof. Gary R. Potter (GP) and Dr Jacob Phelps (JP), made significant contributions as co-authors. MT led the conceptualisation, data collection, formal analysis, drafting, and visualisation of the papers. GP and JP contributed to the development of ideas, methodological refinement, and critical reviews, and provided supervision and guidance across all stages of the research. The full CRediT authorship contribution statement is available in each respective publication.

Chapter 2

Literature review

2. Literature review

This chapter reviews the key bodies of literature that inform the context and rationale for this thesis. It begins by establishing biodiversity loss as an urgent global concern (Section 2.1), outlining its primary drivers and broader ecological and societal consequences. Within this context, the illegal wildlife trade (IWT) is examined as a major and complex contributor to biodiversity decline (Section 2.2), including its direct ecological impacts, public health risks, and the multifaceted factors that sustain it. The chapter then explores governance responses to IWT (Section 2.3), highlighting enforcement challenges, legal gaps, and emerging critiques of over-criminalisation, including its unintended consequences for conservation and justice. The final section turns to China (Section 2.4), situating it as both a biodiversity-rich country and a critical actor in global wildlife governance. It examines China's historical, cultural, economic, and legal relationships with wildlife, including recent legislative reforms and the rise of ecological civilisation as a guiding national strategy for conservation.

2.1 Biodiversity loss is an urgent problem

This thesis focuses on wildlife governance and legislation, which is underpinned by a concern for loss of global biodiversity – the variability among living organisms at all levels of biological organisation, including diversity within species (genetic), between species, and of ecosystems (CBD, 1992). It underpins the functioning of ecosystems and the services they provide, such as pollination, nutrient cycling, water purification, and climate regulation (Díaz et al., 2006). While early definitions emphasised biological richness, more recent perspectives highlight biodiversity's role in sustaining resilience, adaptation (Tilman et al., 2014), and the co-evolution of social and ecological systems (Berkes et al., 2000; Folke, 2006; Rockström et al., 2009). Moreover, biodiversity also holds profound cultural, ethical, and economic significance for human societies (Mace et al., 2012). As such, biodiversity is increasingly framed not only as a measurable ecological variable but as a foundation for sustainable development, human well-being, and planetary health (Díaz et al., 2006; IPBES, 2019).

However, biodiversity loss is classified as the one of the largest global risks (World Economic Forum, 2019), with almost 83% in the abundance of wild mammals and 50%

of plant populations having been lost (Carrington, 2018). Of the wildlife populations monitored globally, nearly three-quarters have declined between 1970 and 2020 (WWF, 2024). These declines span across ecosystems, with profound losses among marine, terrestrial and freshwater species (Fig. 1).

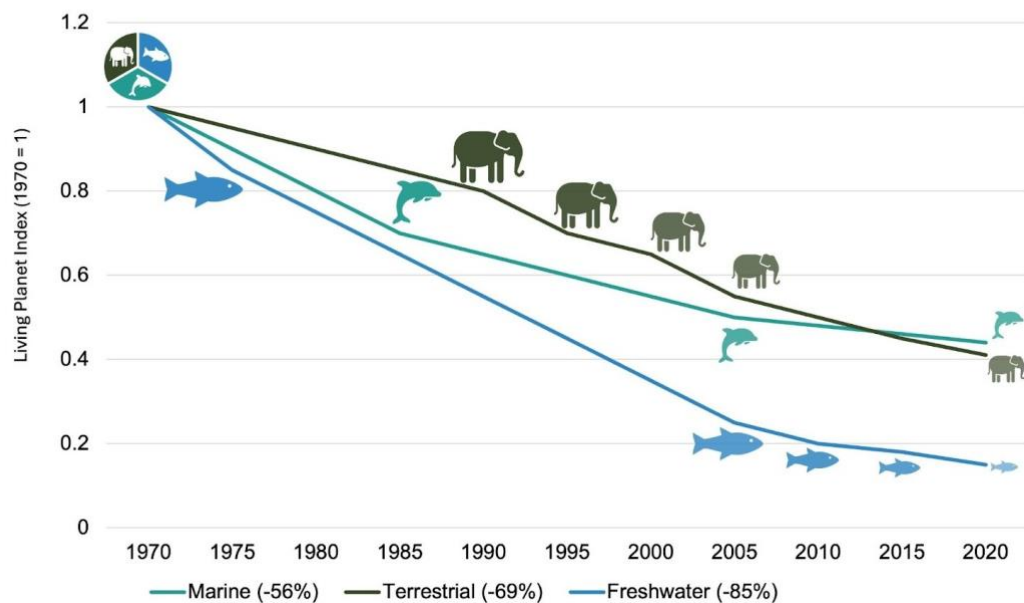


Figure 1 of Chapter 2: Global trends in wildlife populations across marine, terrestrial, and freshwater ecosystems (1970–2020)

The figure illustrates changes in the Living Planet Index (LPI) (1970 = 1) across three major ecosystems. The decreasing sizes of the animal icons symbolically represent the trend of population decline along each trend line. Data source: WWF (2024).

2.1.1 Drivers of biodiversity loss

Contemporary biodiversity loss is primarily driven by a set of interlinked human activities: land and sea-use change, direct exploitation of organisms, pollution, invasive alien species (IAS), and climate change (IPBES 2019). These drivers are underpinned by broader, indirect forces, such as demographic trends, economic systems, and governance failures (MEA, 2005; Díaz et al., 2019b; Simpkins, 2019; Isbell et al., 2022).

Land-use change is widely recognised as the leading driver of terrestrial biodiversity decline (MEA, 2005; IPBES, 2019). The conversion of forests, wetlands, and grasslands into agricultural, industrial, or urban land degrades habitats and fragments ecosystems,

reducing species richness and ecological resilience (Newbold et al., 2015). Among these changes, agricultural expansion is not merely a change in land use but the primary driver of a global 'extinction crisis', where the vast territorial requirements of modern food production, particularly livestock and animal feed, displace the foundational ecosystems required for planetary resilience (Monbiot, 2022). This is particularly acute in tropical regions, where deforestation for commercial agriculture, especially cattle ranching, palm oil, and soy production, has caused large-scale ecosystem disruption (Venter et al., 2016; Curtis et al., 2018). The impact of land-use change on biodiversity extends beyond the mere reduction of habitat area; it encompasses the systemic disruption of ecological connectivity, where the blockage of migration routes and wildlife corridors isolates populations within fragmented landscapes (Haddad et al., 2015; Tucker et al., 2018). Furthermore, the transition toward monoculturalism, characterised by the intensive homogenization of crop farming, aquaculture, and forestry, represents a shift from structurally complex wilderness to simplified biological systems. This loss of landscape heterogeneity significantly accelerates species decline, as these 'biological deserts' lack the niche diversity required to sustain local biodiversity compared to more traditional, low-intensity mosaic systems (Newbold et al., 2015; Díaz et al., 2019a).

Pollution, particularly from agriculture and industry, further degrades habitats and threatens biodiversity and ecosystems at multiple scales through diverse mechanisms. Nutrient loading from agriculture and sewage causes eutrophication, leading to algal blooms and oxygen depletion in aquatic systems, while promoting competitive exclusion of native flora on land (Sutton et al., 2011). Plastic waste contributes to species mortality through entanglement and ingestion, and the proliferation of microplastics poses long-term ecological risks as they enter food webs (Jambeck et al., 2015). Chemical pollutants, including pesticides and heavy metals, reduce the diversity of insect species, particularly among pollinators, amphibians, and soil biota (Goulson, 2013; Landis, 2017). Even non-chemical pollutants, such as artificial light and anthropogenic noise, have been shown to disrupt circadian rhythms, communication, and reproductive behaviours in many taxa (Gaston et al., 2013). Together, these forms of pollution degrade biodiversity across terrestrial, freshwater, and marine environments.

IAS, including plants, animals, and pathogens introduced outside their natural range, are one of the biggest reasons native species disappear globally, causing widespread

ecological disruption (IPBES, 2019). Critically, IAS are nearly always introduced due to human activities, either intentionally (e.g., as pets, agricultural crops, or biocontrol agents) or accidentally (e.g., stowed away in ship ballast water, packaging materials, or through international trade) (Vitousek et al., 1997; Lehan et al., 2013). Once established, IAS disrupt ecological communities by outcompeting native species (D'Antonio and Vitousek, 1992), preying upon them (Lowe et al., 2000), or transmitting diseases to native species (Daszak et al., 2000; Chavan et al., 2023). These species can have particularly severe effects on island ecosystems and freshwater habitats, making it impossible for native species to recover or leading to the collapse of native animal populations, which can sometimes result in extinction (Simberloff et al., 2013). For instance, a global meta-analysis found that invasive mammalian predators alone contributed to 87 bird, 45 mammal, and 10 reptile extinctions, accounting for approximately 58% of all contemporary extinctions in those groups (Doherty et al., 2016).

Climate change, primarily driven by human activities such as fossil fuel combustion, deforestation, and industrial agriculture, while not historically the dominant factor, is now accelerating biodiversity loss and intensifying the effects of other drivers (IPCC, 2023). It alters ecosystems through rising temperatures, shifting precipitation patterns, changes in geographic ranges, and shifts in phenology, as well as an increased frequency of extreme weather events, which in turn affect species' survival, reproduction, and distribution (Parmesan, 2006; Bellard et al., 2012; Pecl et al., 2017). These complex and cascading effects underscore that mitigating climate change is not only crucial for planetary stability but also central to halting biodiversity decline (IPBES, 2019).

However, direct exploitation of wild resources, including overfishing, hunting, and the trade of wildlife and plants that are traditionally associated with wildlife governance that is at the centre of this thesis, also places significant pressure on both terrestrial and marine species (Di Minin et al., 2016; McClenachan et al., 2016). Indeed, more than 2,700 species of mammals, birds, reptiles and amphibians are known to be directly threatened by unsustainable hunting, fishing or collection for the pet trade (Maxwell et al., 2016). Such overexploitation of organisms for food, medicine, pets, or ornamental use contributes not only to population collapses but can destabilise entire ecosystems (TRAFFIC, 2007; Maxwell et al., 2016; IPBES, 2019; Chavan et al., 2023).

The global demand for wildlife products, such as bushmeat and high-value wildlife items (e.g., ivory, horn), also fuels illegal trades that exacerbate extinction risks for many species (TRAFFIC, 2007; Morton et al., 2021; Hughes et al., 2022; Chavan et al., 2023). Such extreme pressure is evident in terrestrial mammals. A global assessment of primates shows that over 60% of all primate species are now threatened with extinction, with hunting and illegal trade identified as a primary or contributing factor for the vast majority of these species (Estrada et al., 2017). Likewise, the collection of wild plants for food, medicine, and horticulture has put numerous species at risk (Sas-Rolfes et al., 2019). For instance, it is estimated that approximately 15,000 medicinal plant species are threatened by overharvesting globally (Schippmann et al., 2006). Many popular medicinal or ornamental plants (such as specific orchids, succulents, and herbal species) have been driven to rarity by unregulated collection from the wild (Phelps and Webb, 2015; Hinsley et al., 2018).

While these drivers are often examined independently, they frequently interact in compounding and nonlinear ways. For instance, climate change amplifies the impact of IAS by increasing ecosystem vulnerability, while deforestation and loss of peat bogs, tundra not only contributes to climate change but also accelerates habitat loss and facilitates the exploitation of wildlife (Bellard et al., 2012; UNEP, 2019; Robinson et al., 2020; Cleary et al., 2024). The cumulative effect of these pressures is an escalating biodiversity crisis: the current rate of species extinction is already tens to hundreds of times higher than the average over the past 10 million years, and it continues to accelerate (IPBES, 2019). This unprecedented severity underscores the need for urgent global attention to biodiversity loss, as the degradation of nature fundamentally compromises the ecological functions essential to planetary stability and human well-being.

2.1.2 Broader consequences of biodiversity loss

Beyond the intrinsic value of individual species, biodiversity loss directly compromises the essential ecological functions that underpin planetary stability and provide critical ecosystem services for humanity, including, but not limited to, maintaining ecological function, underpinning processes such as nutrient cycling, pollination, water regulation, and ecosystem resilience (Chaplin-Kramer et al., 2025).

A growing body of research shows that declines in species richness and functional diversity can impair ecosystem productivity and stability (Isbell et al., 2011; Cardinale et al., 2012). For instance, diverse plant communities are more efficient in resource use and carbon sequestration, while a rich array of pollinators supports both the reproduction of wild and agricultural plants (Garibaldi et al., 2013). Loss of biodiversity also reduces ecosystems' ability to recover from disturbances, making them more vulnerable to climate extremes, invasive species, and pollution (Díaz et al., 2006; Mori et al., 2013). In addition, the loss of animal species also disrupts ecological relationships, where the removal of top predators or large herbivores dramatically alters lower levels of the food web (Ripple and Beschta, 2012). Furthermore, the loss of some key animal species can directly compromise vital ecosystem functions. For example, the disappearance of large mammals, which are essential for seed dispersal, can lead to the localised extinction of dependent plant species, creating 'empty forest syndrome' (Dirzo et al., 2014; Chavan et al., 2023). The profound impact of these species is further evidenced by successful restoration efforts where their return has catalysed large-scale recovery. A prime example is Yellowstone National Park in the US, where the reintroduction of wolves triggered a powerful trophic cascade, reducing overgrazing and driving a 1,500% increase in the crown volume of riparian vegetation, which restored vital habitat structure and enhanced ecosystem resilience (Ripple et al., 2025). There is a similar success story with the reintroduction of Przewalski's horses in China (Xia et al., 2014). By regulating fuel loads and preventing the overdominance of specific flora through grazing, these horses mitigate wildfire risks and foster floristic biodiversity; and their dung facilitates essential nutrient cycling and seed dispersal, collectively reinforcing the ecological integrity of the arid steppe (Nalls, 2025).

Biodiversity loss directly compromises the vital ecosystem services, the life-sustaining benefits that human societies derive from nature (UNEP, 2020). These failures translate ecological degradation into concrete risks for human well-being and economic stability (Cardinale et al., 2012). For instance, the decline of diverse pollinator populations, like bees and butterflies, directly threatens the productivity of over three-quarters of the world's food crops, including many fruits and vegetables (IPBES, 2016). Simultaneously, the loss of genetic diversity in wild crop relatives eliminates potential traits, such as resistance to new diseases or adaptation to drought, that are crucial for breeding resilient food sources in the face of climate change, thereby jeopardising long-term global food

security (Cortés and López-Hernández, 2021; Kapazoglou et al., 2023). Furthermore, diverse ecosystems provide essential regulatory services, serve as irreplaceable sources of novel medicines (Cardinale et al., 2012), and help mitigate risks of zoonotic diseases. Their degradation can increase the likelihood of disease emergence, particularly as biodiversity loss may weaken the dilution effect that reduces pathogen transmission (Wood and Lafferty, 2013). Ultimately, when nature loses its resilience and stability, human societies bear the costs through impaired climate regulation, reduced clean water supplies, and increased susceptibility to pests and diseases (Díaz et al., 2006). These environmental harms contribute to a range of social harms, including health problems (Bell, 2014; Das and Horton, 2018), social inequalities (Pellow, 2000; Agyeman et al., 2003; Bell, 2014), and increased crime (Agnew, 2012; Potter, 2013), demonstrating the importance - and challenges - of understanding the complex interplay between ecological and social systems (Stevens, 2013; Potter, 2017).

While habitat loss is the most significant threat among the five key pressures leading to the rapid decline in global biodiversity, direct exploitation of organisms ranks second and is particularly critical in marine and terrestrial ecosystems (IPBES, 2019). It is within this exploitation framework that IWT emerges as a distinct and highly acute threat.

2.2 IWT as a primary, complex driver of biodiversity loss

This thesis is particularly focused on biodiversity governance in response to the driver of over-exploitation, notably in the context of Illegal wildlife trade (IWT). IWT is the illicit harvesting and commerce of wild animals and plants, their parts or derivatives, in violation of conservation or trade laws (Wyler and Sheikh, 2008; UNODC, 2020), accompanied by detrimental impacts on conservation and local governance (Kashyap et al., 2024).

IWT, practiced by ancient civilisations (t Sas-Rolfes et al., 2019), has often now come to function on unprecedented, commercial and global scales, impacting thousands of species across every major taxonomic group. It is a global, multi-billion-dollar industry; estimates of the trade's financial value range from US\$7–23 billion annually, making it one of the largest transnational criminal activities alongside drug, arms, and human trafficking (Nellemann et al., 2016; Laws, 2017; UNEP, 2020). Operating as a pervasive,

organised criminal activity, the IWT bypasses national and international regulations, directly targeting vulnerable and endangered species for commercial gain (Wyler and Sheikh, 2008; Hübschle, 2016a; t Sas-Rolfes et al., 2019; UNODC, 2020). Given its growing economic scale, link to serious crime, and its capacity to accelerate species extinction (Morton et al., 2021), this phenomenon warrants specific and dedicated investigation.

The black-market demand for wildlife products, from elephant ivory and rhino horn to pangolin scales and rosewood timber, is driving many charismatic species toward extinction (Wolfgang Lehmacher, 2016). However, the impact extends far beyond well-known animals (Cardoso et al., 2021). A 2018 evaluation suggested that more than 7,000 species are involved in IWT, across over 120 countries (United Nations, 2018). While this vast trade shares some general patterns, it actually operates species-specific mechanisms that vary by motive, route, and demands, presenting a highly complex challenge for tackling (Pires and Moreto, 2016). The International Criminal Police Organisation (INTERPOL) warns that wildlife trafficking has become a major domain of organised crime, increasingly linked with corruption and violence (INTERPOL, 2023). A recent global analysis found that approximately 18% of all vertebrate species (over 5,500 species of mammals, birds, reptiles, and amphibians) have been documented in the wildlife trade, legal or illegal (Scheffers et al., 2019; Cardoso et al., 2021). Future trade could threaten thousands more species that are not yet traded, as new locations and markets open and substitutions occur (Scheffers et al., 2019). Indeed, scientists now rank overexploitation, including trade, among the leading causes of wildlife declines globally (Maxwell et al., 2016; Cardoso et al., 2021).

This review section introduces: (1) the diverse impacts of IWT; (2) the specific impacts of IWT on public health, and (3) the drivers of the trade.

2.2.1 Impacts of IWT

Even legally traded wildlife can pose serious ecological risks when animals escape or are released into non-native habitats. For example, Burmese pythons introduced via the exotic pet trade have devastated native wildlife in Florida's Everglades (Dorcas et al., 2012), while escaped American minks from UK fur farms have severely reduced native water vole populations (Macdonald et al., 2002). While these cases illustrate how even

legal wildlife trade can lead to unintended ecological harm, the impacts of IWT are often more severe and broad, posing significant threats not only to biodiversity but also to public health, governance systems, and social stability.

The biodiversity impacts of IWT are widely recognised as severe and multidimensional. Studies demonstrate that unsustainable hunting and capture for trade have caused major population declines across numerous taxa, pushing species such as tigers, elephants, rhinos, and marine turtles close to extinction (UNODC, 2020; Hughes et al., 2022). Beyond these direct effects, the loss of key species can generate a chain reaction in ecosystems, as the removal of top predators or key species disrupts food webs and alters habitat (Cardoso et al., 2021; Chavan et al., 2023). Indirectly, IWT also contributes to the spread of invasive species and diseases. The trade in live animals for the pet industry, aquaculture, or bushmeat has facilitated the spread of invasive species and the transmission of pathogens, including zoonotic diseases that pose significant threats to both wildlife and human health (Chavan et al., 2023). The COVID-19 pandemic brought renewed attention to these risks, illustrating how wildlife trade, whether legal or illegal, can increase the chance of disease outbreaks, even as IWT persisted or expanded in certain regions during global lockdowns (McNamara et al., 2020; Morcatty et al., 2021). Moreover, illegal extraction of wildlife and natural resources undermines ecosystem services essential for human well-being, including pollination, soil fertility, nutrient cycling, and climate regulation (Díaz et al., 2006). Collectively, current research regards IWT not only as a conservation crisis for targeted species but also as a driver of broader ecological imbalance, endangering global biodiversity and the ecosystems that support human society (Daszak et al., 2000; Wyler and Sheikh, 2008; Cardinale et al., 2012; Dirzo et al., 2014; UNODC, 2020; Chavan et al., 2023).

IWT is increasingly recognised in the literature not only as a biodiversity crisis but also as a complex social justice and human rights issue (Osorio and Bernaz, 2024). It poses multidimensional threats, social, political, and economic, particularly for local and indigenous communities who rely on wildlife for subsistence, income, and cultural identity (Wilson-Holt and Roe, 2021). Scholars emphasise that biodiversity provides a wide array of instrumental values, including food, medicine, spiritual meaning, and ecosystem services, all of which are undermined by IWT (Sandler, 2012; Díaz et al., 2015; Morrow, 2024). The burden of these losses often falls on communities living in or

near biodiverse regions, who experience the depletion of resources - and increased criminalisation from governance responses to IWT. Research further shows that within the IWT supply chain, rural actors, often driven by poverty, engage in illegal hunting for survival or minimal profit and face the harshest legal penalties (Roe et al., 2015; Duffy, 2016; Hübschle, 2016b; Cooney et al., 2017; Paudel et al., 2019). In contrast, downstream actors, such as traders and exporters, typically reap greater economic rewards and often evade prosecution through legal loopholes, highlighting systemic inequalities in enforcement (Wyatt, 2013; Phelps et al., 2016; van Uhm, 2016; van Uhm and Moreto, 2018). Although some enforcement measures, such as employing local rangers, have brought limited socio-economic benefits, they are often embedded in militarised conservation regimes that raise concerns over rights violations (Lunstrum, 2014; Büscher and Ramutsindela, 2015; Cooney et al., 2017; Arroyo-Quiroz et al., 2025). In addition, IWT and related offences, such as unauthorised species transport and biosecurity violations, intersect with broader global risks like organised crime and public health threats (Duffy, 2016; Osorio and Bernaz, 2024; Arroyo-Quiroz et al., 2025). These activities can facilitate the spread of zoonotic diseases like COVID-19, disproportionately impacting vulnerable populations and widening global socio-economic inequalities (Dobson et al., 2020; Roe et al., 2020). The trade also threatens cultural and spiritual relationships with wildlife, which are integral to many Indigenous knowledge systems (Díaz et al., 2015). As a result, there is a growing academic consensus that effective responses to IWT must move beyond enforcement to integrate principles of equity, community empowerment, and rights recognition (Osorio and Bernaz, 2024).

2.2.2 Public health impacts of IWT

Of particular relevance to this study are the public health impacts of IWT, awareness about which boomed following the COVID-19 pandemic; as explored in this work, it has also generated profound impacts for wildlife governance.

The primary public health concern related to wildlife trade, including IWT, is the enhanced risk of zoonotic disease spillover. The emergence of SARS-CoV-2, which caused the devastating global COVID-19 pandemic (WHO, 2020a), forcefully highlighted the link between wildlife commerce and global public health. Although the exact origin of the virus remains debated, with potential sources including bats (Zhou et al., 2020) and pangolins (Zhang et al., 2020), it is highly likely that COVID-19 arose

from a wildlife source, possibly through consumption, and was amplified in interfaces like the Huanan Seafood Wholesale Market in Wuhan, China (Hu et al., 2020; Bezerra-Santos et al., 2021). The pandemic quickly covered the globe, becoming one of the deadliest in human history (The Economist, 2022) and causing unprecedented socio-economic damage. The financial recession caused by a 5% decline in the 2020 world economy (IMF, cited in Laborde et al., 2020) far exceeded the impact of the 2008-2009 global financial crisis, underscoring the enormous and multifaceted loss generated by such zoonotic events (Laborde et al., 2020). This follows a familiar pattern, as the SARS (2002) outbreak and other epidemics similarly began with human exposure to infected wildlife.

Scientific consensus now identifies trade in wild animals as a key driver of zoonotic disease emergence, with approximately 75% of emerging zoonoses tied to wildlife or livestock sources (Huang et al., 2024; Aguiar et al., 2025). Due to the fast development of globalisation and the virus's transmission via respiratory droplets (e.g., spread when speaking and coughing) (ECDC, 2020), the COVID-19 pandemic has covered almost the entire globe. The dynamics of wildlife commerce increases spillover opportunities because animals are transported through long supply chains and crowded markets, drastically increasing the human–wildlife–environment interface (Aguiar et al., 2025). Across markets and farms, diverse species are held in close, unsanitary, and stressful conditions, which increases pathogen shedding and creates 'perfect laboratories for creating new viruses' (Aguirre et al., 2020; Roe et al., 2020). Live-animal markets (often conflated with wet markets) epitomise these high-risk interfaces, acting as pivotal locations for initial spillover, as evidenced by early COVID-19 patients near the Huanan market (Aguiar et al., 2025). The constant movement and co-mingling of wild species from varied geographies with domestic animals allow novel viruses to cross species barriers before jumping to humans (Crits-Christoph et al., 2024).

The pandemic starkly exposed the fragmentation and weakness of existing governance over wildlife trade, highlighting critical regulatory shortfalls that enabled zoonotic spillover (Huang et al., 2024; Aguiar et al., 2025). For instance, regulations are often inconsistent across and within countries, leading to fragmentation, poor coordination, and oversight gaps between regulatory bodies (Aguiar et al., 2025). At the global level, there is no dedicated treaty or institution that effectively bridges public health and

biodiversity. Existing frameworks, such as the World Health Organisation's (WHO) International Health Regulations, often omit explicit safeguards for high-risk wild-animal interfaces (Gallo-Cajiao et al., 2023).

COVID-19 has therefore catalysed a policy shift and an urgent call for 'upstream' prevention measures targeting pathogen spillover at its source (Aguiar et al., 2025). This movement advocates for a One Health framework that aligns public health, animal welfare, and conservation goals (Huang et al., 2024; Ibáñez and South, 2025). While the crisis prompted some governments (e.g., China) to temporarily restrict wildlife sales (Huang et al., 2021; Tian et al., 2024), scholars emphasise that mitigation strategies must be targeted and nuanced. Blanket prohibitions risk driving commerce underground, undermining livelihoods, and causing unintended social consequences (Aguirre et al., 2020; Roe et al., 2020). Furthermore, many species in trade host large reservoirs of viruses, highlighting the need for science-based risk assessments to guide which trades pose the greatest danger (Crits-Christoph et al., 2024; Huang et al., 2024). In sum, while COVID-19 has sharpened calls to reform wildlife trade, the literature stresses that mitigation must balance public health with social, cultural, and conservation realities, requiring coordinated, evidence-driven policies focused on improving biosecurity, surveillance, and community engagement at key trade hubs (Aguiar et al., 2025).

2.2.3 Drivers of IWT

Understanding the drivers of IWT is central to understanding, evaluating and designing governance responses. The drivers are highly diverse, often synergistic, and present challenges for the wildlife governance themes explored in this thesis. These drivers represent a complex interplay of economic incentives, cultural values, and institutional factors, spanning both the supply and demand sides of the trade.

On the demand side, consumer appetite for wildlife and wildlife-derived products has significantly increased in recent decades (Zhang et al., 2008). This demand is often rooted in cultural practices, perceptions of health benefits, and aspirations toward luxury or status (Wong, 2019; Thomas-Walters et al., 2020; Hughes, 2021). For example, traditional medicinal systems, particularly Traditional Chinese Medicine (TCM), rely on ingredients such as rhino horn, tiger bone, and pangolin scales, fuelling illicit markets for these species (Cheung et al., 2021). Meanwhile, affluent consumers drive demand for

exotic pets, ivory carvings, rhinoceros horn, and rare furs as expressions of wealth and social prestige (Hübschle, 2016b; Dang Vu and Nielsen, 2018; Hinsley et al., 2018; Lee et al., 2020).

Cultural practices also influence demand for bushmeat, ritual objects, and ceremonial items, particularly in parts of Africa, Asia, and Latin America (van Vliet and Mbazza, 2011; Ingram et al., 2022; Torrents-Ticó et al., 2022; Sparaciari et al., 2025). Because these consumption patterns are often deeply embedded in identity and social norms, they can be resistant to change (Manfredo et al., 2017; Wong, 2019; Thomas-Walters et al., 2020). Conservation interventions that neglect these cultural dimensions risk being ineffective or alienating local communities (Fukushima et al., 2021). Consequently, recent research calls for demand reduction strategies that are culturally informed and grounded in social marketing approaches that address the underlying motivations for wildlife use (Dang Vu and Nielsen, 2018; Veríssimo and Wan, 2019).

On the supply side, socio-economic inequalities and structural marginalisation play a central role. In many biodiversity-rich regions, rural communities live adjacent to wildlife but lack access to legal markets or equitable benefits from conservation initiatives (Roe, 2015; Dzvimbo et al., 2018). Poverty, limited livelihood options, and exclusion from decision-making can drive individuals to participate in illegal harvesting as a means of survival (Duffy et al., 2016). Yet, profits from high-value species rarely accrue to local actors, as they are disproportionately captured by intermediaries and transnational traffickers (Duffy, 2016; van Uhm, 2016). This disparity undermines local incentives to conserve wildlife. Conversely, when communities are granted rights to manage wildlife and share in the benefits, through mechanisms such as community conservancies, ecotourism, or regulated trophy hunting, they are more likely to engage in stewardship (Cooney et al., 2017, 2018; Roe and Booker, 2019). Evidence suggests that community-based approaches that incorporate indigenous knowledge, legal empowerment, and benefit-sharing can reduce poaching and improve enforcement outcomes (Massé et al., 2017; Cooney et al., 2018). While promising, these approaches require sustained investment and institutional support; few initiatives have achieved long-term success at scale (IIED and IUCN-SULi, 2019). Moreover, measuring success should move beyond short-term enforcement outcomes to assess whether community

empowerment translates into sustained behavioural change and local legitimacy (Wilson-Holt and Roe, 2021).

A further factor is the profitability of IWT, which has attracted organised criminal groups (UNODC, 2020). High price differentials, where poachers may receive only a fraction of the final market value, create powerful incentives (e.g., rhino horn, Hübschle, 2016b). With relatively low risks of detection and punishment, IWT is often treated as a low-risk, high-reward enterprise by transnational networks (Wyler and Sheikh, 2008). Governance weaknesses, including limited enforcement capacity and corruption, further facilitate illegal trade (Wellsmith, 2011; Wyatt, 2013; Laws, 2017; van Uhm, 2018). In some cases, armed groups have financed conflict through poaching, compounding instability in affected regions (Messer, 2010; White, 2014). Meanwhile, the digital era has introduced new challenges: online marketplaces and social media platforms have enabled anonymous and borderless wildlife transactions (Lavorgna, 2014; Sung and Fong, 2018; IFAW, 2021). The migration of IWT from physical to virtual spaces complicates regulation and requires adaptive governance mechanisms (Lavorgna, 2014; Siriwat and Nijman, 2020).

2.3 Governance Responses to IWT

This thesis is concerned with governance responses to wildlife resources, especially in the context of IWT, which is transnational, complex, and hence challenges conventional models of environmental governance.

Environmental governance encompasses the diverse mechanisms, institutions, and actors through which societies manage environmental issues. Contemporary governance now spans state regulation, market-based instruments, participatory models involving civil society and local communities, voluntary certification schemes, and international collaborations (Lemos and Agrawal, 2006; Büscher and Dressler, 2007; Evans, 2012). These evolving frameworks recognise that complex ecological problems, such as biodiversity loss and climate change, require flexible, multi-actor solutions that integrate legal mandates, economic incentives, and stakeholder collaboration, making the shifting nature of governance from state-dominated control to more pluralistic, multi-actor systems (Driessen et al., 2012). However, despite growing interest in these alternative

mechanisms, legal and institutional frameworks remain central to IWT regulation, providing the formal basis for defining, prohibiting, and sanctioning illegal conduct. This thesis focuses specifically on how legal frameworks, like black-letter law and its enforcement, shape wildlife governance and address IWT.

The global nature of the IWT has prompted a spectrum of formal legal and policy responses, from international treaties to national wildlife legislation to courtroom decisions, with approaches varying widely across countries (e.g., Pascual et al. 2021). Moreover, interventions to tackle IWT often spread across entire value chains, addressing not only issues of harvest, but also trade chains, online marketing, and international exports, as well as downstream stages such as transit, sale, possession, and consumption. These interventions increasingly incorporate customs enforcement, digital surveillance, and consumer-demand-reduction strategies (Phelps et al., 2016; Nijman et al., 2020). In recent years, courts and administrative department have also played a growing role, with litigation and regulatory rulings shaping national approaches to enforcement and compliance (Wyatt, 2013; Phelps et al., 2021).

Foremost among these is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which since 1973 has served as the principal international agreement regulating wildlife trade. As of 2021, CITES has over 180 Parties (nation-states) as signatories, and remains the most influential global instrument for wildlife trade governance (Fukushima et al., 2021; CITES, 2020b). CITES operates through a system of permits and species listings (Appendices I, II, and III), currently regulating trade in more than 40,900 species of plants and animals (CITES, 2020c). Commercial trade in species listed under Appendix I (the most endangered category) is prohibited, while trade in Appendix II species is allowed but strictly controlled via export permits.

Although critics argue that CITES does not fundamentally curb demand but instead facilitates regulated trade, it has nevertheless achieved measurable conservation successes for certain species (Sollund and Lie, 2024; Wyatt, 2021). For example, restrictions on vicuña fibre and crocodilian skins under CITES have contributed to the rebound of vicuña populations and various crocodilian species (CITES, 2020a; Challender and 't Sas-Rolfes, 2025). However, CITES alone is not a panacea: it addresses

only cross-border trade and relies on member countries to implement and enforce its provisions domestically (Wiersema, 2017; Challender et al., 2025). Scholars have raised concerns about CITES's effectiveness and adaptability, pointing to issues such as delays in listing threatened species, inadequate use of scientific data or consideration of local livelihoods in decision-making, loopholes that traffickers exploit and a wide range of enforcement challenges, like undetected trade and bias led by country self-reporting (Phelps et al., 2010; Jackson, 2011; Challender et al., 2015; Fukushima et al., 2021).

Virtually all countries now have laws against poaching and illicit wildlife trade, including international trade that reflect national commitments to CITES agreements. National legal responses to wildlife trade typically fall into several broad categories: from species protection and licensing regulation, to penalties for illicit trade and domestic implementation of CITES obligations.

First, species protection laws prohibit or restrict the exploitation of endangered wildlife, often aligning with international frameworks such as CITES. For instance, the United States implements the Endangered Species Act (1973), while India enforces the Wildlife Protection Act (1972), both of which strictly regulate activities involving listed species. In Indonesia, the Conservation of Living Resources Act (No. 5 of 1990) prohibits the killing, possession, or trade of any nationally protected species, which is regarded as a criminal offence punishable by up to five years in prison and fines.

Second, trade regulation laws govern the import, export, and domestic sale of wildlife through licensing systems, customs controls, and quotas. In the UK, the Wildlife and Countryside Act (1981) prohibits the unlicensed killing or sale of listed animals and plants. Liberia's National Wildlife Conservation and Protected Areas Management Law (2016) regulates hunting and trade via a 'wildlife use rights' system, aligns national law with international conventions like CITES, and defines offences and penalties.

A third category involves criminal statutes addressing poaching, trafficking, and organised wildlife crime, and the prevailing legal approach to addressing these offences often relies predominantly on punitive measures, such as imprisonment and fines (Wilson and Boratto, 2020), which differ significantly among countries. Smuggling endangered species can lead to the death penalty (amended to life imprisonment in 2011) under

China's Criminal Law (1997), and Uganda's Wildlife Act (2019) introduced up to life imprisonment for poaching or trafficking in protected species, while violations of endangered species trade rules can incur sanctions up to seven years' imprisonment in the UK. Additionally, biosecurity and animal welfare laws, such as Australia's Biosecurity Act (2015), may indirectly regulate wildlife trade by controlling zoonotic risks and animal-handling standards. In addition to domestic legislation, numerous countries also have developed national action plans or strategies to combat wildlife trafficking, typically focusing on stronger law enforcement, public awareness and demand reduction, and cross-border cooperation (GOV.UK, 2019; TRAFFIC, 2024; United States Department of State, 2025). Furthermore, regional agreements bolster collective action. For instance, the Bern Convention (1979) in Europe provides a framework for coordinating wildlife conservation policies and trade controls across multiple countries (JNCC, 2019).

Beyond formal laws, governance responses have included multi-agency enforcement collaborations and high-level policy initiatives. A notable example is the International Consortium on Combating Wildlife Crime (ICCCWC), a partnership among CITES, INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank, and the World Customs Organisation (WCO) that supports countries through training, intelligence sharing, and funding to tackle IWT. Law enforcement agencies have also mounted large-scale transnational operations targeting wildlife traffickers. For instance, INTERPOL and the WCO's 'Operation Thunder' series, launched in 2017, had by 2022 involved authorities from over 120 countries and yielded significant seizures of illicit wildlife products, along with numerous arrests (INTERPOL, 2022). The United Nations has likewise taken a strong stance: in 2015, the UN General Assembly unanimously passed a resolution urging global action against wildlife trafficking, calling on member states to treat it as a serious organised crime and to strengthen relevant legislation and penalties (Wolfgang Lehmacher, 2016). This high-level commitment was reinforced by the adoption of the Sustainable Development Goals (SDG), with Target 15.7 explicitly aiming to end poaching and trafficking of protected species (United Nations, 2018; Springernature, 2024).

2.3.1 Gaps in legal frameworks on IWT

Beyond frontline enforcement, the justice system's response to IWT often falls short of curbing illegal trade, due to legal gaps including the lack of clear legal definitions of key terms, lenient penalties, a narrow scope of offences, and loopholes.

Firstly, the lack of a universal legal definition of 'wildlife' and 'environmental crime' poses a significant, fundamental challenge to achieving consensus and effective enforcement against IWT (Tian et al., 2023; Wyatt and Nurse, 2020), leading to confusion and loopholes in enforcement (Yang et al., 2020). Firstly, the absence of a standardised definition means that what is classified as 'wildlife' or 'illegal' in one country may not be in another. This disparity in national legal frameworks creates critical loopholes that traffickers exploit, as they can strategically move products through jurisdictions where the species or activity is not protected or criminalised (White, 2011). This directly impedes cross-border investigations and the ability to prosecute cases where a single criminal chain spans multiple nations with different legal standards. A lack of definitional uniformity also makes it difficult to consistently categorise IWT as a serious transnational organised crime globally. This impacts how law enforcement agencies prioritise IWT cases, often leading to inadequate sentencing that does not reflect the severity or scale of the harm (van Uhm, 2016). When legal definitions focus narrowly (e.g., only on fauna or commercially traded species), authorities fail to address broader environmental harms like ecosystem damage or non-commercial trafficking (Phelps et al., 2021). Finally, conservationists and legal practitioners face difficulties in consistently identifying and quantifying environmental harms associated with IWT, such as biodiversity loss. This complex process necessitates considering numerous factors, including the scale of the illegal act, the rarity and conservation status of the affected species, and the intricate links between biodiversity and human well-being (Phelps et al., 2021), and requires a multidisciplinary approach (Fukushima et al., 2021).

Besides, many countries impose inconsistent and non-deterrent punishments for serious wildlife offences. For example, Kenya's new Wildlife Act (2013) increased penalties, but research found that only 10% of prosecutions led to convictions and merely 4% of convicted offenders served imprisonment time (Riungu et al., 2025). Even where convictions occur, sentences vary widely. For instance, in Kenya's ivory cases, judges

imposed wildly different fines and prison terms for the same offence (Riungu et al., 2025). Other countries similarly impose only moderate penalties. Take Mozambique as an example, whose laws criminalise trafficking in protected wildlife but prescribe fines only, with no prison term, and the increased penalty applying only when the criminal actions happened on a public holiday, on a Sunday, or at night (UNODC, 2017) rather than in relation to the severity of the crime. Actually, the international community also demonstrates significant penal divergence regarding wildlife offences, with a survey of 131 countries showing that only 26% favour designating them as ‘serious crimes,’ while 74% prefer less punitive measures, such as short prison sentences of less than four years or fines only for CITES code violations (Neslen, 2016). In short, wildlife crime statutes in many jurisdictions often only apply light sanctions that fail to match the gravity of the illegal trade, creating inconsistent enforcement and undermining deterrence (Riungu et al., 2025).

National laws also often fail to recognise IWT as a serious predicate offence. Until recently, IWT was still treated as a lower-priority crime and rarely integrated into anti-money-laundering (AML) laws as seriously as drug trafficking or terrorism. A 2019 UN General Assembly resolution (UN General Assembly Resolution 73/343) explicitly urged states to amend laws so that IWT-related offences are treated as predicate offences for money laundering (FATF, 2020), reflecting global concern about IWT’s relationship to organised crime. However, many legal systems lag behind this standard. Analyses find that only about 60% of 110 countries studied even include wildlife trafficking in their AML frameworks (for example, via an ‘all crimes’ approach), leaving a substantial minority with no explicit coverage (EIA, 2020b). Even where all-crimes approaches exist, thresholds or exemptions may exclude small-scale IWT (FATF, 2020). Or, where laws nominally cover wildlife, the scope of offences is often narrow, like Tanzania’s AML law, which lists only ‘poaching’ as a predicate offence rather than broader crimes related to IWT (EIA, 2020b). Therefore, IWT remains uncovered or uncertain as a predicate offence in all but a few countries, leading to a situation where both governments and banks often do not prioritise tracing IWT-related profits (Wingard and Pascual, 2018; FATF, 2020).

2.3.2 Challenges to the enforcement of IWT legislation

Despite international agreements, the proliferation of laws and global attention on IWT, the enforcement of wildlife laws and the pursuit of justice face many implementation challenges with obstacles arising at the operational, legislative and conceptual levels (Cooper and Rosser, 2002). IWT is difficult to police due to its clandestine nature, vast geographic reach, and the resource constraints faced by enforcement agencies (Wellsmith, 2011; Phelps et al., 2012; Nurse, 2012, 2015). Particular operational difficulties stem from limitations in local capacity; the systemic corruption that undermines the justice chain; the inherent complexities of transnational crime; and the constant need for adaptive responses to emerging criminal tactics.

Wildlife law enforcement agencies often suffer from limited capacity and an asymmetry of resources required to operationalise legislation across the IWT trade chain, relative to the well-funded and highly organised criminal syndicates. Many countries struggle with insufficient numbers of rangers and inspectors, a lack of training or equipment, and porous borders (WWF, 2018). On the front lines, park rangers and wildlife wardens in developing countries are frequently underfunded, under-equipped, and underpaid. They face well-armed poaching gangs and sometimes even militarised groups. This asymmetry is highlighted by the fact that poachers backed by criminal networks may possess sophisticated weaponry and technology, while rangers often lack basic gear, tragically resulting in the deaths of up to 100 rangers worldwide each year (INTERPOL, 2023).

Corruption fundamentally undermines the entire enforcement and justice process, regardless of how well-crafted the law is (Wyatt, 2013; van Uhm, 2018). If officials at any stage, from rangers, police, and prosecutors, to border agents, are bribed or complicit, trafficking chains remain intact. This systemic problem manifests in officials taking bribes to issue false permits, ignore violations, or facilitating the ‘disappearance’ of seized wildlife contraband (Outhwaite, 2020; UNODC, 2020; WJC, 2023). Studies document instances where investigations are derailed or kingpins evade arrest due to corrupt protection, making corruption a key enabler of IWT and a significant barrier to achieving justice (Sollund, 2019). In practice, IWT networks commonly rely on various forms of corruption to sustain their operations, including document fraud (e.g., falsified paperwork enabling the movement of illicit wildlife products), complicity within the

transport sector (e.g., utilising airports and seaports to facilitate smuggling), weaknesses in stockpile management (e.g., the illicit diversion of seized IWT products back into illegal commercial circulation), and corporate gifting (e.g., using products derived from endangered or rare species as high-value bribes or official gifts to secure immediate advantage) (Zain, 2020). Furthermore, corruption risks extend beyond the trade and distribution processes into the judicial sphere. The trial process for IWT cases is particularly susceptible, often leading to widespread lenient sentences or even acquittals in smuggling cases due to the bribery of judges or prosecutors (Wyatt et al., 2018). Despite the broad recognition of corruption as a critical enabling factor for IWT (Wyatt et al., 2018; WJC, 2023), many legal frameworks fail to fully address or exploit these systemic connections (Wyatt et al., 2018), facilitating the continued viability of illicit networks.

A fundamental challenge to enforcement is also the transnational character of IWT. Trafficking networks operate across multiple countries and continents: poachers supply intermediaries who smuggle products through transit hubs to global consumers (Wyatt, 2013). Consequently, effective enforcement requires complex logistical and political coordination among the law enforcement and customs authorities of many nations (UNODC, 2020). Jurisdictional issues arise when crimes span borders, and differences in legal systems can be exploited by criminals (Laws, 2017). Strong international law-enforcement cooperation, including improved data-sharing (e.g., on smuggling routes, financial transactions, fake permits), is crucial for disrupting these criminal gangs (INTERPOL, 2023). Large-scale, cooperative operations, such as INTERPOL's 'Operation Thunder', have demonstrated success, but also underscore the continuous nature of the challenge as traffickers quickly adapt their methods and target different species (INTERPOL, 2023).

Law enforcement requires adaptive governance as traffickers continuously shift tactics, such as moving to new species or online platforms (Lavorgna, 2014; Phelps and Webb, 2015; Matyska, 2025). A growing challenge is the rise of online wildlife crime, where traffickers increasingly use websites, social media, and encrypted messaging to arrange sales (Fukushima et al., 2021). This cyber aspect makes transactions borderless and anonymous, creating detection and attribution difficulties for authorities. Enforcing

takedowns and tracing sellers requires digital investigation skills and cooperation with tech companies, an area many wildlife authorities are only beginning to develop.

Finally, there is an ongoing policy debate about the most effective approach to managing wildlife trade: whether a strictly prohibitionist stance (total trade bans) is more effective than regulated sustainable use (Webb, 2002; Roe et al., 2020; Hughes, 2021). Economists and conservationists debate whether legal, controlled trade (e.g., in ivory or farmed wildlife) can undercut black markets, or if it instead stimulates demand and provides cover for laundering illegal products (Challender and MacMillan, 2014; Biggs et al., 2017; Challenger et al., 2020). These debates influence key national and CITES decisions, such as votes on ivory stockpile sales or rhino horn trade proposals (EIA, 2022; Smith, 2025).

2.3.3 Concerns about over-criminalisation

Across countries and contexts, both strengthened IWT legislation and efforts to increase enforcement of IWT laws have increasingly mirrored a ‘tough on crime’ paradigm, emphasising heavy criminal sanctions and assertive policing, which has sometimes been described as ‘green militarisation’ (Duffy, 2014; Duffy et al., 2019; Keim, 2019; Dobelsky et al., 2022). This enforcement-focused approach to wildlife governance and conservation is rooted in the assumption that strengthened enforcement and punishment are necessary to deter IWT.

However, a growing body of literature questions whether this is resulting in over-criminalisation, and questions both its social equity outcomes and whether it truly delivers the desired conservation outcomes (Wellsmith, 2012; Duffy et al., 2019; Dobelsky et al., 2022). Green criminologists and allied scholars argue that excessive reliance on criminal law and enforcement-based approaches to wildlife governance should be a last resort for addressing environmental harms (UNODC, 2019). Although there is general consensus that criminal prosecution and proportionate sentencing are necessary for serious wildlife crimes, many experts caution that an over-emphasis on punitive measures can be ineffective, counter-productive, and even unjust, particularly when directed at small-scale offenders (Wellsmith, 2012; Nurse, 2017). Indeed, a central debate in green criminology asks whether environmental offences like IWT are best tackled through mainstream criminal justice or via civil, administrative, and non-judicial

restorative mechanisms that focus on harm reduction rather than punishment (Nurse, 2017). This critical lens does not downplay the gravity of IWT, but urges a balanced approach that avoids the pitfalls of over-criminalisation.

2.3.3.1 Undermining conservation goals

One major concern is that draconian enforcement measures may ultimately undermine conservation goals. Criminological research indicates that simply ‘catching more people and passing tougher sentences’ has a limited deterrent effect on crime, especially when the risk of detection is low (Wellsmith, 2012). In the context of IWT, high rewards and low probabilities of capture often reduce the fear of punishment (Flynn, 2015). Unlike the unfounded belief that more enforcement and harsher deterrent sentences would significantly reduce wildlife offences (Wellsmith, 2012), crackdowns can drive the trade further underground and make traffickers more sophisticated or violent (or both), thereby further complicating conservation efforts. For example, overly severe penalties may encourage offenders to take greater risks (the ‘nothing to lose’ effect) or to retaliate against rangers and informants, escalating the cycle of violence, destroying the community’s trust system (Duffy et al., 2019). This is illustrated in some countries that have adopted increasingly militarised anti-poaching campaigns, characterised by armed patrols, shoot-to-kill orders (Mogomotsi and Madigele, 2017; Dobelsky et al., 2022), and surveillance drones (Sandbrook, 2015). While intended to protect species, such green militarisation can breed conflict that is ultimately detrimental to conservation (Keim, 2019; Dobelsky et al., 2022). Studies have documented how militarised conservation strategies create a ‘warzone’ atmosphere in parks, diverting focus and resources away from ecological monitoring and long-term solutions (Duffy et al., 2019). Meanwhile, funds and attention that might have gone into other types of conservation interventions, such as community conservation, demand reduction, or habitat management, are instead absorbed by law enforcement militarisation (Duffy et al., 2019). In effect, an aggressive punitive stance may yield short-term gains (e.g. temporarily suppressing poaching in a particular area) at the expense of potentially more sustainable, collaborative conservation strategies.

Additionally, over-criminalisation can also erode the moral authority of conservation law. If enforcement is perceived as unjust or disproportionate, local compliance may diminish. Deterrence theory holds that certainty of punishment is more important than severity; yet

in many source countries, only a tiny fraction of wildlife crimes are detected and prosecuted (Wellsmith, 2012). Piling on harsher penalties in these circumstances may do little to increase perceived risk, while potentially undermining public support. Indeed, a ‘tough’ law on the books that is rarely enforced can be worse than a moderate law consistently applied. Green criminologists therefore stress the importance of addressing root causes, such as poverty, corruption, and demand for wildlife products, rather than placing too much faith in punitive laws (Wellsmith, 2011, 2012; Wyatt, 2013; Duffy et al., 2016; Laws, 2017; van Uhm, 2018 Keim, 2019).

2.3.3.2 Exacerbating inequalities and injustices

Another problem with over-criminalisation in IWT enforcement is its tendency to exacerbate social inequalities and historical injustices. Heavy-handed enforcement often disproportionately impacts local and indigenous communities living alongside wildlife, who are frequently among the poorest and most marginalised (Pires and Moreto, 2011; Hübschle, 2016b; Keim, 2019; Lunstrum and Givá, 2020; Green, 2025). Scholars from political ecology and green criminology point out that militarised anti-poaching operations can mirror colonial-era patterns of exclusion and oppression (Keim, 2019; Duffy et al., 2019; Green, 2025). For example, when conservation is pursued as a ‘war’ against poachers, local residents may be indiscriminately viewed with suspicion or treated as enemies of the state. There is ample evidence of human rights abuses linked to militarised wildlife protection: park rangers and paramilitary guards have been implicated in extrajudicial killings, torture, and forced evictions in countries such as South Africa, and Cameroon (Dobelsky et al., 2022). From 2010 to 2015, nearly 500 Mozambicans were reportedly killed by South African park guards under shoot-to-kill anti-poaching policies (Dobelsky et al., 2022). Such abuses not only violate fundamental rights but also fuel deep resentment toward conservation authorities and wildlife. Innocent villagers caught in the crossfire may lose their lives or livelihoods, while their communities come to view iconic species like elephants or tigers as symbols of oppression rather than assets to protect (Keim, 2019).

Over-criminalisation thus risks alienating the very people whose cooperation is vital for conservation. Environmental justice perspectives highlight how a narrowly punitive approach can entrench racial and economic disparities (Green, 2025). In many IWT hotspots, the frontline poachers are impoverished locals and often from minority ethnic

groups, driven by a lack of economic alternatives (e.g., cases in Nepal, Paudel et al., 2019), whereas the biggest profits are taken by transnational trafficking networks and wealthy end-consumers. Yet tough enforcement commonly targets these low-level actors, such as the bushmeat hunter, the ivory porter, who are easier to arrest, rather than the powerful kingpins or rich buyers (Paudel et al., 2019; Phelps et al., 2019). The result is a profound injustice: subsistence offenders or ‘foot soldiers’ are severely punished, while the powerful criminals at the top of the hierarchy evade capture, and the root causes, like poverty, demand, and unequal power, remain unaddressed (White, 2013; Green, 2025). This dynamic can reinforce inequality, as local communities bear the most severe impact of the enforcement crackdowns, through arrests, violence, or loss of access to resources and of even life, without seeing corresponding accountability for elites in the illicit supply chain.

Critical analyses have even described some anti-poaching campaigns as a new wave of ‘green militarisation’ that legitimises coercion against marginalised peoples under the banner of conservation (Dobelsky et al., 2022; Green, 2025). Such approaches, scholars warn, can criminalise need-based resource use and entrench social injustice, ultimately alienating the communities whose cooperation is essential for long-term conservation success (Paudel et al., 2019; Hübschle and Margulies, 2024) and reproducing the marginalisation that helped drive wildlife crime in the first place (Green, 2025). When communities feel unjustly criminalised or excluded from wildlife benefits, they are less likely to support conservation laws, and may instead engage in retaliatory killing (Witter, 2021) or tacitly aid poachers as a form of resistance (Keim, 2019; Green, 2025). Such punitive approaches may also exacerbate the socio-economic drivers of IWT, as enforcement practices that remove male providers, through fatal encounters or long-term imprisonment, can destabilise household economies and push remaining family members towards IWT as a survival strategy (Duffy et al., 2016; Lunstrum, 2014). It has been proven that achieving justice for wildlife is inherently undermined when conservation strategies rely on actions that simultaneously perpetuate social injustices (Duffy et al., 2019).

2.4 Wildlife conservation in China

This thesis explores wildlife governance, specifically in the context of China. This section provides background for understanding the issues discussed in this literature review in a Chinese context, including the key forces shaping the country's conservation landscape, notably enduring traditions of wildlife use, and its evolving environmental legal frameworks, including the State-led vision of 'ecological civilisation'. Together, these dimensions inform how China defines, regulates, and prioritises wildlife conservation.

2.4.1 China's rich biodiversity

China is widely recognised as one of the most biodiverse countries in the world. As one of the 17 officially designated 'megadiverse' countries (Huang et al., 2016), it harbours an extraordinary number of species: roughly 155,000 documented species and subspecies as of 2024 (CAS, 2024). This includes over 35,000 species of higher plants (ranking third globally, after Brazil and Colombia) and around 6,400 species of vertebrates, alongside countless invertebrates (CBD, 2020). Such richness translates to roughly 10% of all plant species and 14% of all animal species on Earth being found in China (Yu, 2015; China Daily, 2021a). A significant portion of this biota is unique to China: more than half of China's seed plant species are endemic, found nowhere else on the planet (Huang et al., 2016).

China's vast territory spans multiple climate zones and ecoregions, giving rise to a remarkable variety of ecosystems. It is the only country in the world with continuous natural vegetation zones ranging from tropical rainforests through subtropical and temperate forests to boreal forests in the far north (Huang et al., 2016). This unique latitudinal continuum, coupled with complex mountain topography, has fostered speciation and reduced extinctions over geological time (Huang et al., 2016). As a result, China's landscapes encompass everything from the lush tropical jungles of Xishuangbanna and Hainan to temperate broadleaf and conifer forests, expansive grasslands, arid deserts, and the high alpine meadows of the Qinghai-Tibetan Plateau. China's marine and freshwater ecosystems are equally notable with over 20,000 marine species having been recorded in its seas, occupying more than 10% of the world's marine

biota (CBD, 2020), alongside immense freshwater wetland and river systems that support rich aquatic life.

Several of the world's global biodiversity hotspots lie wholly or partly within China's borders, underscoring its ecological importance. Conservation analyses indicate that four of the world's 34 biodiversity hotspots intersect with China (Myers et al., 2000; Huang et al., 2016), including the species-rich Himalayan and Hengduan Mountain regions of southwest China and the Indo-Burma hotspot covering Yunnan and Guangxi. The Qinghai-Tibetan Plateau, the world's highest and largest plateau, is itself recognised as a global biodiversity hotspot due to its unique environment and high endemism (Chen et al., 2023). This plateau and its surrounding ranges harbour many endemic alpine species adapted to harsh high-altitude conditions. In southern China, the karst landscapes of Yunnan, Guangxi, Guizhou, and Chongqing form the largest continuous karst area in the world, a region renowned for its exceptional biodiversity and endemism. The limestone caves and isolated limestone hills in this area provide niches for many unique endemic plants and animals, making Southwest China's karst region a global biodiversity hotspot as well (Li et al., 2022).

China's biodiversity is not only rich but also globally significant in terms of conservation value. The country contains 17 of WWF's Global 200 ecoregions, critical ecosystems for the planet's biodiversity, and hosts a high number of threatened species, reflecting both its natural wealth and the conservation pressures on it (Huang et al., 2016). Iconic animals such as the Giant Panda and Snow Leopard, alongside lesser-known endemic fish, amphibians, and orchids (Jarić et al., 2025), highlight the country's central role in global conservation. While this natural wealth provides critical ecosystem services and scientific value, it also faces increasing threats. Recognising the richness and significance of China's biodiversity sets a critical context for understanding the country's wildlife governance framework.

2.4.2 China's role in global biodiversity conservation

As one of the world's largest developing countries, China's influence on the international stage has become increasingly significant (Wong, 2019), not only in economic and political affairs but also in environmental governance. This global relevance is especially evident in the context of wildlife trade. China occupies a central position in the global

wildlife trade system as a major consumer market, as well as a source and transit country. Analysis of CITES trade data and seizure records shows that between 1997 and 2016, China legally imported more than 11.5 million individual CITES-listed vertebrates and approximately 5 million kilograms of wildlife derivatives, accounting for around 10% of global legal wildlife imports, with reptiles and fish dominating the trade for uses such as fashion, pets, ornaments, TCM, and food (Jiao and Lee, 2021b). At the same time, seizure data reveal substantial illegal flows into and through China, frequently involving pangolins, large felids, bears, elephants, rhinos, tortoises, and freshwater turtles sourced mainly from Asia and Africa (Jiao and Lee, 2021b).

Given this scale and complexity, China's domestic environmental and wildlife policies have increasingly been reshaped in response to growing international expectations, scrutiny, and diplomatic pressure. As a central node in the global wildlife trade, China's regulatory decisions carry significant implications for global biodiversity conservation and the international governance of wildlife trade.

China has long presented itself as an active participant in international environmental governance. Since the establishment of the People's Republic in 1949, China has joined key multilateral agreements and organisations, such as CITES, the CBD, and the World Wide Fund for Nature (WWF), signalling its willingness to engage with global conservation norms (Cheung et al., 2023). In order to fulfil these treaty obligations, China has progressively strengthened its domestic wildlife governance framework (Ross, 1998). For example, since 1993, non-indigenous species listed in CITES Appendices I and II have been afforded protection equivalent to Class I and II nationally protected species. China has also enacted a series of laws and regulations to enhance the supervision of the import and export of endangered species in line with CITES requirements, including clear standards for valuing CITES-listed species according to the equivalent protected species under domestic law.

China's broader engagement with global biodiversity governance has evolved markedly over time: from an early 'follower' of international norms (1992–2000), to a 'main participant' (2000–2012), and more recently to an 'active contributor' in shaping global conservation agendas (Qin, 2021). Its growing leadership role is evident under the CBD: since 2019, China has been the largest contributor to the core budget of the Convention

and its protocols (Tian, 2021). This leadership was further demonstrated when China hosted the UN Biodiversity Conference (COP15) in 2021, an event widely viewed as an opportunity for the country to highlight both governmental and non-governmental achievements in biodiversity conservation (Wan, 2021). The resulting Kunming Declaration has been positioned as a key political commitment expected to influence global biodiversity policy for the coming decades (Zhang et al., 2025), reinforcing China's role as a central actor in international conservation governance.

Beyond fulfilling its obligations under international conventions, China's wildlife governance has been shaped by a parallel desire to project a responsible international image. Recent policy documents increasingly highlight wildlife protection as both an ecological necessity and a reflection of China's global reputation. A prominent example is the 1993 ban on rhino horn and tiger bone, introduced not only to meet CITES commitments but also to ease international pressure and support China's Olympic bid (Li, 2007). In 2018, however, a notice permitting limited use of these products for research, education, and medical purposes sparked significant international backlash (Feng, 2018a). Although the government later announced that the strict bans would remain in force pending further clarification, the new policy technically remains 'effective', creating uncertainty. This episode illustrates how global scrutiny continues to shape China's wildlife policy choices.

China's transnational initiatives, particularly the Belt and Road Initiative (BRI), further expose its environmental policies to international attention. Launched in 2013, the BRI aims to deepen trade and economic cooperation across participating countries, but it has drawn criticism from conservation scholars. The BRI network overlaps with 27 of the world's 35 biodiversity hotspots, raising concerns that large-scale infrastructure projects may contribute to deforestation, habitat fragmentation, and the spread of invasive species (CCICED, 2020; Yu, 2021). Improved transportation links may also facilitate IWT along BRI routes (Farhadinia et al., 2019). In response, China launched the 'Green BRI' in 2017, incorporating ecological risk management and committing to support biodiversity conservation through greener investment and cooperation (Sun and Yu, 2022). As the initiator of this framework, China must also align its domestic legislation with these international sustainability goals.

A more recent example of international influence on China's wildlife governance is the global scrutiny that followed the COVID-19 pandemic. As debates over the origins of the virus intensified, international media, intergovernmental bodies, and conservation organisations increasingly linked wildlife trade to zoonotic risk, placing significant pressure on China to demonstrate responsible global environmental leadership (Tian et al., 2024). In this context, China introduced rapid and highly visible reforms. In early 2020, the government imposed a permanent ban on the consumption of terrestrial wild animals as food and accelerated the revision of the Wildlife Protection Law (WPL), marking one of the most substantial legal revolutions in decades (Fang and Song, 2021; Huang et al., 2021; Tian et al., 2024). Scholars argue that these measures were motivated not only by domestic public health concerns but also by the need to manage reputational risks and respond to international narratives that associated Chinese wildlife markets with pandemic emergence (Xiao et al., 2021; Tian et al., 2024). Together, these reforms illustrate how global pressure, particularly during moments of heightened international attention, can act as a catalyst for changes in China's wildlife governance.

2.4.3 Long history of wildlife utilisation

China is a particularly salient context in which to explore wildlife governance and response to IWT given its long history of wildlife utilisation. China's relationship with wildlife utilisation spans over three millennia, making it one of the oldest and most complex recorded systems of human–animal interaction. Archaeological and textual evidence trace this relationship back to the Shang Dynasty (1600–1046 BCE), with oracle bone inscriptions documenting hunting activities and the ritual use of animal parts (including antelopes and boars) (Childs-Johnson, 2018; Schwartz, 2018). Traditional wildlife use in China has encompassed medicinal, dietary, symbolic, and philosophical dimensions, reflecting a deeply embedded cultural framework that continues to shape contemporary practices.

2.4.3.1 Wildlife in Traditional Chinese Medicine (TCM)

The use of wildlife in TCM has deep historical roots. Foundational medical texts such as the *Huangdi Neijing* (Yellow Emperor's Inner Canon) (3rd–1st centuries BCE) and the *Shennong Bencao Jing* (Divine Farmer's Materia Medica) (1st–2nd centuries CE) established early principles for using animal-derived substances in healing, systematically classifying their properties and therapeutic functions (Unschuld, 2003;

Yang, 1998; Gaur, 2024). During the Han Dynasty, the consolidation of medical knowledge and expansion of trade routes further normalised wildlife use in medicine (Hsu, 2011). This practice continued to develop through later dynasties, including Tang Dynasty (618-907 CE) and Song Dynasty (960-1279 CE) (Sivin, 1995), culminating in Ming Dynasty in Li Shizhen's *Bencao Gangmu*, first completed in 1578, which recorded nearly 1,900 medicinal substances, including extensive descriptions of animal-based remedies (Needham, 1986; Unschuld, 1986).

TCM's theoretical framework holds that animals possess distinctive energetic properties that can be transmitted to humans through consumption or application, often following the principle of 'like treats like' (i.e., consuming specific animal parts can strengthen corresponding organs or functions in the human body) (Hsu, 2011). Medicinal substances are categorised by temperature, taste, and meridian tropism, embedding wildlife products within broader strategies for restoring bodily balance (Cheung et al., 2021). Historical pharmacopoeias document the use of hundreds of species, including tiger bone for rheumatism, bear bile for liver conditions, rhinoceros horn for fever, and deer antlers for vitality (Still, 2003); pangolin scales for promoting blood circulation and lactation (Hall, 2019); marine species such as seahorses and sea cucumbers, and arthropods such as scorpions, centipedes, and insects like cicada shells, also feature prominently in traditional treatments. In modern times, TCM was officially systematised in the 1950s, but the incorporation of animal products continued unabated. For example, the updated Chinese Pharmacopoeia (2020) still lists plenty of animal-based medicines (Palmer, 2014). Conservation advocates argue that this endures at great cost to biodiversity, as TCM usually results in severe poaching and smuggling of wild animals in China, and remains an ongoing threat to many overharvested plant and animal species (Liu et al., 2017; Wang et al., 2022). Only recently have authorities begun to respond: in 2020, pangolins (long prized for their meat as well as their scales, Xu et al., 2016) were upgraded to the highest level of state protection and their scales were omitted as a raw ingredient from the Chinese Pharmacopoeia (although they remain listed as an ingredient in several approved patent medicine formulations) (EIA, 2020a; WildAid, 2020).

2.4.3.2 Consumption of wild meat

Beyond medicinal use, wildlife has long been embedded in Chinese culinary traditions, particularly in southern regions (Zhang and Yin, 2014). Historically, eating wild animals

was associated with elite status, as the rarity and expense of such dishes signified wealth and social prestige (Zhang and Yin, 2014; Liu et al., 2017; Wong, 2019). Today, wild game ('bushmeat') is consumed by a minority but still carries social cachet. In some southern wet markets, species such as snakes, turtles, and tortoises are sold alive for gourmet preparation, and luxury items such as bear paw and civet meat remain culturally linked to health, vitality, and masculinity and are sold at a high price (Zhang and Yin, 2014; Mladonicky, 2020). A long-standing belief in traditional Chinese dietary culture holds that nutritional supplements are more beneficial than medicine and that wild animals possess superior flavour and health-enhancing properties compared with domesticated species (Zhang, 2012). These perceptions continue to shape consumer preferences today.

2.4.3.3 Wildlife utilisation in arts

Wildlife has also long been incorporated into Chinese traditional arts, creating tensions between cultural heritage and conservation. One prominent example is the erhu, a two-stringed musical instrument with over a thousand years of history, traditionally made with python skin (Jiang et al., 2013). Although all snake species were placed under state protection in 2000, leading to reduced demand for most snake products, the lack of viable substitutes means python skin remains essential for authentic instrument production. As a result, individuals travelling internationally with an erhu must carry a CITES permit, illustrating the direct conflict between preserving cultural practices and protecting endangered species (Jiang et al., 2013).

Ivory carving presents a similar dilemma. Recognised as national intangible cultural heritage in 2006, ivory carving subsequently received strong government support for cultural preservation (Permata and Wahyuni, 2020). This recognition, however, coincided with growth in both legal workshops and illicit ivory markets, as well as continuing demand for ivory as a medicinal ingredient, a marker of social status, and a Buddhist talisman believed to bring good fortune (Gao and Clark, 2014). Ivory's cultural and symbolic value contributed to China becoming the world's largest market for worked ivory, much of it supplied through illegal trade (Underwood et al., 2013). Rising demand was closely linked to the dramatic decline of elephant populations in Africa, prompting international calls for the closure of domestic ivory markets worldwide. Following the United States' 2016 market closure, China issued a series of measures in the same year

to phase out and ultimately ban domestic ivory trade (WCS, 2017). This decision was widely applauded internationally and signalled China's willingness to prioritise global conservation commitments over certain traditional artistic practices.

2.4.3.4 Economic importance of wildlife

China has a long history of utilising wildlife for food, clothing, and medicine, and the practice of breeding wild species has not only deep cultural but also economic importance. By the late 2010s, China's domestic wildlife industry had grown into a major economic sector, valued at approximately US\$73 billion annually, with around US\$18 billion attributed to wildlife consumption as food (Mladonicky, 2020). Economic reforms in the 1980s accelerated the commercialisation of wildlife products, expanding markets for traditional remedies, luxury foods, and animal-based medicines (Feng et al., 2021). Rising incomes further fuelled demand, particularly in the early 2000s, when wildlife consumption increased sharply in southern provinces (Zhang and Yin, 2014).

Notably, commercial wildlife farming became closely aligned with rural development and poverty alleviation policies. Authorities promoted breeding enterprises as a means to diversify rural economies and raise household incomes, particularly in regions with limited agricultural alternatives (Bulte and Damania, 2005; Wang et al, 2019; CGTN, 2020). By 2016, the wildlife farming sector was estimated to generate more than 520 billion yuan (US\$74 billion) in annual output and to provide full- or part-time employment for over 14 million people (Chinese Academy of Engineering, 2017). The scope of these activities broadened rapidly: fur farming of foxes, minks, and raccoon dogs made China one of the world's largest producers of pelts, with over 70 million animals farmed by 2010 (Wang et al., 2019), while the number of species included in modern Chinese pharmacopoeias expanded to more than 2,300 from only 400 in the 16th century (Chee, 2021). By 2006, more than 19,000 licensed wildlife-breeding enterprises were operating nationwide (Wang et al., 2019).

However, the integration of wildlife farming into local economies also created policy vulnerabilities. Following the COVID-19 outbreak, the government introduced sweeping restrictions on wildlife trade and consumption, including the closure of many farming operations. These measures threatened income sources for millions of rural households, prompting compensation schemes and livelihood transition plans (CGTN, 2020;

Mackenzie, 2020; White, 2020b). This episode underscores how deeply wildlife breeding had become tied to rural economic stability, and how regulatory shifts can generate significant social and economic influences.

Despite the economic value, the conservation value of China's wildlife-breeding industry remains highly controversial. Although commercial breeding is often promoted as a means to alleviate pressure on wild populations and supply traditional Chinese medicine (TCM), scholars note that industrialised breeding can reinforce, rather than reduce, demand for products derived from threatened species (Fischer, 2004; Wang et al., 2019). For example, China hosts the world's largest bear-farming industry, where bile, often described as 'liquid gold', is extracted from thousands of captive bears and used in at least 153 patented TCM products produced by more than 180 pharmaceutical companies (Li, 2007; Wang, 2014). Similarly, despite China's 1993 ban on the trade and use of tiger bone, an essential material of TCM, the country has developed a substantial tiger-breeding sector. Before the ban, more than 200 pharmaceutical factories relied on leopard or tiger bone as raw materials (Liu et al., 2015). Today, an estimated 5,000–6,000 tigers are held in over 200 privately operated farms (Zhou, 2017). Although these facilities are nominally justified as conservation breeding centres, no captive-bred tiger has been successfully reintroduced into the wild in the past four decades, and breeding far exceeds the conservation need (Liu, 2017a). However, evidence suggests that economic pressures have encouraged some facilities to engage in covert sales of tiger-bone products or to launder illegally sourced materials, undermining enforcement and sustaining consumer interest (Zhou, 2017; Henry, 2020). As a result, tiger farming has become one of the most widely criticised aspects of China's implementation of CITES, prompting calls from members of the Chinese People's Political Consultative Conference to phase out commercial tiger farms entirely (Liu, 2017; Zhou, 2017). Public opinion research likewise indicates strong support for in situ conservation, such as establishing protected areas, over continued captive breeding (Liu et al., 2015). Despite this, large-scale breeding operations remain active.

These controversies reveal a persistent tension in China's wildlife governance: while the state highlights successful conservation achievements, such as those involving giant pandas, crested ibis and Tibetan antelope, the commercial breeding of other threatened species occupies a regulatory grey zone shaped by profit motives and weak oversight.

Such dynamic risks produce outcomes counterproductive to biodiversity conservation and complicate China's compliance with international wildlife-trade norms.

2.4.4 China's domestic governance of wildlife conservation

China's approach to wildlife governance encompasses species protection, regulation of wildlife trade, sustainable use, enforcement against wildlife crime, and prevention of zoonotic disease. Over the past several decades, this governance framework has undergone a notable transformation. While historically rooted in utilitarian perspectives that viewed wildlife primarily as natural resources, there has been a gradual shift toward a more conservation-oriented model. This evolution has been driven by ecological degradation, changing public values, the national strategy of building an Ecological Civilisation, and alignment with international conservation norms (Yu and Czarnecki, 2012).

However, the shift has been neither straightforward nor without controversy. Wildlife policy continues to grapple with persistent tensions between exploitation and protection, especially in areas such as wildlife farming, traditional medicine, and the trade in exotic species for luxury consumption (Zhang and Yin, 2014; Mladonicky, 2020). The emergence of COVID-19 has further highlighted the public health risks associated with wildlife trade and catalysed regulatory reform, prompting a more integrated and precautionary approach to governance (White, 2020b; Huang et al., 2021).

2.4.4.1 Legal framework of general conservation

China's modern legal governance of wildlife began shortly after the founding of the People's Republic of China (PRC) in 1949. The initial policy measure, the 1950 Measures on Protecting Rare Wildlife Animals, primarily regulated hunting activities and established the new government's fundamental state ownership and authority over the nation's wildlife (Li, 2007). Then, the 1982 Chinese Constitution explicitly recognised natural resources, including rare animals and plants, as state property and instituted legal mandates for their protection and rational use. This constitutional foundation enshrined the basic thinking that wildlife is a resource subject to both conservation and utilisation (Feng et al., 2019), which has guided subsequent Chinese wildlife law.

The cornerstone of China's wildlife legislation is the Wildlife Protection Law (WPL), first enacted in 1988 and put into effect in 1989. This law established a foundation for species conservation, though its initial wording reflected a utilitarian approach, treating wildlife as resources for human use through domestication and consumption (Li, 2007; UTEXAS, 2015). Over time, the WPL has been progressively strengthened and refocused toward conservation priorities. It has undergone several amendments and overhauls: minor updates in 2004 and 2009, followed by major revisions in 2016 and 2022. Notably, the 2016 amendment marked a turning point by explicitly prioritising wildlife protection over commercial utilisation (UTEXAS, 2015; Tian et al., 2024). The most recent revision in 2022 (effective May 2023) further reinforces an ecocentric approach, incorporating public health considerations and stricter safeguards in the wake of COVID-19 (Huang, 2023; IFAW, 2023; Tian et al., 2024). For example, the revised law calls for preventing zoonotic disease transmission and bans the illegal consumption of wild animals, firmly closing loopholes that previously allowed wildlife to be eaten under certain licenses (Li, 2020b; Huang, 2023; Tian et al., 2024). It also mandates stronger habitat protection by integrating key wildlife habitats into the national park and nature reserve system, reflecting a more ecosystem-oriented approach (Huang, 2023).

Beyond the WPL, China's conservation regime is supported by a suite of other national laws and regulations that create a comprehensive legal framework. The Environmental Protection Law (enacted in 1989 and amended in 2014) provides broad principles for safeguarding ecosystems and wildlife habitats (Feng, 2019), thereby complementing wildlife-specific legislation. It imposes a duty on all levels of government and society to protect the natural environment, which implicitly includes wildlife and their habitats as essential components. In addition, the Criminal Law serves as a vital enforcement tool by penalising serious wildlife offences, including provisions criminalising the poaching, smuggling, and illicit trade of protected fauna. For instance, the illegal hunting or killing of species under national key protection, or the trafficking of their products, is punishable by heavy fines and lengthy prison sentences up to life imprisonment (UTEXAS, 2015; Tian et al., 2025). These sanctions underscore the high priority placed on wildlife conservation in China's legal system and act as a deterrent against biodiversity crimes. Other sectoral laws also play a role: the Forestry Law (enacted in 1984 and amended in 2019) and Fisheries Law (enacted in 1986 and amended in 2013) contain measures to conserve wildlife under their respective domains (terrestrial and aquatic); the Biosecurity

Law (2020) promulgated after the COVID-19, which specifically stipulates the prevention and control of animal and plant epidemics; and the Animal Epidemic Prevention Law (enacted in 1997 and amended in 2021) is now invoked to monitor and prevent diseases in wild animal populations (Huang, 2023). This interlocking web of laws ensures that wildlife protection is not an isolated effort but is integrated with broader environmental governance and public health regulation.

International conservation commitments have significantly influenced China's legal framework as well. China became a party to CITES in 1981 (UTEXAS, 2015), and this has driven the development of domestic measures to control wildlife trade (Feng et al., 2019). The WPL and its implementing regulations serve as instruments to fulfil CITES obligations by strictly regulating or banning the import and export of endangered species and their products (Stephen and Southerland, 2018). For example, China made its list of state-protected species to align with CITES: non-native species listed in CITES Appendix I or II were automatically granted Class I or II protection status domestically (Jiao and Lee, 2021a). China is also a party to the Convention on Biological Diversity and other wildlife-related treaties, which have collectively steered its laws toward internationally accepted conservation norms. Through these commitments, concepts such as sustainable use, habitat conservation, and biodiversity protection have been progressively embedded in Chinese law. Overall, international treaties have provided both motivation and frameworks for China to strengthen its legal protections for wildlife, ensuring its domestic laws contribute to global conservation efforts.

A central feature of China's wildlife law is its hierarchical system of species protection, which categorises wildlife by conservation importance. Under the WPL, rare and endangered species can be listed as 'wildlife under special state protection', divided into Class I (highest level) and Class II, whose hunting, capture, sale, or use is generally prohibited except under extraordinary circumstances with central government approval; or species of 'important ecological, scientific, or social value', informally known as the 'three haves' or 'Sanyou species', whose hunting or trading without authorisation is illegal, and commercial exploitation is generally forbidden (Feng et al., 2019; Zuo and Yang, 2021; CBCGDF, 2024). The WPL also empowers provincial governments to designate local key protected species within their jurisdictions, filling gaps for regionally threatened species that are not on the national list.

Since its enactment in 1988, China's WPL has undergone several major revisions that have progressively reshaped the general legal framework for wildlife protection. In particular, the revisions adopted in 2016 and 2022 reflect a clear shift away from a predominantly utilisation-oriented approach towards a more conservation- and precaution-focused model, illustrating an important transformation in the general legal protection afforded to wildlife in China, with law increasingly framing wildlife protection in relation to broader ecological and public health concerns.

2.4.4.2 The application of criminal law in wildlife protection

Criminal law has become an increasingly central component of China's wildlife protection framework, operating alongside administrative regulation and, more recently, civil liability mechanisms. Over time, wildlife governance has shifted from a largely permissive, utilisation-oriented approach to one in which criminal sanctions play a prominent deterrent and symbolic role.

Historically, criminal enforcement played only a marginal role in wildlife protection. In the early decades of the People's Republic, wildlife regulation was sparse and closely aligned with resource use and economic recovery, with little reliance on criminal prosecution. This orientation began to change from the late 1980s onwards. The enactment of the WPL in 1988 and the incorporation of wildlife-related offences into the Criminal Law in 1997 (amended last time in 2020) marked a turning point, laying the legal foundation for criminalising serious harm to protected species.

The COVID-19 pandemic constituted a further watershed moment in the criminal governance of wildlife. Emergency measures adopted in 2020, together with judicial interpretations on wildlife crime enacted in 2022, substantially expanded criminal liability beyond traditionally protected species and reinforced deterrence through tougher sanctions. At the same time, structural adjustments to criminal thresholds introduced new complexities into enforcement outcomes (Hu et al., 2025; Tian et al., 2025), reflecting ongoing tensions between conservation objectives, proportionality, and social justice.

Overall, these developments illustrate how criminal law has evolved into a cornerstone of wildlife governance in China, while also exposing the limits and trade-offs inherent in sanction-based approaches.

2.4.4.3 Legal governance on wildlife utilisation

China's legal framework for wildlife governance has historically straddled a tension between conservation and utilisation (Tian et al., 2024), resulting in 21.4% of vertebrate species in the country becoming endangered to date (Gong et al., 2020). The primary statute, the WPL of 1988, explicitly framed wildlife as a state-owned natural resource to be protected through reasonable utilisation (Yu, 2015; Mladonicky, 2020). This orientation meant that from its inception, the WPL not only aimed to safeguard endangered species but also encouraged the domestication and commercial use of wildlife for economic development (Li 2007; Liu et al., 2016b). The black letter law consistently permitted the 'use' of wild animals, a principle maintained even after outbreaks like the 2003 SARS epidemic (Liu 2017b; Yang 2019). Notably, a major debate during the 2016 WPL revision was whether emphasis should shift from utilisation protection, yet the final amended law reaffirmed the concept of 'regulated utilisation', cementing the view of wildlife as a resource to be managed rather than strictly preserved (Chen and Jiang, 2020). This utilitarian legal philosophy has profoundly shaped China's wildlife policies over the past decades.

Under the WPL and related regulations, China developed an extensive system to license and regulate wildlife use, including commercial breeding, trading, and harvesting of certain species. The WPL categorises wildlife into classes of protection (e.g. 'wildlife under special state protection') and establishes permit requirements for their capture, sale, and breeding (Yu, 2015; Tian et al., 2023, 2024). For species under special state protection, artificial breeding licenses are mandatory, both the animals and their products can be legally bought, sold, and utilised if permits and quarantine certificates are obtained (Chen and Jiang, 2020). Wildlife not on the protected lists may be exploited with even less oversight, creating regulatory gaps (Liu 2017b; Yang 2019).

Crucially, China's policy has actively promoted wildlife farming and trade as legitimate industries, which has had complex implications for governance. Over the years, government authorities, especially forestry and agricultural agencies, have championed

wildlife ranching (e.g., breeding of deer, civets, tortoises, and other species) as a driver for rural economic development and poverty alleviation (Chen and Jiang, 2020; Mladonicky, 2020). For example, the Instructions and Guidelines on Active Protection and Utilisation of Wildlife highlighted the importance of wildlife products in earning foreign exchange in 1962. So, from an early stage, wildlife has been an essential part of China's transnational trade. Just in 1978, wild animals and their products worth 150 million US dollars were exported to other countries by China (Li, 2007). By the mid-2010s the commercial wildlife sector had grown to an enormous scale: the overall wildlife trade (legal domestic consumption and export) in 2017 valued roughly 520 billion RMB (~USD \$74 billion) annually, supporting millions of jobs (CAE, 2017; Lin, 2020). This figure underscores that wildlife utilisation, encompassing meat, fur, medicinal products, and more, became a lucrative industry in China.

Indeed, while wild meat consumption was one visible component, often culturally associated with delicacies and tonics, a majority of the trade by value came from other uses such as TCM ingredients, luxury goods, and the fur industry (Liu et al., 2016b; CAE, 2017). For example, musk deer farming for medicinal musk, bear farming for bile, and tiger farming (nominally for conservation or display) were all encouraged or tolerated under the law to supply TCM markets (Zhou 2012; Wang, 2014). Similarly, China has become one of the world's largest producers of animal furs, occupying around 85% of global markets (CAE, 2017), breeding species like minks, foxes, and raccoon dogs in captivity, a practice regulated as special livestock husbandry and excluded from wildlife consumption bans (Mladonicky, 2020; Tian et al., 2023). These activities are legal under permits and have been integrated into local economies, reflecting the WPL's ethos that authorised utilisation of wildlife is compatible with, and even a tool for, wildlife protection.

Over time, regulatory developments did impose some limits on wildlife use, yet significant governance weaknesses persisted. The WPL was amended multiple times (e.g. 2004, 2009, 2016, 2018) to strengthen penalties and improve management (Yang, 2019). Notably, the 2016 revision introduced higher fines for illegal trade and sought to improve captive-breeding oversight (Liu, 2017b). China also shuttered certain wildlife markets or banned specific trades in response to conservation crises, for instance, banning domestic ivory sales by 2017 as part of CITES (Lin, 2020). However, enforcement on the ground

often lagged behind legislation. Researchers and watchdog agencies documented persistent poaching and illegal trafficking feeding China's markets despite the legal framework (Wang, 2014; Yang, 2019). A key criticism is that the licensing system itself has been misused, allowing legal breeding operations to act as a cover for laundering illegally caught wildlife, a practice sometimes termed 'whitewashing' (Liu et al., 2016b). In effect, once wild-caught animals or their parts are fraudulently mixed into the inventory of a licensed farm, they can be sold with permits as if captive-bred, making detection extremely difficult (Mladonicky, 2020). Studies revealed that hundreds of authorised breeding farms provided such cover for illicit trade, exploiting loopholes and weak monitoring (Wang, 2014; CAE, 2017). Additionally, local governments, eager to boost economies, often incentivised wildlife farming and were reluctant to enforce bans that might undercut local businesses (Chen and Jiang, 2020). These factors contributed to continuing illegal trade networks and declines of certain species. For example, the Chinese giant salamander *Andrias davidianus*, a Class II national key protected species, saw wild populations collapse partly due to overharvesting of wild stock to supply licensed farms, despite legal protections (Liu et al. 2016b; Yang, 2019). Thus, even as China's laws on the book became stricter, implementation gaps allowed unsustainable exploitation to continue in practice (Zhou 2012; Yang, 2019).

Another major challenge in China's wildlife governance has been biosecurity and public health risks stemming from wildlife utilisation. The SARS outbreak in 2003 first drew global attention to the dangers of live wild animals in markets after the virus was traced to civet cats sold for food. In its aftermath, China temporarily banned wildlife sales, but enforcement waned and the trade rebounded within months (Li, 2007; Zhou, 2012). Scientists warned that the unregulated consumption and farming of wild species could spark new zoonotic diseases (Daszak et al., 2000), a prediction borne out by the COVID-19 pandemic in 2020. The emergence of COVID-19, possibly linked to a wildlife market, prompted an immediate and unprecedented legal response. In February 2020, China's National People's Congress Standing Committee issued an extraordinary decision banning all hunting, trade, transport and consumption of terrestrial wild animals for food (Chen and Jiang, 2020). This ban (effectively a fast-track amendment to the WPL) shut down wildlife meat markets nationwide and nullified licenses for breeding wild species for human consumption (Tian et al., 2024). However, it pointedly did not extend to non-food uses of wildlife. As a result, while thousands of wild animal farms raising species

for meat were closed, the majority of captive wildlife operations, an estimated 70% dedicated to fur, TCM, the pet trade, and research, remained legal and continued operating (Mladonicky, 2020). The post-COVID policy shift thus marked a significant tightening of wildlife utilisation for edible purposes, yet left intact other commercial uses that could also pose conservation or health threats, which raised concerns that diseases could still spread through the medicinal wildlife supply chain or fur farms, and that a singular focus on banning wild meat might drive other trades underground (Daszak et al., 2000; Tian et al., 2024). Such experience illustrates the difficulty of balancing utilisation and protection in wildlife governance.

2.4.4.4 Legal governance on wildlife as a response to public health risks

Zoonotic disease outbreaks have repeatedly acted as critical catalysts for shifts in China's wildlife governance. Major public health crises, most notably SARS in 2003 and COVID-19 in 2020, prompted renewed regulatory attention to wildlife use and its implications for human health. These two episodes provide important reference points for understanding how public health concerns have progressively reshaped the legal framing of wildlife protection.

A key difference between the SARS and COVID-19 responses lies in their legal status and regulatory ambition. Regulatory measures adopted during the SARS outbreak were largely confined to administrative instruments, reflecting a relatively limited prioritisation of epidemic prevention within the formal legal hierarchy (Yang et al., 2020; Koh et al., 2021). By contrast, the response to COVID-19 was anchored in primary legislation, most notably the nationwide ban on the consumption of terrestrial wild animals, signalling a decisive elevation of public health considerations within wildlife law (Koh et al., 2021; Zuo and Yang, 2021).

These contrasting approaches also reveal a changing balance between economic interests and public health protection. While post-SARS measures largely accommodated continued wildlife farming and consumption under regulatory supervision, the COVID-19 reforms adopted a markedly more precautionary stance, permanently restricting the use of wildlife for food despite substantial economic disruption (Li, 2020a; Ren, 2020). Subsequent legislative amendments further integrated public health objectives into

wildlife governance, including by expanding criminal liability for wildlife-related activities that pose health risks.

This trajectory illustrates how public health has emerged as an important driver of legal change in China's wildlife governance (Zheng et al., 2025). Nevertheless, scholars have cautioned that public health risks associated with wildlife use are not confined to illegal markets alone. In particular, Nijman (2021) notes that legally regulated wildlife trade, due to its scale and visibility, may pose risks that are at least comparable to, and in some cases greater than, those arising from illicit trade. For China, with its long-standing cultural and economic ties to wildlife use, reconciling these tensions will be a key challenge for mitigating public health risks (Tian et al., 2024).

2.4.4.5 Ecological civilisation

Contemporary wildlife governance and responses to IWT in China need to be understood in the context of 'ecological civilisation', which has become a guiding framework in China's national policy, profoundly shaping wildlife conservation strategies. This state-led vision seeks to harmonise economic development with nature, elevating environmental objectives alongside social and economic goals (Wei et al., 2020). Under this paradigm, China's leadership has integrated biodiversity protection into broad development agendas and legislation. Recent policy shifts, such as expansive habitat conservation programs and stricter wildlife trade regulations, reflect the influence of ecological civilisation on conservation practices (Tian et al., 2024). This concept in China, a single-party socialist state depending on top-down hierarchical steering (Niedziałkowski and Putkowska-Smoter, 2021), can gain broad public acceptance and high political willingness, enabling smoother implementation of wildlife (Cheung et al., 2023), providing the impetus and overarching strategy for contemporary wildlife protection efforts in China.

The concept of ecological civilisation has distinct political origins and an evolving ideological trajectory. Introduced as an academic term in the 1980s, it entered Chinese political discourse in the early 21st century amid rising concerns about unsustainable growth (Wei et al., 2020). The idea gained momentum as it resonated with the Communist Party's goals, culminating in its formal endorsement at the 17th National Congress of the CPC in 2007. Thereafter, successive leaders, especially President Xi

Jinping, expanded on ecological civilisation as a core element of governance in the ‘New Era’. He described it as ‘vital for sustaining the development of the Chinese nation’ and put forward key slogans to encapsulate the vision of this through, of which ‘Lucid waters and lush mountains are invaluable assets’ (Wei et al., 2020; China Daily, 2021b) became the best known in China, from governmental departments to the public (Lyu, 2021b; Lyu and Tian, 2021). Xi’s administration not only amplified the rhetoric of ecological civilisation but also institutionalised it as a key state ideology guiding China’s modernisation (Wei et al., 2020). This evolution from a niche concept to official doctrine illustrates how ecological civilisation moved from theory into the heart of Chinese policy thinking.

Reflecting its elevated status, ecological civilisation was eventually enshrined in the PRC Constitution in 2018, cementing its role as a fundamental national development principle (Lyu, 2021a). By writing this concept into the Constitution’s preamble, China signaled that ecological values must be at the forefront of policy and plans, enhancing the legal status of this concept (Tang, 2021; Tian et al., 2024; Wang, 2024). This formal legalisation tasks the state with environmental management, restoration and green development as national duties (MFA, 2020; Xue et al., 2023; Wang, 2024). Ecological civilisation now features prominently in state directives and five-year development plans, ensuring that environmental objectives are systematically incorporated into economic and social policies. For example, recent national plans outline targets for building a ‘Beautiful China’ and emphasise sustainable resource use, directly aligning with ecological civilisation ideals. This constitutional and planning integration not only legitimises ecological civilisation as state policy, but also provides legal and institutional backing for its implementation (Lyu, 2021a; Wei et al., 2020). In short, what began as an abstract notion has been codified into China’s highest legal and planning frameworks, guiding all levels of government in balancing development with conservation.

Chinese official sources frame ecological civilisation as a philosophy deeply rooted in traditional culture, emphasising the harmonious coexistence of humanity and nature, and thus has direct implications of the use and governance of wildlife (Wei et al., 2020; China Daily, 2021b). This concept draws specifically from ancient philosophical traditions, notably Taoist and Confucian thought, which stressed that the laws of Nature govern all things and that Man must seek harmony with Nature (Wei et al., 2020). This historical

wisdom is explicitly invoked by leadership to address global crises such as climate change and biodiversity loss; for instance, President Xi Jinping linked this heritage to a modern development philosophy at the 2020 UN Biodiversity Summit (Wei et al., 2020). Concurrently, the ecological civilisation model is often characterised as ‘eco-socialism’ because it embeds environmental care within the framework of socialist development (MFA, 2020). This political underpinning grants the state a strong stewardship role, enabling the application of strict regulations and laws in environmental protection and framing environmental goals as collective duties rather than individual rights (MFA, 2020). In effect, the ideology of ecological civilisation melds Marxist concepts of social welfare with Chinese cultural ethics, yielding a unique national philosophy of green modernisation (Wei et al., 2020; China Daily, 2021b).

Beyond rhetoric, ecological civilisation has inspired concrete conservation initiatives across China, including within wildlife governance and specifically IWT responses. The government has launched ambitious programs to translate this ethos into practice for wildlife and ecosystem protection. For example, China has made great efforts to reduce air and water pollution, giving up the traditional model of ‘Pollution first, treatment later’ (CCICED, 2020). One hallmark is the strengthening and expansion of protected areas. China has dramatically expanded its protected-area network. From just 18 nature reserves in 1956 (Li, 2007), the network has grown to approximately 2,740 nature reserves, with 474 at the national level, covering 15%~18% of the country’s land areas (Jiang, 2016; Tonghui et al., 2019; Wei et al., 2020). This expansion enables effective protection for more than 85% of the national key protected wildlife populations (Yin, 2013).

During the COP 15, China officially established the first batch of five national parks on October 21st, 2021. These national parks involve 10 provinces, with a protected area of 230,000 square kilometres, covering nearly 30% of terrestrial national key protected wild animals and plants (Chen, 2021; Lyu, 2021a). As one of the core carriers of the concept of ecological civilisation (Lyu, 2021a), national parks are conducive to protecting the richest group of biodiversity and maintaining the authenticity and integrity of the natural ecosystem (Chen, 2021). Another flagship policy is the delineation of ecological conservation ‘redlines’, which strictly limit human activity in ecologically critical zones. First proposed in 2011 and formalised in 2017, the redline scheme now covers a substantial portion of China’s territory, where development is prohibited or tightly

controlled to preserve biodiversity and vital ecosystem services. Roughly 25% of China's land area has been brought under these ecological redlines, thereby securing 95% of key ecosystems and virtually all critical species habitats (Wei et al., 2020).

Following the idea of 'community of life', the ecological civilisation rule of law theory was set up, highlighting that there is no substitute for the ecological environment (Lyu, 2021b). Hence, it is crucial to correct the unbalanced and insufficient development of ecological environment protection through the rule of law (Lyu, 2021b), including preventing abuses of wildlife. Besides, an ecological civilisation legal system with environmental protection law as the core has been gradually established in China (Zhu, 2022; Lyu, 2021b). The 'greening' innovation of the traditional legal department is advancing rapidly (Lyu and Tian, 2021). In 2016, ecological civilisation was added to the legislative purpose of WPL and this version of WPL started emphasising the ecological value of wildlife. Also in this version, 'give priority to wildlife protection, regulate utilisation, protect wildlife to promote the harmonious development between man and nature' was added to the legislative principle of WPL (Tian et al., 2024). However, such a priority of protection over utilisation only exists in the principal article of the WPL; about 20 articles still refer to 'utilisation of wildlife', reflecting an unresolved struggle between conservation goals and resource use interests (Lyu, 2021a). Therefore, this version is called 'wildlife utilisation law' rather than 'wildlife protection law' (Narada Insights, 2020; Li, 2020a). Lyu (2021a) notes that this emphasis on regulated use can undermine the law's protective intent, as broad exemptions and licensing regimes create loopholes that may be exploited at the expense of species conservation.

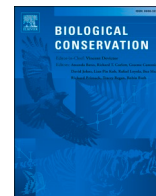
Overall, these initiatives exemplify ecological civilisation's link to sustainable development. By valuing ecosystem services and biodiversity as 'invaluable assets', the concept aligns with international sustainability goals (Wei et al., 2020). In essence, ecological civilisation serves as an overarching narrative uniting environmental governance, legal reform and development policy. The result is a comprehensive system in which biodiversity conservation and green growth are no longer secondary concerns but central objectives of China's national strategy (Wei et al., 2020).

2.4.4.6 From the literature to the analytical framework of this thesis

The themes identified in this section are taken forward and examined in detail in the subsequent chapters. Chapter 3 (Tian et al., 2023) analysed the legal construction of ‘wildlife’ through species classification, clarifying how definitions and protected species lists shape the scope and levels of protection. Chapter 4 (Tian et al., 2024) further explored wildlife utilisation and governance by analysing the legislative evolution of wildlife governance, including the role of ecological civilisation, the regulation of wildlife use, adjustment to species lists, and the incorporation of public health considerations following COVID-19, which reflect enduring tensions between conservation objectives and cultural, economic, and health-related rationales. Chapter 5 (Tian et al., 2025) examines the development and internal logic of wildlife-related criminal offences and sanctioning reforms, particularly in the post-COVID 19 context.

Chapter 3

What is 'wildlife'? Legal definitions that matter to conservation



What is “wildlife”? Legal definitions that matter to conservation

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ABSTRACT

The outbreak of COVID-19 has highlighted the pressing need to prevent zoonotic diseases, resulting in a surge of interest and research on wildlife legislation and policies. These discussions cover many aspects of wildlife governance, such as wildlife farming, hunting and consumption. However, the legal concept of “wildlife” has received insufficient attention, raising the question of what it entails in a legal context. This study reveals significant differences in species classification, language clarity, and human-wildlife relationships between China and the UK through conducting a comparative analysis of the legal definitions and scope of “wildlife” in these two countries. By contributing to the growing body of literature on wildlife conservation, this study provides insights into the legal definitions and scope of “wildlife” in different countries, and underscores the significance of clarifying the context and scope of legally defined “wildlife” terms in shaping public policy and discourse in wildlife governance. Additionally, it emphasises the importance of legal clarity and harmonisation in wildlife definitions for improved conservation efforts at both domestic and international levels. Finally, this study concludes by stressing the importance of the human-nature relationship in shaping wildlife definitions and classifications, and highlighting the need for conservation practitioners to be attentive to legal details related to wildlife governance in future research and practical efforts to achieve protection.

1. Introduction

Legislation plays a crucial role in conservation, codifying which species, sites and habitats receive protection, allocating rights and responsibilities, and defining rules around harvest, use and management (Pascual et al., 2021). And environmental legislation has experienced significant growth in recent decades, in response to widespread habitat and biodiversity loss (CBD, 2020) and increasing concerns about zoonotic diseases that have driven recent additional restrictions on wildlife harvest and use (Wingard et al., 2020). Although *de jure* rules are certainly not the only important dimension shaping human-environment behaviours, legislation has profound implications for decision-making, enforcement, social norms, and public perceptions (Tiwari, 2017).

Legal definitions are central to legislation: they help define the scope and application of legislation, are the basic argumentative tools for applying laws to cases, and enforcing legal consequences (Macagno, 2010). Definitions also provide clarity, stability, and coherence (Vibhute and Aynalem, 2009). As such, it is important that legal definitions are both clear and precise (Sima and O’Sullivan, 2016); however, they are

not always clearly drafted nor coherent across pieces of legislation. While recognising that there are times when providing precise definitions in primary legislation may be counterproductive and omitting them is a deliberate choice by lawmakers (e.g., in the UK’s 2022 Animal Welfare (Sentience) Act; Ares, 2022), whether poorly constructed or completely omitted, legal definitions are often not easily discerned, especially among non-legal audiences and practitioners (see Pascual et al., 2021).

This includes the legal definitions of “wildlife”, which is a central concern to the field of conservation biology. The ways in which “wildlife” and related terms are legally defined go beyond mere semantics; they are significant in shaping decisions, policies and discourses around conservation, and can also reflect social values (e.g., see Margulies et al., 2019).

This paper undertakes a systematic comparison between Chinese and UK legislation, to describe the differences in legal definitions and scope of “wildlife”. Although it is known and expected that definitions often vary across jurisdictions, these are not often explored in particular depth; it is not always clear what these differences are, or their possible implications for conservation practice, including issues of clarity,

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possible misunderstandings, cross-jurisdictional conflicts, science-law alignment, and sharing of best practices. This analysis aims to describe the nuances of those definitions, to understand the ways in which this core term – and the taxa it represents – are treated in law. It explores whether and why such differences might matter for conservation practice, glean lessons about different approaches across jurisdictions. Importantly, it illustrates the complexity involved in disentangling key legal terms of conservation, and we illustrate an approach that can be used to undertake structured analyses of legal definitions in other contexts. Such nuances are important to conservation practice, guiding domestic and comparative legal analyses, such as for drafting and revising environmental legislation, updating species lists, closing loopholes, responding to zoonotic threats, and expanding legislation. These are contexts in which neither the colloquial nor ecological definitions of “wildlife” suffice, and where the nuances of legal definitions – potentially overlooked by conservationists – can carry weight. Finally, we highlight a novel approach that can help guide future structured analyses of legal definitions.

1.1. *Wildlife: a long-debated term*

The term “wildlife” has wide colloquial usage, often understood to include “animals, birds, insects, etc., that are wild and live in a natural environment” ([Oxfordlearnersdictionaries.com](https://www.oxfordlearnersdictionaries.com), 2022). Wildlife ecologists and conservationists tend to have similar, broad definitions that: “all living organisms out of the direct control of man, including undomesticated or cultivated plants and animals” (Yarrow, 2009). However, the literature reflects diverse views on the scope of “wildlife” definitions, whether it should be equivalent to all “non-human” animals (Wyatt and Nurse, 2020), or refer to wild animals and their habitats (Yarrow, 2009), or to all wild animals and plants (Anthony et al., 2009), or to free-ranging vertebrates, excluding fish (Rabie, 1973; Roth and Merz, 1997; Sillero-Zubiri et al., 2006). A common definition involves a binary distinction between wildlife and domesticated animals in captivity (Suchet, 2002). More specifically, Usher (1986) suggests that “wildlife” should meet two criteria: undomesticated and non-introduced. However, this overlooks taxa that are subject to management systems such as ranching and captive breeding (Roth and Merz, 1997). For example, Redford et al. (2011) put forward five processes of human intervention for wild fauna: self-sustaining, conservation dependent, lightly managed, intensively managed, and captive breeding. Similarly, Zeng et al. (2020) proposed a progressive two-dimensional framework between “wild animals” and “domesticated animals”, which distinguished 12 categories of animals (e.g., wild animals, urban or rural wild animals, artificially assisted wild animals, captured wild animals, captive-born animals, etc.). Moreover, as wildlife’s functional and social values change over time, uses and definitions can change, which are also reflected in legislation (Belcher, 2003; Peña, 2010; Margulies et al., 2019). Reconciling these diverse definitions and taxonomies with those codified in national legislation has long presented challenges, though ensuring clarity and mutual intelligibility is important to practice.

Importantly, many of the most familiar definitions, and those which conservationists often debate (see above), do not necessarily align with the legal terminology. Variation across disciplines, contexts and countries results from many factors; within law, this includes differences in language and discursive idioms (Durant and Leung, 2016). Indeed, originally an Anglo-American term and largely Eurocentric concept (Suchet, 2002), “wildlife” can be challenging to translate into other languages (Roth and Merz, 1997), and there is no direct equivalent of “wildlife” in some Indigenous languages (Usher, 1995; Suchet, 2002). Different definitions can also reflect legal systems’ distinct histories (Dainow, 1966), cultures (Botezat, 2012; see Evans and Levinson, 2009) and approaches to legislative development (Dainow, 1966). Definitional differences can also reflect distinct human-nature relationships and approaches to governing wildlife (Niedzialkowski and Putkowska-Smoter, 2021).

1.2. *Legal definitions have implications*

Faced with such variation and complexity, understanding the nuances of definitional differences and conflicts is important for a number of reasons. Definitions guide the practical application of law (Pascual et al., 2021). Definitions can determine what laws, procedures, and agencies apply in certain contexts, such as which species can be subject to captive breeding, conservation, or harvest. For example, US legislation excludes flora from the legal definition of “wildlife”, which affects the agencies that are allowed to be legally involved in plant conservation, informs funding allocations, and directs enforcement priorities and efforts (Margulies et al., 2019).

Detailed understanding of legal definitions can also support (or confuse) resource users, enforcement agencies and judges (Feng et al., 2019). For example, following the COVID-19 pandemic, there were widespread calls to restrict or ban wildlife trade (e.g., BornFree, 2023), but often without detailed consideration of the diversity of taxa or forms of wildlife use affected by such proposals (Challender et al., 2020). Indeed, following the pandemic, the Chinese government suspended the trade in all terrestrial wildlife (Huang et al., 2021). However, the Wildlife Protection Law (WPL) only defines wildlife protected under this law, which means that there was no existing legal definition that would encapsulate all terrestrial “wildlife”. Quality conservation policy requires understanding such mismatches between colloquial, ecological and legal definitions. Similar definitional nuances can also challenge transboundary policy issues, such as rules around international trade, quarantines, and disease transmission.

Moreover, legal definitions not only convey rules, but they also reflect and influence culture, beliefs, and values (Sirbu, 2015). Legal definitions connect language and social power (Mertz, 1994), shaping both enforcement and social norms over what is legal and licit. Specifically, the definition of “wildlife” usually possesses multiple characteristics of natural resources, social values, and legal principles (Huang and Wang, 2022), thus can inform views on human-nature relationships, such as differences between legislation that promotes sustainable wildlife use and systems that focus on preservationism (Paterson, 2006).

2. Methods

We compared the legal definitions and scope of “wildlife” and related terms in China and the UK. Husa (2013) succinctly summarised Zweigert and Kötz’s theory of the comparative method as involving a comparative analysis of solutions to similar legal questions, followed by an exploration or explanation of the factors underlying any identified distinctions. The countries we chose reflect contrasting factors, differing in their legal histories, development and systems, and also in their approaches to governing wildlife. For example, China is a mega-biodiverse country that accounts for much of the global wildlife trade (Jiang et al., 2016) and hosts large-scale, legal, commercial wildlife captivity (Wang et al., 2019). China has also made significant changes to domestic legislation to respond to the COVID-19 pandemic (Huang et al., 2021). The UK lacks high biodiversity (Davis, 2020) but has a long-standing tradition of legal wildlife harvest, notably game hunting (Dalton, 2020). Further, the UK has advanced animal welfare standards, which is controversial in China (Lu et al., 2013). Meanwhile, these two countries have distinct biopolicies governing animals and plants (Damian and Chan, 2021). We knew a priori these differences were likely to reflect differences in legal definitions.

Inspired by systematic methods used in other fields (Berthinussen et al., 2020; e.g., medicine, Xu et al., 2014; conservation, Cook et al., 2013; animal studies, de Vries et al., 2015), we developed a review protocol to systematically compile all relevant wildlife legislation in China and the UK. Such structured methods are relatively uncommon in legal scholarship but can help provide a more thorough and structured understanding of the scope of laws and of how definitions differ across jurisdictions (Salehijam, 2018; Rose and Mackenzie, 1991; Kamba,

1974). We limited our collection to effective national-level legislation of mainland China, and of England and Wales in the UK, including primary and relevant subsidiary legislation (e.g., circulars from relevant departments such as China's State Forestry Administration). EU documents which are referred to by UK definitions for further interpretation were also collected. Both countries have centralised, searchable government websites (not standard in many other countries, Pascual et al., 2021), and we collected legislation from national databases (<https://www.legislation.gov.uk/>, <https://flk.npc.gov.cn/>), with Chinese terminology translations into English checked on the leading legal database (LexisNexis: <https://hk.lexiscn.com/>) (Anderson et al., 2012; Dobinson and Johns, 2007).

We searched each database for legislation governing wildlife by searching the titles of legislation and their full text for the term "wildlife". However, it became evident that we also needed to search for terms related to and overlapping with "wildlife". We started with several additional, self-generated terms (animal, species, fauna, livestock, game, meat, flora, plant, and fungus) as the basis for a snowball approach to identifying related terms (e.g., "animal" yielded the new term "wild animal"). We searched for 110 terms in China and 161 in the UK (63 terms overlapping; Supplementary Table A). We viewed 695 legislative documents (366 from China and 329 from the UK) and ultimately collected 21 pieces of Chinese legislation and 96 from the UK, which contain relevant definitions.

We employed a doctrinal method, also known as black-letter legal analysis, to analyse the text of each collected document, identifying the legal definitions of each term codified in law (Hutchinson, 2018). This approach facilitates a systematic overview of the complex rules of given areas of law and thus enables analysis of the relationship between them (Hutchinson and Duncan, 2012). However, focusing on the law as-it-is-written does not reflect practical realities (ASC LLM Support, 2017), such as the external factors influencing legislation and obstacles in enforcement practice (Eppg, n.d.). Nevertheless, written law remains an important starting point.

We identified the definitions and scope of each of the terms by locating verbs like "means", "refers", and "includes" and extracted 222 definitions (China = 40 definitions for 28 terms, Supplementary Table B.1; UK = 182 definitions for 69 terms, Supplementary Table B.2). Some terms have different definitions across legislation (e.g., 20 pieces of UK legislation offered 19 definitions of "poultry"; Supplementary Table B.2). For terms with multiple definitions, we prioritised definitions in the primary wildlife legislation: the UK's Wildlife and Countryside Act (1981) and China's WPL. We excluded from our discussion definitions that did not define species categories (e.g., meat products, specimens) and removed definitions that defined species types but did not distinguish between "wild" and "non-wild" (e.g., invasive species, straying animals). Finally, 10 definitions of 6 terms from Chinese legislation and 18 definitions of 16 terms from UK legislation that are closely related to defining "wildlife" were involved in the main discussion.

We produced Venn diagrams for each country, visually representing the scope of each term. This format was chosen because, like legal definitions, Venn diagrams serve to define mutually exclusive categories and deal with overlaps in contexts of complex relationships among concepts (Pirooznia et al., 2007; Berger-Wallisler et al., 2017; Ćyras et al., 2018). Diagramming involved iterative reviews of definitions, their scopes, delineations, and overlaps. We then refined the Venn diagram categories by selecting a wide range of species to assess whether and how they would fit.

We also collected definitions for "wildlife" from the texts and official websites of several international agreements and organisations: the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention of Biological Diversity (CBD), the International Union of Conservation of Nature (IUCN), the International Consortium on Combating Wildlife Crime (ICWC), and the Food and Agriculture Organisation of the United Nations (FAO). The common standards widely accepted and recognised by the international

community reflected in these definitions can provide a frame of reference for comparative analysis.

3. Results

Unsurprisingly, legal definitions for "wildlife" vary within the same country and across jurisdictions. Moreover, clarifying these definitions requires an understanding of their relationships to a huge number of other terms, like "domesticated animal" and "protected species". The ensuing legal and terminological complexity mapped out for Chinese and UK legal systems highlights the challenge facing practitioners who lack legal training, and the processes of legislative drafting, harmonisation, and reform in the conservation sector.

3.1. Definitions and scope of wildlife

The results show that the use of "wildlife" as a legal term is not straightforward, and it is not always clearly, coherently, or consistently defined across countries, laws, or taxa. International conventions and organisations tend to define "wildlife" as including all animals, plants and fungi living in the wild. Similarly, the Countryside Access Regulations 1994 of the UK defines "wildlife" as "any species of animal and bird which is ordinarily resident, or plant that ordinarily grows, in England (and Wales) in a wild state". In contrast, China's WPL offers no specific definition of "wildlife" but instead equates "wildlife" to any species protected under this Law, which are listed on two species lists and enjoy different levels of protection. Large numbers of terrestrial and aquatic species that are not listed in the Law thus fall outside the legal definition of "wildlife".

Indeed, some taxonomic groups are systematically excluded from legal classification as "wildlife" in ways that differ from colloquial and ecological understandings of wildlife. Notably, these two countries provide a particularly distinct treatment of plants. Even in its colloquial usage, the English term "wildlife" in China usually refers specifically to wild fauna ("野生动物" in Chinese), excluding plants, and this is also reflected in legislation. Separate legislation governs plants under the Regulations on Wild Plants Protection, which offers weaker legal protections than the WPL. In contrast, the UK's wildlife definition encompasses both wild plants and animals, offering equal protection under the 1981 Act. Interestingly, the CBD does not clarify whether plants are included in its definition of "wildlife".

The legal treatment of fungi is less clear. In the UK, fungi are considered "wildlife", listed under a sub-category, "wild plant". However, the definition of "invasive alien species" in the same legislation lists "fungus" alongside "plant", indicating an equal relationship rather than a subordinate one. In China, neither the legal definitions for "wildlife" nor "wild plant" mention "fungi". However, a government Circular lists "fungus plant" as a type of "vegetable" (see Supplementary Table B.1).

Both Chinese and UK legislation generally encompasses certain fish and invertebrates as part of wildlife by default through listing them on species lists. Similarly, birds are also defined as "wildlife" in both countries. However, UK legislation distinguishes "wild birds" from "wild animals" as different categories of wildlife, while there is no such distinction in China.

3.2. Many other terms related to wildlife

Efforts to understand legal definitions of "wildlife" and what it includes require an understanding of the various other definitions. The results show that dozens of multiple and overlapping legal terms related to "wildlife" are defined by international bodies (Table 1). For example, the FAO defines a category of organisms called "captive wild animals", and the CBD defines the term "wild species" to refer to captive species whose native state has not been changed through captive breeding. The IUCN considers some animals under human control or released into the wild as "wild fauna".

Table 1
Wildlife definitions across international bodies.

Convention / Organisation title	Term	Definition
ICWC	Wildlife	All wild fauna and flora, including animals, birds and fish, as well as timber and non-timber forest products.
CITES	Wild population	The total number of free-living individuals of a species within its area of distribution.
CBD	Wildlife	Living, non-domesticated animals. Some experts consider plants also as part of wildlife.
	Wild species	Organisms captive or living in the wild that have not been subject to breeding to alter them from their native state.
FAO	Wildlife	All living things that grow independently of people, usually in natural condition. Wildlife includes, but not limited to, plants, animals, birds and aquatic life.
	Captive wild animals	An animal that has a phenotype not significantly affected by human selection, but that is captive or otherwise lives under direct human supervision or control, including zoo animals and pets.
IUCN	Wildlife	Living things that are neither human nor domesticated.
	Wild Fauna	Land animal species that subsist subject to the natural selection processes and are freely developed. It includes the smaller populations that are under man's control, as well as household animals that turn wild as a result of abandonment, and thus, susceptible to capture and appropriation.

Similarly, there are many additional legal terms associated with “wildlife”, some of which are unique to the UK or China (Table 2). Many of these define species according to whether they are found in the wild, including China’s “wild medicinal animals” and UK’s “game bird” and “wild game.” These terms often refer to specific circumstances to allow for specialised management that require specific legal identification, such as China’s “semi-wild medicinal animals/plants” and the UK’s “farmed game birds”. There are also legal terms designed to refer to species on specific lists, like “precious animals” and “nationally protected species”.

3.3. Mapping scope of “wildlife” and related terms

Understanding legal definitions of “wildlife” requires a parallel understanding of allied terms. Importantly, many of these definitions abut, overlap, or function in reference to one another.

3.3.1. China’s wildlife categories

China’s legislation defines “wildlife” specifically as “wild animals” protected under the WPL, encompassing selected birds, insects, mammals, reptiles, and aquatic animals, but excludes plants and fungi. Wildlife is classified into two main groups (Fig. 1), each with varying levels of protection. “Wildlife under special state protection” refers to rare and endangered terrestrial and aquatic species that receive national-level protection (Fig. 1, A). They are divided into two categories: wildlife under Class-I and Class-II state protections, which are defined as “precious animals” together with species listed in CITES Appendix I and II. The other category is “terrestrial wildlife of important ecological, scientific, or social value”, also known as “Sanyou species” (Fig. 1, B) or “three haves” animals. Additionally, there are “wildlife under special local protection” governed by local governments (e.g., provinces, autonomous regions, or municipalities directly under the Central Government, Fig. 1, C). Some of them overlap with Sanyou species (Fig. 1, BC). Species outside of these

Table 2
Example terms associated with wildlife in China and the UK.

Key legislation	Term	Definition
China		
Law of the People’s Republic of China on the Protection of Wildlife (Revised in 2022)	Wildlife (protected under this law)	Article 2: rare or endangered species of terrestrial and aquatic wildlife and the species of terrestrial wildlife which are of important ecological, scientific, or social value.
Measures for the Administration of Domestication and Breeding Licences for Wildlife under Special State Protection (Revised in 2015)	Domesticated animal (also known as artificial breeding wildlife)	Article 2: wild animals domesticated and bred for protection, research, scientific experiment, exhibition and other economic purposes under artificial control conditions.
Interpretation of the Supreme People’s Court and the Supreme People’s Procuratorate on Several Issues concerning the Application of Law to Handling of Criminal Cases Involving Smuggling (2014)	Precious animals	Article 10: “precious animals” prescribed in Paragraph 2 of Article 151 of the Criminal Law include the wild animals under first-grade and second-grade state protection listed in the List of Wild Animals under Special State Protection, the wild animals listed in Appendix I and Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and above-mentioned animals tamed and bred.
Regulation on Protection of Wild Medicinal Resources (1987)	Wild medicinal species	Article 3: The legislation only defined the wildlife medicinal species under the national priority protection based on three classes: Class 1: endangered, rare and precious wild medicinal species; Class 2: important wild medicinal species, of which the distributed area shrinks and of which the resources are nearly exhausted; Class 3: major wild medicinal species, of which the resources have decreased largely.
Good Agricultural Practice for Chinese Crude Drugs (for Trial Implementation) (2002)	Semi-wild medicinal animals/plants	Article 55 (7): wild animals and plants, or those derived from cultivation, and inter-tillage, weeding, fertilising, or feeding, etc. with proper management.
Regulations of the People’s Republic of China on Wild Plants Protection (Revised in 2017)	Wild plants (protected under this regulation)	Article 2: plants growing in natural conditions, which are “precious”, or which are rare, near extinction, or of important economic, scientific, or cultural value.
UK		
The Countryside Access Regulations 1994	Wildlife	Section 2 (1): (a)any animal species (other than a species of bird) which is ordinarily resident in England or Wales in a wild state; (b)any species of bird which is ordinarily resident or is a visitor to England or Wales in a wild state; and (c)any species of plant which ordinarily grows in England or Wales in a wild state.

(continued on next page)

Table 2 (continued)

Key legislation	Term	Definition
Wildlife and Countryside Act 1981	Wild animal	Section 27 (1): any animal (other than a bird) which is or (before it was killed or taken) was living wild.
	Wild bird	Section 27 (1): any bird of a species which is ordinarily resident in or is a visitor to the European territory of any member State in a wild state but does not include poultry or, except in sections 5 and 16, any game bird.
	Game bird	Section 27 (1): any pheasant, partridge, grouse (or moor game), black (or heath) game or ptarmigan
	Plant	Section 14P (8): "Plant" includes fungi and any reference to a plant includes a reference to— (a) bulbs, corms and rhizomes of the plant; and (b) notwithstanding section 27(3ZA), seeds and spores of the plant.]
	Wild plant	Section 27 (1): means any plant which is or (before it was picked, uprooted or destroyed) was growing wild and is of a kind which ordinarily grows in Great Britain in a wild state.
Animal Welfare Act 2006	Protected animal	Section 2: (a) it is of a kind which is commonly domesticated in the British Islands, (b) it is under the control of man whether on a permanent or temporary basis or (c) it is not living in a wild state.
The A63 (Castle Street Improvement, Hull) Development Consent Order 2020	Nationally protected species	Schedule 2. Part 1. Section 1: "Nationally protected species" means any species protected under the Wildlife and Countryside Act 1981;
The Countryside Stewardship (England) Regulations 2020	Priority species	Section 2 (1) (b): "Priority Species" means those living organisms identified as being of principle importance in England in accordance with section 41 of the Natural Environment and Rural Communities Act 2006;
Wild Mammals (Protection) Act 1996	Wild mammal	Section 3: any mammal which is not a "protected animal" within the meaning of the Animal Welfare Act 2006.
The Welfare of Farmed Animals (England) Regulations 2007	Farmed animal	Section 3 (2): an animal bred or kept for the production of food, wool or skin or other farming purposes, but not including— (a) a fish, reptile or amphibian; (b) an animal whilst at, or solely intended for use in, a competition, show or cultural or sporting event or activity; (c) an experimental or laboratory animal; or (d) an animal living in the wild.
The Farmed Game Meat (Hygiene and Inspection) (Charges) Regulations 1993	Farmed game	Section 2 (1): "wild land mammals which are reared and slaughtered in captivity, excluding—(a)mammals of the family Leporidae, or (b)wild land mammals living within an enclosed territory under conditions of freedom similar to those enjoyed by wild game;
The Food Hygiene (England) Regulations 2006	Farmed birds	Section 14: including birds that are not considered as domestic but which are farmed as domestic animals, but not including ratites (i.e. large flightless birds);
The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995	Farmed game birds	Section 2 (1): birds, including ratites (i.e. large flightless birds), but excluding poultry, which are not generally considered domestic but which are bred, reared and slaughtered in captivity;
The Wild Game Meat (Hygiene and Inspection) Regulations 1995	Wild game	Section 2: (a) wild land mammals which are hunted (including wild mammals living within an enclosed area under conditions of freedom similar to those enjoyed by wild game); and (b)wild birds;
	Small wild game	Section 2: wild mammals of the Leporidae family and wild birds intended for human consumption;
	Large wild game	Section 2: means wild ungulates
The Avian Influenza (H5N1 in Wild Birds) (England) Order 2006	Wild game bird	Section 2 (1): a bird which lives freely in the wild and is hunted for human consumption

categories are governed by different agencies based on whether they are "terrestrial animals" (governed by the State Forestry and Grassland Administration, Fig. 1, D) or "aquatic animals" (governed by the Fisheries Administration, Fig. 1, E).

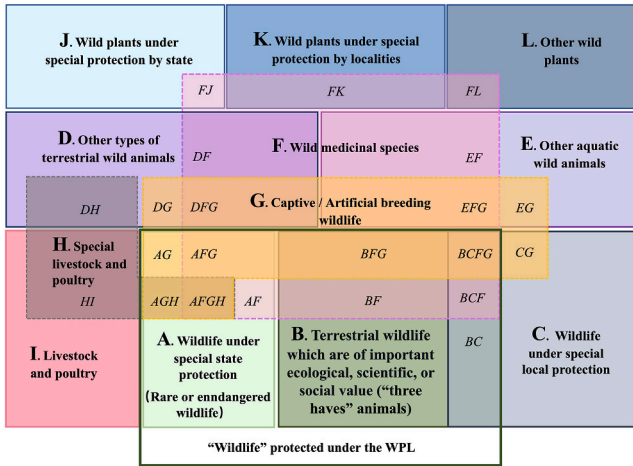
Similarly, the regulation governing wild plants also only defines wild plants under its protection, which are more clearly defined than wildlife by requiring that plants must grow under natural conditions. These are divided into two main categories: "wild plants under special protection by the state" (Fig. 1, J) and "wild plants under special protection by localities" (Fig. 1, K), governed by the Forestry Administration. Other wild plants (Fig. 1, L) that are outside of the regulation's protection are governed by the agricultural administration.

Chinese legislation commonly regards wildlife as one kind of resource, resulting in several legal terms that allow for different types of human uses for wildlife. "Captive / Artificially bred wildlife" (Fig. 1, G) refers to species that could be legally fed or bred in captivity to serve various demands. For example, wildlife bred for commercial use encompass not only species outside of WPL's protection (Fig. 1, DG, EG, e.g., *Cavia cobaya* guinea pig), but also "wildlife under special state protection" (Fig. 1, A, e.g., *Nyctereutes procyonoides* racoon dog) and Sanyou species (Fig. 1, B, e.g., *Paguma larvata* civet cat). There are also some species that are legally permitted to be captively fed or bred for

non-commercial purposes, such as conservation breeding (Fig. 1, A, e.g., *Ailuropoda melanoleuca* giant panda), exhibition in zoos (Fig. 1, A, e.g., *Elephas maximus Linnaeus* elephant), and scientific experiments (Fig. 1, A, e.g., *Macaca macaque*). Specifically, there are some species defined around the medicinal use of wildlife. For example, "wild medicinal species" (Fig. 1, F) is associated with Traditional Chinese Medicine (TCM), which includes both animals and plants that are medicinally important – and overlaps with a number of other wildlife categories, including both wild and captive individuals. Furthermore, a new legal category was developed in 2020 called "special livestock and poultry" (Fig. 1, H). It covers 16 species of fauna for which captive breeding is allowed post-COVID-19 and their artificially bred population are no longer governed as "wildlife", but rather as normal livestock and poultry (Fig. 1, I), regulated under the Animal Husbandry Law.

3.3.2. UK's wildlife categories

UK legislation defines "wildlife" as species that ordinarily reside or grow in England or Wales in a wild state and divides it into three categories that receive specific protections: "wild animals" (Fig. 2, A & B), "wild birds" (Fig. 2, K), and "wild plants" including fungi and algae (Fig. 2, Q, S). "Wild animals" are further categorised according to what protections they receive: "protected wild animals" are protected from



Code	Example species
A	Wildlife under special state protection. <i>Pantherolops hodgsoni</i> (Tibetan Antelope); <i>Balaenoptera musculus</i> (Blue Whale)
AF	<i>Panthera pardus</i> (Leopard)*; <i>Manis pentadactyla</i> (Pangolin)*
AG	<i>Panthera tigris</i> (Tiger); <i>Alouropoda melanoleuca</i> (Giant panda); <i>Rana tigrina</i> (Chinese bull frog) [§]
AFG	<i>Saiga tatarica</i> (Saiga antelope); <i>Selenarctos thibetanus</i> (Asiatic Black Bear)*
AGH	<i>Nyctereutes procyonoides</i> (Raccoon dog) [§]
AFGH	<i>Cervus elaphus</i> (Red deer) ^{§§} ; <i>Cervus nippon</i> (Sika deer) ^{§§}
B	“Three haves” animals. <i>Paguma larvata</i> (Masked Palm Civet); <i>Rangifer tarandus</i> (Reindeer)
BC	<i>Anas falcata</i> (Falcated duck); <i>Capreolus pygargus</i> (Roe deer)
BCF	<i>Gekko taihaiensis</i> (Mingtao's Gecko Chinese)
BF	<i>Dinodon</i> (Erythema Snake); <i>Elaphe bimaculata</i> (Twin-spotted rat-snake)
BFG	<i>Duttaphrynus melanostictus</i> (Asian common toad); <i>Zoocys dhumades</i> (Garter snake)
BCFG	<i>Zoocys dhumades</i> (Garter snake)
C	Wildlife under special local protection. <i>Mesechinus miodon</i> (small-toothed forest hedgehog)
CG	<i>Deinagkistrodon</i> (Hundred-paced Pit-viper)
D	Other types of terrestrial wild animals. <i>Corvus macrorhynchos</i> (Large-billed Crow)
DG	<i>Sus scrofa</i> (Wild Boar)
DF	<i>Vespertilio superans</i> (Asian particolored bat)
DGF	<i>Lumbricina</i> (Earthworm)
DH	<i>Neovison vison</i> (American Mink) [§] ; <i>Vulpes lagopus</i> (Arctic Fox) [§]
E	Other aquatic wild animals. <i>Trichurus lepturus</i> (Hairtail); <i>Scomberomorus niphonius</i> (Spanish mackerel)
EG	<i>Mylopharyngodon piceus</i> (Black carp); <i>Hypophthalmichthys molitrix</i> (Silvercarp)
EF	<i>Rana hanluica</i> (Hanlun Brown Frog)
EFG	<i>Hyriopsis cumingii</i> (Lea); <i>Rana temporaria chensinensis</i> (Wood frog) [§]
F	Wild medicinal species. See rows (AF, CF, DE, FI, FK, FL, AFG, AFH, BFG, BCF, BCDF, BCFM, BCFN, BCFM)
G	Captive / Artificial breeding wildlife. See rows (AG, CG, DG, EG, AFG, BFG, BCDF, BCFM, BCFN, BCFM)
H	Special livestock and poultry. See rows (AH, DH, HI, AFH)
HI	All the domesticated population of H
I	Livestock and poultry. <i>Sus scrofa domestica</i> (Pig); <i>Ovis aries</i> (Sheep)
J	Wild plants under special protection by state. <i>Cathaya argyrophylla</i> (Silver fir);
FJ	<i>Gastrodia elata</i> ; <i>Dendrobium huoshanense</i> ; <i>Cordyceps sinensis</i> (Chinese caterpillar fungus) [§] ;
K	Wild plants under special protection by localities. <i>Picea brachyphylla</i> (Sargent spruce);
FK	<i>Anemone reflexa</i> Steph (Anemone); <i>Ephedra intermedia</i> (Zhong Ma Huang)
L	Other wild plants. <i>Sophora japonica</i> (Sophora flower); <i>Salix babylonica</i> (Weeping willow)
FL	<i>Forsythia suspensa</i> (Golden bell) [§] ; <i>Medicago</i> (Alfalfa)

* The wild medicinal species under national protection have been banned from medicinal use, but the Chinese patent medicine containing their body parts (e.g., leopard bones, pangolin scales, bear bile) as one of its ingredients is still listed in the Chinese Pharmacopoeia.

§ Since 2017, only the wild group of these species belong to the list of “Wildlife under special state protection,” and the artificial breeding group are listed as “Artificial breeding wildlife under special state protection.”

§ Since 2020, only the wild group of these species are regarded as “wildlife”, and the domesticated group are classified as “Special livestock.”

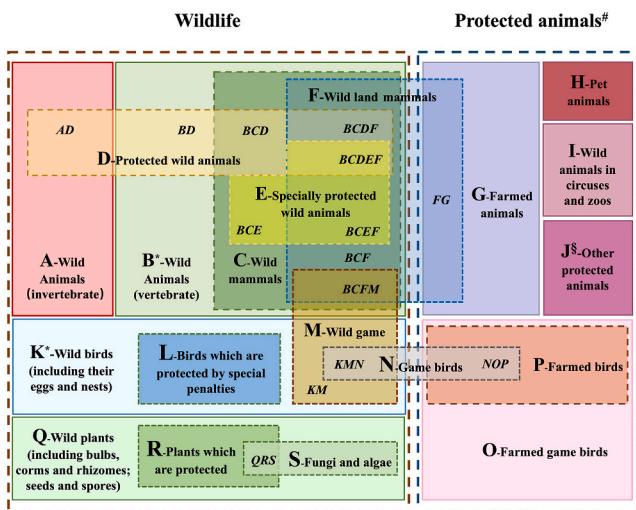
§ Semi-wild species that are partially reared or cultivated in the wild.

Fig. 1. Scope of legal definitions for wildlife and related terms in China, including example species in each category.

offences such as intentional killing or destroying their shelter (Fig. 2, D). Similarly, “specially protected wild animals” are protected from certain harvest methods such as self-locking snares and electrical devices (Fig. 2, E).

Wildlife can also be categorised as “wild game” (Fig. 2, M), including

various species of “wild land mammals” (Fig. 2, BCFM) and “wild birds” (Fig. 2, KM), which can be legally bred in captivity for hunting and consumption. Captive individuals of these species are classified as “farmed game” (Fig. 2, FG) and “game birds bred by humans” (Fig. 2, NOP).



Code	Example species
A	Wild animals (invertebrate) See row AD
B	Wild animals (vertebrate) See rows (BD, BCD, BCE, BCF, BCDF, BCEF, BCDEF, BCFM)
C	Wild mammals. See rows (BCD, BCE, BCF, BCDF, BCEF, BCDEF, BCFM)
D	Protected wild animals (Schedule 5 of Wildlife and Countryside Act 1981) See rows (AD, BD, BCD, BCE, BCDF, BCDEF)
AD	<i>Cupido minimus</i> (Small blue); <i>Graphoderus zonatus</i> (Beetle)
BD	<i>Natrix natrix</i> (Grass snake); <i>Rana temporaria</i> (Common frog)
BCD	<i>Odobenus rosmarus</i> (Walrus); <i>Cetacea</i> (Whale)
E	Specially protected wild animals (Schedule 6 of Wildlife and Countryside Act 1981) See rows (BCE, BCDEF, BCEF)
BCE	<i>Delphinus delphis</i> (Common dolphin); <i>Tursiops truncatus</i> (Bottle-nosed dolphin)
F	Wildland mammals. See rows (BCF, BCDF, BCEF, BCDEF, FG, BCFM)
BCF	<i>Vulpes vulpes</i> (Red fox); <i>Leporidae</i> (Rabbit)
BCDF	<i>Rhinolophidae</i> (Horseshoe bats); <i>Felis silvestris</i> (Wild cat)
BCEF	<i>Meles meles</i> (Badger); <i>Erinaceus europaeus</i> (European hedgehog)
BCDEF	<i>Sciurus vulgaris</i> (Red squirrel); <i>Lutra lutra</i> (Common otter); <i>Martes martes</i> (Pine marten)
G	Farmed animals: <i>Ovis aries</i> (Sheep); <i>Meleagris gallopavo</i> (Turkey); see row FG
FG	<i>Cervus nippon</i> (Sika deer); <i>Lepus sinensis</i> (Hare) [individuals living in captivity, named “Farmed game”]
H	Pet animals. <i>Canis lupus familiaris</i> (dogs); <i>Felis silvestris catus</i> (cats)
I	Wild animals in circuses and zoos. <i>Giraffa camelopardalis</i> (giraffe); <i>Panthera tigris</i> (Tiger)
J	Other protected animals. Stray dogs, racing pigeons
K	Wild birds. <i>Larus canus</i> (Common gull); <i>Eritrichus rubecula</i> (Robin) See rows (KM, KMN)
L	Birds which are protected by special penalties (Schedule 1 of Wildlife and Countryside Act 1981). <i>Jynx torquilla</i> (Wryneck); <i>Upupa epops</i> (Hoopoe)
M	Wild game. See rows (BCFM, KMN, KM)
KM	<i>Anser anser</i> (Greylag goose); <i>Charadrius morinellus</i> (Dotterel)
BCFM	<i>Cervus elaphus</i> (Red deer); <i>Romerolagus diazi</i> (Volcano rabbit)
N	Game birds. See rows (KMN, NOP)
KMN	<i>Lyrurus tetrix</i> (Black grouse or moor game); <i>Lagopus muta</i> (ptarmigan) [individuals living in the wild, named “Wild game birds”]
O	Farmed game birds. <i>Struthio camelus</i> (Ostrich) [including ratites]
P	Farmed birds. <i>Pica pica</i> (Magpie); <i>Garrulus glandarius</i> (Jay) [excluding ratites]
NOP	<i>Phasianus colchicus</i> (Pheasant); <i>Pardix perdix</i> (Grey partridge)
Q	Wild plants. <i>Allium paradoxum</i> (Few-flowered garlic); <i>Anthriscus sylvestris</i> (Wild chervil)
R	Plants which are protected (Schedule 8 of Wildlife and Countryside Act 1981). <i>Southbya nigrella</i> (Blackwort); <i>Leersia oryzoides</i> (Cut-grass)
S	Fungi and algae. <i>Corallina officinalis</i> (Coral Weed); <i>Hygrocybe conicoidea</i> (Dune Waxcap)
QRS	<i>Boletus regius</i> (Royal bolete); <i>Hericium erinaceus</i> (Bearded Tooth)

*Any wild animal that is lawfully taken from the wild enjoys additional protection from protected animal status.

§ Any native (to the British Isles) captive wild animal or bird (other than poultry) released to the wild state (e.g., rewilding programme) is no longer protected animal; but any non-native captive wild animal or bird (e.g., zoo animals) escapes from captivity is still regarded as protected animal.

§ Animals under the control of man on a temporary basis (e.g., animals caught in traps, animals under transport); animals escape from captivity but cannot be described as living in a wild state

Fig. 2. Scope of legal wildlife definitions in the UK, including example species in each category.

The UK has an additional, large legal category entitled “protected animals”, encompassing all vertebrate (non-human) animals under human control (e.g., pets, farmed animals and birds). Its purpose is to grant these animals welfare protections. This category also includes “wild birds” and vertebrate “wild animals” that are lawfully taken from the wild or temporarily or permanently under human control (e.g., during transport).

3.4. Clarity and detail in legislation

The results show limitations in terms of clarity and consistency of legal terms and definitions. In some cases, the same terms are defined differently across legislation within the same country (Table 3). For instance, “wildlife” is variously defined in different Chinese legislation as including protected terrestrial and aquatic wildlife (Table 3, L1), only including protected terrestrial species (Table 3, L2, 3), including all terrestrial wildlife but excluding aquatic species (Table 3, L4), and even including species protected by CITES (Table 3, L5). The definitions for “precious animals” and Sanyou species exist in relation to criteria such as the risk of extinction (Huang et al., 2021), rarity, or special values, but these are not legally defined.

The UK definitions for “wildlife” are fairly consistent across legislation. However, unlike in China, UK legislation tends to define key terms in each piece of legislation, which results in variability. For example, we collected 37 different definitions of “animal” from diverse legal contexts (see Supplementary Table B.2).

4. Discussion

The results indicate diverse approaches to defining wildlife categories, with “wildlife” itself defined in relation to numerous other legal terms. It is not surprising that the wide range of languages, cultural contexts, and human management given to different species has spurred the development of a range of specific legal terms and categories. However, navigating the intricate and diverse legal language and ensuring comprehension and precision is important, especially when

comparing legislation across jurisdictions and in international policy contexts (Pascual et al., 2021). Non-lawyers may be prone to overlooking details in legislation, like the nuances of definitions (Pascual et al., 2021). Indeed, conservation literature often refers principally to species as protected versus unprotected, like referring to the IUCN Red List (e.g., Hoffmann et al., 2008). Relatively coarse definitions have also been featured in many recent policy discussions about banning wildlife farming, harvest, and trade in response to concerns about zoonosis (Wang and Jiang, 2020). However, we explore why fields like conservation should be concerned with the nuances of legal definitions.

4.1. Definitions are important to conservation policies

Definitions often define the scope of conservation action. For example, legislation governing “wildlife” trade could, depending on legal definitions, variously refer to either a specific species, or to individuals and populations of species that were born in the wild rather than in captivity. For practitioners, in particular, it can be difficult to see which protections under different legislation do or do not apply in a given context. Moreover, legal definitions can introduce additional, intermediate categories that are governed in unique ways, as with China’s recently introduced “special livestock and poultry” category following COVID-19; the wild populations of the 16 listed species enjoy the special protections of the WPL, while captive bred populations of the same species are governed under the Animal Husbandry Law and accordingly can be legally used for consumption or making fur products.

Such list-based approaches to defining “wildlife” provide both species and origin-specific clarity over which legislation applies to different animals, but limits policies that might apply to broader sets of species (e.g., the post-SARS wildlife trade ban, Jiang, 2003). List-based approaches also require frequent updates as species conservation status changes, but in many countries, this rarely happens: China’s list of wildlife under Special State Protection was updated for the first time in 2021, 32 years after its promulgation (Kou and Tang, 2021). The UK’s general “wildlife” definition establishes a broad and baseline scope for conservation actions, upon which lists of additional protection are added (Quinn,

Table 3
Variable legal definitions of “wildlife” in China and the UK.

Legislation	Definition	Code
China		
Law of the People’s Republic of China on the Protection of Wildlife (Revised in 2022)	Article 2: rare or endangered species of terrestrial and aquatic wildlife and the species of terrestrial wildlife which are of important ecological, scientific, or social value.	L1
Measures for the Sheltering and Rescue of Wildlife 2017	Article 2: The terrestrial wild animals protected by law.	L2
Measures for the Administration of Domestication and Breeding Licences for Wildlife under Special State Protection (Revised in 2015)	Article 2: The terrestrial wild animals under special State protection.	L3
Measures of the People’s Republic of China for Value Assessment of Wildlife and Its Products 2017	Article 2: The whole terrestrial wildlife (including eggs).	L4
Letter of the Ministry of Forestry on requesting assistance in the export management of Chinese patent medicines containing wild animal medicinal ingredients 1990	Article 3: The wildlife mentioned in this letter refers to the wildlife under special state protection and other terrestrial wildlife that are beneficial or of economic or scientific research value which is expressly restricted from export by the State, as well as other wildlife protected under the CITES.	L5
Measures for quarantine of wildlife 2023	Article 10: The wildlife mentioned in this Measure refers to terrestrial vertebrate wildlife that are protected under the “WPL” and non-native terrestrial vertebrate wildlife that are approved as wildlife under special state protection.	L6
UK		
The Countryside Access Regulations 1994	Section 2 (1): (a)any animal species (other than a species of bird) which is ordinarily resident in England or Wales in a wild state; (b)any species of bird which is ordinarily resident or is a visitor to England or Wales in a wild state; and (c)any species of plant which ordinarily grows in England or Wales in a wild state.	L7
The Habitat (Former Set-Aside Land) Regulations 1994	Section 2 (1): (a)any animal (other than a bird) which is ordinarily resident in England in a wild state; (b)any bird which is ordinarily resident in or is a visitor to England in a wild state; and (c)any plant which is of a kind which ordinarily grows in England in a wild state;	L8
The Habitat (Water Fringe) Regulations 1994	Section 2 (1): (a)any animal (including any fish but excluding any bird) which is ordinarily resident in England in a wild state; (b)any bird which is ordinarily resident in or is a visitor to England in a wild state; and (c) any plant which is of a kind which ordinarily grows in England in a wild state.	L9

2020). Although generic definitions and “blanket ban” policies face problems of their own (Potter and Chatwin, 2018), experience with establishing legal definitions for drugs, including Novel Psychoactive Substances, show that many countries have moved from list-based approaches to generic legislation, in order to avoid “cat-and-mouse” limitations of updating legislation to match realities on-the-ground (Chatwin, 2014; Measham and Newcombe, 2016).

Definitions are also important when enforcing conservation legislation. For example, China’s “wildlife” definition does not state whether individuals must originate from a wild state, and there is an ongoing debate over whether illegally traded wildlife that was captive bred should be subject to the same rules. This has resulted in divergent court verdicts in similar cases in practice (e.g., parrot trade cases, see Huang and Wang, 2022). Judicial interpretation in 2014 clarified that “precious wildlife” encompasses tamed and bred individuals (see Table 2). But in 2022, another Judicial interpretation removed captive-bred wildlife from the realm of criminal law (Jiang and Aron, 2022), which, to some extent, fills the guidance gap in enforcement resulting from the WPL’s lack of a baseline definition of “wildlife”. China’s multiple lists-based categories of species also affect the conservation of certain species. The wild boar (*Sus scrofa*), for example, was previously classified as “wildlife”, listed under the category of Sanyou species. However, following widespread crop damage from boars (Da, 2021), the government removed wild boar from the list in 2023, raising the question of whether these species will remain “wildlife” under the law.

Changes in wildlife definitions and categories may also affect wildlife conservation in the UK. In 2020, some petitioners requested the courts to cease the large-scale release of pheasants and partridges for shooting by withdrawing licences on environmental grounds (Bonner, 2020). Such legal challenges may potentially change the category of “game birds” as the legally defined species under this category will be reduced from four to two (Table 2) and thus affect their legal status.

4.2. Legal definitions reflect and shape public attitudes

Laws are a condensed response to social values and changes (Anleu, 2010), and legal language is often highly persuasive in public discourse (Machacek and Fulco, 2004). As such, wildlife definitions both reflect societal values and shape public perceptions of nature (see Macagno, 2010). In considering definitional differences, we identified several cases where these are likely to be impacting conservation practice.

This includes perceptions about species that are worth conserving. For example, while UK legislation regards “wild plants” as wildlife and regulates them alongside wild fauna, China clearly distinguishes the two and grants lower-level protections to plants, and the CBD opens the question of whether plants are wildlife (Table 1). Such definitional limits fundamentally restrict the contexts of applying such laws. Margulies et al. (2019) argue that such practice reflects the “privileging of animals over plants” and exacerbates “plant blindness”, causing weak public awareness about protecting plants.

The legal definition of fungi is even more problematic. Scientifically regarded as independent from plants since 1969 (Oyanedel et al., 2022; Whittaker, 1969), both UK and Chinese legislation weakly reflect this. Fungi in UK legislation belong to “wild plants”, and China’s legislation categorises “fungus plants” as vegetables. Indeed, most people mistakenly think fungi are plants (Furci, 2021), and environmental legislation often ignores fungi completely (Furci, 2021; Oyanedel et al., 2022). Such misconception reflected in legislation may weaken the prospects of conserving fungi, species with unique ecosystem functions (Furci, 2021).

Wildlife definitions also help perpetuate historical relationships to specific species and broader human-wildlife relationships. For example, in the UK, a country where nearly £2 billion is spent on recreational shooting annually (Sharp and Wollscheid, 2009), the strong hunting tradition is heavily reflected in legal definitions like “wild game”, “farmed game”, and “game birds”. The legislation even allows the

hunting of some endangered species (e.g., *Scolopax rusticola* woodcock), illustrating how legal definitions reflect historical associations and may be a barrier to conservation. In China, the legal list of Sanyou species is categorised by their broader societal importance, scientific significance and ecological function. The recently revised version of this list refused to add large-billed crows (*Corvus macrorhynchos*), which “do not have enough ecological and scientific values and are not acceptable to the public” as interpreted officially, because they are considered ominous in Chinese culture (Da, 2021). In China, relevant definitions such as “special livestock and poultry” and “wild medicinal species” also strongly reflect the country’s historical ethos of “protecting wildlife for using them” (Zuo and Yang, 2021). In particular, farming wildlife is an important part of China’s economy, serving various market demands (e.g., the fur industry, Li, 2007; traditional medicine, Zhu and Zhu, 2020).

Wildlife definitions also reflect attitudes toward animal welfare. Notably, the UK enacted the world’s first animal welfare legislation (Harvey, 2021), and current, broad legislation defines any vertebrate animal under human control as “protected animals” with welfare protections. In contrast, China has no comparable definition for animals with welfare protections; a related legislative proposal was put forward and then rejected in 2020 (MARA, 2020), so this topic still remains controversial in China (Lu et al., 2013), although some welfare protections were granted for species subject to captive breeding, display and experiment.

4.3. Cross-jurisdictional learning and harmonisation

Different legal classification systems have relative (dis)advantages, and cross-jurisdictional comparisons can inform legal reform (Pascual et al., 2021). They can also offer lessons for developing legislation in new domains, like borrowing and modifying terms and concepts from other jurisdictions (Funk and Mullen, 2018).

For instance, this comparison allows reflection on the relative merits of adopting a list-based versus a broader definitional approach to defining “wildlife”. The UK provides broader baseline protections to all species found in the wild, not only those on specific lists. On the other hand, UK legislation is sometimes over-complex, such as when providing multiple definitions for the same terms, which may cover different species. For example, “poultry” (see Supplementary information, Table B. 2) sometimes includes game birds (e.g., pheasants). China, in contrast, provides more consistent terminology across legislation but also leaves some associated key terms (e.g., “social value”) undefined, introducing uncertainty. Defining these critical terms may enhance the precision of Chinese wildlife legislation.

The comparison also offers opportunities for sharing legislative ideas. For example, while the UK’s animal welfare law is particularly advanced, China lacks relevant legislation (MARA, 2020), raising debates among experts (Peng, 2020), especially when given its links to zoonosis (Harvey, 2021). The UK’s “protected animals” categories provide broad welfare protections, and the 2022 Animal Welfare (Sentience) Act further expanded protections for decapod crustaceans (e.g., *Homarus gammarus* lobsters), cephalopod molluscs (e.g., *Octopus vulgaris* octopus), and any non-human vertebrates (Wills, 2022). These approaches, themselves heavily shaped by how taxa are grouped and defined within legislation, could inform debates in China (Zuo and Yang, 2021).

Definitional variation also raises questions about possible legal harmonisation across countries, to establish common definitions and approaches (see Randier, 2008). Harmonisation is essential to cross-jurisdiction work (Fraser et al., 2018), such as international cooperation and commitments to address wildlife trade, zoonosis and quarantine. It could encourage countries with weaker environmental legislation to meet more rigorous standards and support species conservation beyond national borders (Cirelli, 2002). Moreover, harmonised definitions can also promote conservation effectiveness by mitigating the risk of omitting species from conservation initiatives due

to disparities in definitions. For example, even within the United States itself, “whether insects are wildlife” varies from state to state, which significantly impacts the conservation of some endangered insects (Einhorn, 2023). Efforts are already underway, such as through CITES, which provides globally relevant lists of species (Appendix I and II) that are often integrated into national legislation, like matching with China’s national Class I and II protected wildlife lists when calculating species’ values.

Despite its benefits, legal harmonisation also poses challenges. It relies on precise legal translations (Baaij, 2012; Botezat, 2012) that have proved challenging for terms such as “wildlife”. The English language term “wildlife” in law predates the conservation field and historically excludes plants (Margulies et al., 2019). Moreover, accurately translating this Anglo-American term into other languages has proven difficult (Roth and Merz, 1997). For example, many academic papers written by Chinese scholars in English translated “野生动物” (wild animals) as “wildlife” (Zeng et al., 2020), although the PKULAW legal database officially changed its translation for “野生动物” from “wildlife” to “wild animals” in 2016. In Spanish, wildlife is translated as “vida silvestre”, meaning “life that is wild”, and is generally interpreted as an expansive term going beyond animals. For example, Mexican legislation defines it as “organisms that develop freely in their habitat, including their minor populations and individuals that are under the control of man, as well as feral organisms, domestic species that, being out of human control, settle in their natural habitat” (Secretaría de Medio Ambiente y Recursos Naturales, 2018).

The challenges to cross-jurisdictional learning and harmonisation extend beyond translational issues. As discussed, definitional differences also reflect different human-wildlife relationships. Although harmonising specific terms might be possible, harmonising the scope of related definitions would struggle to reflect differences in cultural attitudes toward wildlife, such as in relation to hunting, wildlife medicines, captive breeding, and welfare. For example, some countries (e.g., China and Vietnam) reformed their domestic legislation in response to COVID-19, rapidly banning “wildlife” consumption and captive breeding (Nuwer, 2020), but these policies were unrealistic in many communities and countries where indigenous people rely on wildlife as a main protein source (Challender et al., 2020; Vidal, 2020). Similarly, terms such as “game birds” and “wild medicinal species” reflect long-standing traditions and sociocultural norms that, although they may challenge conservation objectives in some contexts, can be difficult or inappropriate to change. Legal harmonisation could homogenise approaches to biodiversity conservation and management in ways that may be more convenient for conservationists, but also prove inappropriate, politically intractable or inequitable.

5. Conclusion

As domestic legislation and international conventions proliferate, and the need for wildlife conservation and zoonosis prevention escalates, it is crucial to comprehend the legal definitions of “wildlife”. The comparison of the legal definitions and scopes of “wildlife” in China and the UK emphasises this variation and how it often differs from terms used colloquially and in conservation. It also highlights the huge complexity of understanding the legal taxonomies that govern biodiversity, and their potential implications for conservation practice.

A natural response to such complexity is to call for harmonisation and standardisation. Broader definitions that better align with ecological realities and the needs of conservation would be helpful. Particularly as global cooperation expands, cross-jurisdictional harmonisation is essential for addressing challenges like biodiversity loss, international trade and zoonotic threats. More unified approaches, such as the CITES Appendices, illustrate the potential for international cooperation. Especially for some of the terminology, there is a clear opportunity to become more consistent, if not across countries, then within international conventions. And recent revisions to UK and China’s legislation,

including the creation of entirely new categories of taxa, suggest that significant definitional changes are possible, and highlight how legal definitions continue to evolve.

Yet, the results also highlight why large-scale standardisation is also unlikely in the near term: the definitions we explore are embedded across dozens of pieces of, often very tailored legislation, and are in many cases clearly linked to domestic traditions. Moreover, revising definitions is laborious; in undertaking this study, the researchers were initially overwhelmed and surprised by the complexity of the task of disentangling and understanding the differences between their legislation and definitions, something we believe would be a task for more researchers regardless of their disciplinary training. To this end, our methods illustrate an approach that can be used and refined in other contexts. Moreover, they serve as a baseline for exploring further questions, such as using definitions to study the evolution of human-nature relationships and the politics of nature. The analysis also raises questions about which approaches are most effective for conservation.

Conservation practitioners need to be actively aware of definitional details, especially when issuing policy advice, working across legislation and countries, and engaging in international forums. And, while in many contexts this work can be delegated to lawyers, or may be dismissed as primarily semantic, it is foundational to environmental governance and thus also of immediate interest to conservation practitioners.

CRedit authorship contribution statement

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 Conceptualization Ideas: MT, GP, JP
 Methodology: MT, JP
 Formal analysis: MT, GP, JP
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 Writing - Original draft preparation: MT, JP
 Writing - Reviewing and Editing: MT, GP, JP
 Visualization: MT, JP
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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

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Appendix A. Supplementary data

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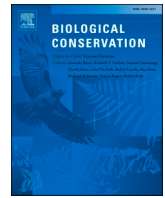
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Chapter 4

Tracing seven decades of Chinese wildlife legislation

from 1950 to the COVID-19 pandemic era



Tracing seven decades of Chinese wildlife legislation from 1950 to the COVID-19 pandemic era

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ABSTRACT

Due to its abundant biodiversity and active wildlife trade, China's wildlife governance has been in the spotlight, especially following the legislative reforms introduced after the COVID-19 pandemic, hailed as “a turning point for China's wildlife protection”. Using Kingdon's framework, we analysed China's evolution of wildlife legislation from 1949 to 2023, focusing on species protected under the Wildlife Protection Law, encompassing mammals, amphibians, reptiles, birds, fish and insects. We examined the key drivers behind critical changes in China's approach to wildlife governance, the nature of these legislative changes, and their subsequent impacts.

The analysis identifies and describes three historical phases that reflect gradual but key shifts in wildlife governance, notably from one focused on wildlife utilisation and increasingly towards conservation. The recent post-COVID changes, albeit driven by public health concerns, significantly pivot towards stricter conservation practices, aligning with China's philosophical shift towards “ecological civilisation.” These shifts uncovered how the key drivers shaped the relevant policy and legislation.

This historical analysis offers conservationists and the broader conservation movement a valuable perspective. We suggest these individuals or groups explore the underlying factors and patterns that have influenced the evolution of conservation policy and legislation from a macro-historical scale. Such an understanding can enhance their confidence in lobbying the public and policymakers to support specific conservation proposals, strengthening the likelihood that their proposals can be accepted and translated into actionable policies.

1. Introduction

China hosts globally unique biodiversity (Wang et al., 2020c), and a range of cultural traditions of wildlife consumption associated with domestic and international, legal and illegal wildlife trade (Jiao et al., 2021; Huang et al., 2021). The country has faced both criticism for inadequate wildlife protection (White, 2020; Huang et al., 2021; Lin, 2021) and praise for a number of recent legal reforms (Lin, 2021). The outbreak of the COVID-19 coronavirus pandemic, suspected to be linked to wildlife trade, has put China's wildlife policies under global scrutiny (Huang et al., 2021; White, 2020). The Chinese government's swift legal action to enhance wildlife protection and prevent zoonotic diseases has been hailed as a (potentially) significant turning point in its conservation efforts (Huang et al., 2021; You, 2020).

This paper seeks to understand how post-COVID legislative changes fit within longer-term trends in the development of wildlife conservation law in China. Understanding the changing trends, and tensions between

wildlife conservation, utilisation and public health goals can help to better understand the drivers behind policy development. This, in turn, can help inform future reforms in wildlife legislation – both within and beyond China.

We used a doctrinal analysis of Chinese wildlife legislation from 1949 to mid-2023, focused on legislation governing the conservation and use of wildlife protected under Wildlife Protection Law (WPL), and a timeline of key legislative developments and significant external events (e.g., zoonotic events). We identified three phases in the development of Chinese wildlife conservation law, and employed Kingdon's (2014) multiple streams model (MSM) of “policy windows” to help understand these transitions – including whether recent (COVID-era) developments are (likely to be) as significant as suggested in the literature (e.g., Huang et al., 2021; You, 2020). Before expounding our methods and introducing our findings, we first outline the context of COVID and China's intricate pathway to wildlife conservation in more detail.

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2. Evolving strategies in Chinese wildlife conservation

2.1. Pandemic pivot: COVID-19's impact on wildlife legislation

Following the COVID-19 pandemic, wildlife governance has faced calls for deep reforms to reduce the risks of future zoonoses, ranging from bans on the consumption of wild meat (Wang, 2020) to proposals for new global agencies to help regulate zoonotic threats (McCarthy and Gott, 2020). This is exemplified by China, which has undergone very significant, recent changes to its legislation (Huang et al., 2021). Characteristics of many post-COVID legislative changes suggest a fundamental shift – from relatively lax restrictions on trade and consumption of wildlife to a much more prohibitive approach driven by public health concerns (Wang et al., 2020a; Huang et al., 2021) that can have additional benefits for conservation (Koh et al., 2021). Often framed as a choice between using versus protecting wildlife (e.g., Ge Gabriel, 2014; Li, 2007), wildlife legislation in China, as in much of the world, are both complex and nuanced (Xiao and Li, 2021).

In the immediate aftermath of the COVID-19 outbreak, China's legislation governing wildlife underwent unprecedented changes (Huang et al., 2021). Examples include a complete prohibition on the edible use of all terrestrial wild animals, a temporary ban on wildlife trade for the duration of the epidemic, a thorough update and expansion of the protected species lists, and a new approach to classifying certain types of livestock. Meanwhile, countless wildlife farms were forced to close by law, seriously impacting the livelihoods of nearly 14 million people working in this industry (Ren, 2020). These changes reflect an apparent radical shift in China's approach to wildlife governance, at least in relation to edible uses of wildlife, hailed as “a turning point for China's wildlife protection” (Huang et al., 2021). Such dramatic shifts are particularly notable for China, a country that has historically prioritised traditional and economic wildlife utilisation (Zhu and Zhu, 2020). That said, some of these post-COVID changes were temporary and have already expired or been revised, leaving the legacy of COVID-19 on Chinese wildlife conservation law unclear.

2.2. Legacy of the past: Historical utilisation and conservation

However, these changes do not stand in isolation; they need to be understood in the contexts of historical practices, shifting trends in consumer demands, rural employment, international agreements and shifting conservation policies. Wildlife harvest, trade and use are deeply embedded in Chinese history and culture (Zhu and Zhu, 2020). For example, food therapy, an important part of traditional Chinese medicine (TCM) culture, was believed by most Chinese people and became a deeply entrenched part of their thought. This has driven the demand for wild animals for human consumption for a long period of time. Historically, the wet market in China can be traced back millennia (Zhu and Zhu, 2020). In a 2004 survey conducted in three wildlife-rich provinces in southwest China (Qinghai, Guangxi and Yunnan), 60% of respondents indicated that they had consumed wildlife in the past two years (Zhang et al., 2008). Besides, *Shen Nong Ben Cao Jing*, the first *Materia Medica* book in China (Nugent-Head, 2014), created over two thousand years ago, contains 65 medicinal animals (Zhang, 2013). One thousand years later, during the Ming Dynasty, another similarly influential work, *Compendium of Materia Medica*, was published, in which 444 medicines containing animal ingredients were listed (Li, 2001). Hence, much of the world's illegal wildlife trade (IWT) is driven by China's demand for delicacies and TCM (Mallapaty, 2020), which especially impacts its neighbours as source countries (Huang et al., 2021). Apart from these traditions of edible or medicinal utilisation, there is also demand for wildlife in other fields, like making the Erhu (a traditional musical instrument) from python skin (Jiang et al., 2013), and ivory carving, which was added to China's National List of Intangible Cultural Heritage in 2006, further fuelling importation of ivory from Africa (Permata and Wahyuni, 2020).

2.3. Balancing act: Economic needs vs. ecological values

Chinese wildlife legislation has thus historically followed the resource-oriented notion (Jiang and Aron, 2022). Relevant legal conservation has even been primarily motivated by the utilisation value of wildlife as a resource (Huang et al., 2021; Zhu and Zhu, 2020). There are various and complicated legal categories of wildlife in China (see Tian et al., 2023), covering not only threatened species but also species with “important ecological, scientific or social value” (termed “*Sanyou* animals”) that are nationally protected under the WPL, the main legislation governing wildlife protection in China. Some violations of the WPL are punishable under criminal law, and China has some of the harshest penalties for wildlife crimes in the world (Hu et al., 2022). Many other species are protected at provincial and local government levels (Article 10, WPL), and some iconic animals, most notably pandas, receive specific protections (Songster, 2018).

Meanwhile, China has had an expanding protected area network since 1965, now covering 85% of wildlife under special state protection (Yin, 2013; NFGA NPA, 2020). It has also become an active contributor to a range of international environmental conventions, including CITES and CBD (Qin, 2020). China's national adoption of “ecological civilisation”, a concept that seeks to define a balanced relationship between humans and nature (Ferguson, 2019), is further shaping shifts in the legal framework, moving from an economic focus on wildlife to recognising its inherent ecological value.

These protections have become all the more important as China has experienced tremendous increases in consumption power and online trade that have increased access to wildlife, including expensive and scarce items as symbols for elite status and wealth (Wong, 2019; Zhang and Yin, 2014). These drivers are resulting in growing market demand for a range of domestic and international wildlife products in China (Zhang and Yin, 2014; Zhu and Zhu, 2020).

To meet the demand of the wildlife markets and protect wild populations of endangered species, Chinese legislation has strongly supported captive breeding (also known in China as artificial breeding) of wild animals (Liu et al., 2016). China has the most extensive wildlife domestication operation in the world, an important industry and poverty reduction effort (Li, 2007; Rizzolo et al., 2023). Nevertheless, China faces ongoing consumer demand and preferences for wild-sourced materials (Liu et al., 2016).

These factors make for a very complex legislative environment, underpinned by tensions between the competing – and often conflicting – aims of conservation and utilisation of wildlife, and subject to changes over time (Tian et al., 2023). To explore how China's policy making has changed over time and what the shifts behind these changes mean for wildlife conservation, we reviewed 147 pieces of legislation governing terrestrial wild animals in the 74 years since the founding of New China in 1949.

3. Methods

3.1. Data collection

We accessed a complete list of national legislation via the Government of China's centralised database (Chinese version: www.npc.gov.cn; in English <https://hk.lexiscn.com/>) to identify legislation governing terrestrial vertebrate wildlife in China from 1949 to mid-2023. We operationalised a set of inclusion criteria/parameters (Table 1). Only national-level legislation that met these three criteria were included.

We only included legislation that actively regulated wildlife resources, such as establishing or changing rules of use and conservation, while legislation that mentioned key terms (e.g., “wildlife”) but without applying specific rules or guidance was excluded (e.g. if the mention of wildlife was simply a reference to another piece of legislation, or a notice calling for public feedback). Additionally, to keep our sample size manageable, we focused on legislation governing species protected

Table 1
Inclusion criteria for collected legislation governing wildlife.

Criteria	Interpretation
Key governance topics	Wildlife conservation, wildlife utilisation, wildlife (criminal) offences, and wildlife-related public health and animal health concerns
Species involved	Terrestrial and aquatic wildlife that are protected under special state protection; terrestrial wildlife which is of important ecological, scientific, or social value
Keywords	Wildlife 野生动物, animals 动物, biodiversity 生物多样性, zoonotic diseases 人畜共患疾病, endangered species 濒危物种, zoo 动物园, livestock 牲畜, ecological civilisation 生态文明

under the WPL (see Table 1). We excluded any legislation that solely applies to aquatic and marine species that fall outside the scope of the WPL's protection, as the former are governed by Fisheries Law, and legislation concerning the latter typically focus more on marine technology than on conservation. To avoid redundancy, we did not collect a series of routine official notices for the protection of seasonal migratory birds and the control of wildlife epidemics, which began in 2006 and are issued annually. As a result, there are taxonomic biases in the species selection (e.g., taxa not covered under the WPL), although we believe the trends described remain generally representative of trends of China's broader wildlife policy approach. Finally, we also excluded legislation only governing single species but included several pieces of legislation regulating typical products: ivory, tiger bones, and rhino horns, the three kinds of wildlife products that have high market demand in China (McConkie, 2021).

We focused on national-level legislation (Table 2) and excluded measures that applied only to specific and limited geographical areas. In addition, we also included Party Regulations (党内规章) of the Chinese Communist Party (CCP), which are independent of national legislation but play an essential role in China's rule of law (Wei, 2018). (Appendix 1 provides an overview of China's legislative system).

Applying these criteria, we identified 147 pieces of legislation for inclusion in our analysis from the total of 2082 pieces of legislation initially collected (for the full list of included legislation, see Appendix 2). We included amendments to (and expiration of) existing laws, as well as new pieces of legislation.

To ensure understanding and avoid translation errors, legislation was collected and checked both from official Chinese government websites (where Chinese versions of the legislation are available) and from the LexisNexis and the PKULAW legal databases (the latter providing both Chinese and English versions of legislation). (The lead author, Tian, is a native Mandarin Chinese speaker.)

3.2. Data analysis and approach

Our analysis of the legislative documents occurred in two stages. First, we adopted a doctrinal approach focused on the content of the legal texts to identify their key legislative objectives, enabling us to create a timeline of key legislation (Fig. 2). We then applied a more

Table 2
Hierarchy of national legislation included (following Otto and Li, 2000).

Hierarchy	Types of legislation
Primary legislation	Constitution, Laws, Decisions on Legal Issues and Significant Issues (有关法律问题和重大问题的决定), Legislative interpretation (立法解释), Judicial interpretation (司法解释, including "Documents of a Judicial Interpretation Nature" 司法解释性质文件 & "Working Documents of the Supreme People's Court and the Supreme People's Procuratorate" 两高工作文件)
Secondary legislation	Administrative regulations (行政法规), Normative documents (规范性文件)
Tertiary legislation	Departmental rules (部门规章), Departmental normative documents (部门规范性文件), Departmental working documents (部门工作文件)

socio-legal approach to understand the connections between legislation and the external social factors (Mohamed, 2016). We utilised Kingdon's Multiple Streams Model (MSM) as an analytical framework to try to explain the broad changes in policy identified in the first stage of analysis, with a particular focus on identifying and describing "policy windows" (Kingdon, 2014).

Kingdon's MSM posits that significant policy changes occur not (or not just) because of an accumulation of evidence convincing policy-makers that such a change is necessary, as an idealistic "evidence-based policy" model would suggest (Sanderson, 2003; De Marchi et al., 2016). Policy processes are instead viewed as much more chaotic, with many more factors than evidence contributing – including economic, ideological, political and pragmatic concerns. Legislative changes are thus best understood as occurring when a broader range of conditions ("streams") come into alignment. The MSM identifies three main streams that shape policymaking (including legislative changes): the political stream, the policy stream, and the problem stream (Kingdon, 2014), which are not always independent of each other. When they show up together in a brief "window of opportunity", only then does a significant change occur (Cairney and Jones, 2016) (i.e., when the "Policy Window" opens). Given the recent context and boom in Chinese wildlife legislation, Kingdon's MSM seemed to be a particularly appropriate analytical tool.

In legal research, the doctrinal method can be criticised for being divorced from practical reality, while the socio-legal approach has been challenged for lack of attention to legal texts. In combining the two methods in this research, we hope to overcome some of the weaknesses inherent in using either approach on its own (Mohamed, 2016) to provide both a description and explanation of the changing trends in Chinese wildlife governance at the national legislative level.

4. Results

The three decades following 1950 saw a small number of new effective pieces of wildlife legislation, marked by considerable increases over the following decades (Fig. 1). Notably, the 3.5-year period following 2020, coinciding with the COVID-19 pandemic, experienced a boom in new legislation, comparable in volume to entire previous decades.

We identified three phases in the legal development, which were separated by two landmark events: the introduction of ecological civilisation policies in 2007 and the outbreak of the COVID-19 epidemic in 2019 (Fig. 2). This is reflected not only in the volume of legislation around these two "landmark events", but primarily through identifying changes in legal terms and stated objectives of new legislation and legislative revisions during these periods (discussed below). In particular, the period shows shifts in approaches to the balancing of wildlife "conservation" and "utilisation", with a gradual shift away from prioritising the latter and towards prioritising the former.

4.1. Phase 1 (1949–2007): Governance driven by scarcity of wildlife resources

A close bond between conservation and utilisation characterised the first six decades. To put it briefly, the main feature of this initial phase was conservation aimed at ensuring the continued utilisation of wildlife. This was driven by the scarcity of endangered wildlife and resolved by bolstering protections for wild populations and promoting the development of captive breeding programs.

Conservation has been part of China's policy since the early years of the CCP regime, with initial legislation prohibiting the harvesting of rare creatures emerging in 1950 (Appendix 2 L1) but encouraging the hunting of other wildlife serving the market in 1959 (Appendix 2 L2). Yet, linked to the country's strong traditions of wildlife use and the focus on post-war economic recovery, the initial emphasis was on using wildlife for economic and cultural tradition purposes, rather than on

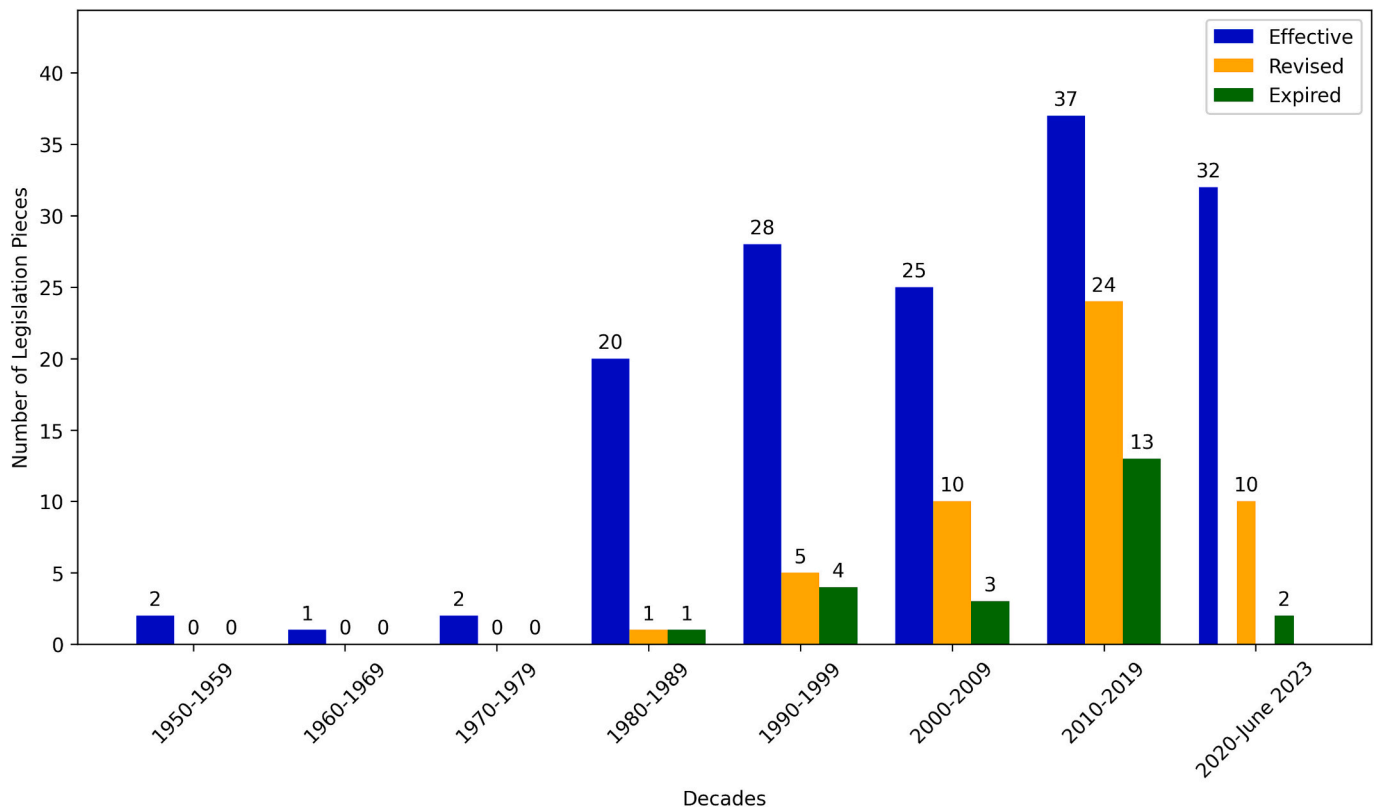


Fig. 1. Number of pieces of wildlife legislation that became effective, were revised, or expired in each decade since 1950. The final thinner bars reflect only a 3.5-year period from 2020.



Fig. 2. Timeline of key Chinese wildlife legislation (with effective date), highlighting three key historical phases that reflect shifts in governance approach. (Numbers in parentheses refer to each piece of legislation, which are referenced in the text).

conservation for its own sake. While the governance of wildlife trade began tightening in the 1980s, it wasn't until the WPL (Fig. 2 L22) was enacted in 1989, and the “Wildlife under Special State Protection” list (Fig. 2 L20) was introduced, that wildlife management became more systematic and classified. Established in 1989, this list only elevated the protection status of two species from Class II to Class I over more than three decades—the musk deer in 2003 and pangolins in 2020—until it underwent significant updates in 2021.

Throughout this phase, most legislation focused on the utilisation of wildlife: policy aimed to protect animals to enable their use for products and trade or to prevent issues arising from the scarcity of species for exploitation. Laws often protected wildlife for their economic value in international trade, like exchanging wildlife products for foreign currency (Appendix 2 L3) and safeguarding the quarantine of such products to support foreign trade (Appendix 2 L6, 9, 35, 51). Even the 1989 WPL, while conservation-oriented, included rational use of wildlife resources as a goal. Additionally, there were laws from 1987 that protected wild animals specifically for medicinal resources (Appendix 2 L16, 17), with their medicinal importance also tied to economic value, including laws on the export of medicines made from animal ingredients (Appendix 2 L24, 27). The establishment of the list of “*Sanyou* animals” in 2000 (Fig. 2 L54) was another example of prioritising utilisation, initially selecting animals based on their “beneficial, economic, or scientific values.” Although the valuation criteria were updated literally in the 2016 WPL to emphasise “important ecological, scientific, and social values,” a thorough update of this list, following these new criteria, was not conducted until 2023.

During this time, the core WPL legislation also encouraged and supported wildlife breeding, to ensure supplies for TCM and other uses. Accordingly, a new licensing system for wildlife farms was also established in 1991 (Fig. 2 L31). Legislative support for these industries was reaffirmed swiftly after the 2003 SARS outbreak, a severe zoonotic disease first identified in China, affected 29 countries and infected 8098 people, with 774 recorded deaths (CDC, 2005). This led to a temporary ban on wildlife trade, exempting the use for scientific research, which was lifted once the SARS threat subsided (Fig. 2 L63). This was replaced after three months by regulations promoting the breeding and domestication of wildlife, seen at the time as a way to balance wildlife conservation and use (Lv, 2003). For example, a list of 54 terrestrial wildlife species was declared suitable for commercial breeding (Fig. 2 L67), including eight species under special state protection (even the civet cat *Paguma larvata*, a potential SARS carrier, also legally categorised as a *Sanyou* animal for its economic value).

4.2. Phase 2 (2007–2019): Conservation increasingly driven by the ecological value of wildlife

This 12-year phase is heavily characterised by changes to wildlife legislation, including many revisions and new legislation focused on enhanced conservation. Legal use of wildlife continued to be robustly supported during this phase, but it became increasingly regulated and for a smaller number of species.

It is heavily informed by China's 2007 introduction of the ecological civilisation concept, which was regarded as an overarching objective of the CCP in 2012 (Goron, 2018). The Supreme People's Court also reinforced the commitment to ecological civilisation in 2018 (Fig. 2 L110), which was then incorporated into the Constitution as a national pursuit. This concept has also been reflected in many legislative and official documents concerning wildlife and biodiversity.

The 2016 amendment to the WPL introduced the ecological civilisation concept, which marked a pivotal shift in wildlife governance. It shifted away from a heavy emphasis on wildlife utilisation and breeding, specifically recognising the “ecological value” of wildlife and underscoring the importance of biodiversity and ecological balance. It established the principle of prioritising conservation over utilisation in wildlife governance. This was reflected in changes to the ban on

consumption of some wildlife, notably endangered species and other species without legal origin. The amended WPL also highlighted the importance of education in wildlife protection to increase public awareness about conservation.

In parallel, this period saw strengthened wildlife enforcement legislation (although Criminal Law amendments in 2011 eliminated the death penalty for wildlife smuggling, which could potentially be considered a softening of the enforcement stance). Two Judicial Interpretations in 2014 (Appendix 2 L93, 94) provided clearer definitions of wildlife crimes to facilitate wildlife prosecutions. Other legislation included a ban on ivory trade in 2016 (Appendix 2 L104), and guidelines for wildlife rescue operations became effective in 2018 (Appendix 2 L109). In 2019, two legal documents sought to enhance wildlife conservation and tackle the unlawful use of wildlife through increased interdepartmental collaboration, improved market oversight, and heightened public awareness (Appendix 2 L112, 113).

Wildlife breeding and use remained during this period but in more restricted terms. The amended WPL referenced “regulated utilisation”, under a more specific set of circumstances (scientific research, captive breeding, public display, exhibition, and cultural heritage conservation), and focused on species with established and stable breeding techniques. For example, though the existing list of 54 wildlife species subject to commercial breeding was allowed to expire in 2012, in 2017, another list of 9 species under special state protection was brought into breeding to satisfy commercial demand (Fig. 2 L105). Additionally, legislation during this period actively supported TCM industry growth. A catalogue in 2014 encouraged the sustainable development of wildlife medicinal resources in disadvantaged areas such as Guizhou to aid in poverty alleviation (Appendix 2 L95). Moreover, the new Chinese Pharmacopeia enacted in 2015 (Appendix 2 L100) included wild animals, some endangered, as ingredients. Additionally, the 2016 strategic plan for TCM (Appendix 2 L101) highlighted the industry's push into international markets. However, a 2018 notice planning to reopen the Chinese market for trade in rhino and tiger products under strict regulation (Appendix 2 L111) was never operationalised (WWF, 2018).

4.3. Phase 3 (2019–present): Conservation driven by public health concerns

The third phase is characterised by a boom of 32 pieces of new and revised wildlife legislation between 2020 and mid-2023, immediately following the COVID-19 pandemic (Fig. 1), including significant amendments to the WPL. This period is characterised by legislation focused on protecting public health through measures to decrease wildlife use and enhance wildlife conservation.

As the earliest COVID-19 cases were identified at the Huanan Seafood Wholesale Market in Wuhan, China, although the exact source of the virus remains unconfirmed (Guo et al., 2020; Harapan et al., 2020), the outbreak was usually linked to China's wildlife trade (Aguirre et al., 2020), particularly bushmeat consumption (Bezerra-Santos et al., 2021). Consequently, the pandemic prompted a re-evaluation of human-wildlife interactions to prevent future zoonotic diseases.

Notably, legislative responses involved far more significant changes to China's wildlife governance than the 2003 SARS zoonotic outbreak (Aguirre et al., 2020; Wu et al., 2020). The COVID-19 crisis led to changes in primary legislation, reflecting the seriousness of the legislative response, notably a comprehensive Bushmeat Ban on all terrestrial wild animals (Fig. 2 L120). There was also an immediate temporary halt in wildlife trade (Fig. 2 L117; 2020, expired in June 2022). In contrast, SARS era revisions involved a temporary ban implemented via tertiary legislation (Evans, 2020; Wang, 2020). Policies during the SARS era were relatively lax regarding wildlife farming. In contrast, COVID-era policies, notably the 2020 Notice implementing the Bushmeat Ban (Fig. 2 L121), introduced tougher penalties for illegal farms and distinguished between breeding animals for consumption and those for non-edible purposes (such as fur and medicine). Breeding for wildlife

consumption was completely banned, while the production of non-edible species was allowed to continue under stricter quarantine measures. Additionally, another Notice in 2020 (Fig. 2 L130) reclassified the management of 64 species previously farmed for consumption; only 19 of these species are now legally permitted to be bred for non-edible wildlife products. Furthermore, a newly introduced Catalogue in 2020 (Fig. 2 L125) identified 16 terrestrial wildlife species as “special livestock and poultry,” 12 of which are the only species authorised for farming for human consumption.

Substantial revisions to the WPL came into force in May 2023. These focused on improving public health protections by permanently incorporating the bushmeat ban, enhancing wildlife habitat protection, refining the hunting and trading management, and introducing public interest litigation to combat wildlife-related offences. Amidst these strengthened regulations, the WPL also saw some softening of regulations by cancelling the licensing requirement on artificially bred *Sanyou* animals (Cui, 2023).

Post-SARS legislation did not result in significant legislative reforms. However, following COVID-19, criminal law changes intensified the crackdown on wildlife consumption. The pandemic also expedited the introduction of the Biosecurity Law (Fig. 2 L137) aimed at preventing animal and plant diseases. Additionally, it led to updates in the Epidemic Prevention Law, which now includes quarantine inspections for captive-bred species used for non-edible purposes. Meanwhile, in 2021, the list of Wildlife under Special State Protection had its first major revision in almost 30 years, adding 517 species and increasing the total by 53%. This expansion included upgrading 187 *Sanyou* animals to receive stricter legal protections. In this updated version, 63 species are marked as “limited to wild populations,” allowing for their artificial breeding (only 4 are terrestrial species, categorised as “special livestock”). In 2023, the list of *Sanyou* animals also saw its first major update in over 20 years, expanding to include a total of 1924 species, with 680 new additions.

5. Understanding the changes through the multiple streams model framework

We used Kingdon's Multiple Streams Model (MSM) model to understand the changes in legislative phases that led to Phase 2 and Phase 3. We identified the introduction of the ecological civilisation concept as a *political window*, and the COVID-19 pandemic as a *problem window*.

5.1. Ecological civilisation creates a political window for change

The introduction of the ecological civilisation concept that characterised Phase 2 reflected a unique convergence of *problem* and *policy* streams at the highest levels of the Chinese government, and can be seen as a *political window* that allowed for changes in wildlife policy making. Since the economic “reform and opening up” 1978, China accelerated its transformation from an agricultural to an industrial civilisation (Pan, 2019). Leveraging its vast natural resources and extensive labour force, China emerged as the “factory of the world”, a role that boosted its industrial productivity and economic growth but also hastened an ecological crisis (Pan, 2018).

The concept of ecological civilisation reflected an important change in that policy narrative. Coined by a former Soviet scientist in 1984 (Gare, 2009), ecological civilisation was introduced to Chinese political discourse in 2007 as an innovative approach to solving environmental problems (Ferguson, 2019). It became one of the priority objectives of the CCP in 2012 and then was central to President Xi Jinping's ideology of “Socialism with Chinese Characteristics for a New Era” (Goron, 2018). The concept was subsequently integrated into several environmental laws, including the WPL in 2016 and the Chinese Constitution in 2018 (Goron, 2018; Wei et al., 2021; see Phase 2). Such robust political guarantees are why this factor can be considered a driving *political stream*. Moreover, it was closely aligned with the challenge of ecological

crisis, which served as an influential *problem stream*. Policy solutions are proposed, with those adopted by the government forming the *policy stream*.

Even in the context of environmental policies that are principally and ultimately driven by human interests – the Chinese perspective retains a holistic perspective that views humans and nature as linked (i.e. wholistic, but always from a human vantage). This contrasts with the Western environmentalism paradigm that often delineates a separation between nature and humans, or an explicit distinction between eco- and anthropocentric motivations and approaches (Zhu, 2023). At the heart of ecological civilisation is the definition of a new relationship between humans and nature (Ferguson, 2019; Weins et al., 2022), which is also known as a fresh, natural outlook based on Eastern wisdom, called the “unity of man and nature” (Zhang, 2021). Therefore, this ideology strongly overlaps with much older Chinese philosophical thought, such as the Taoist objection to “conquering nature” (Feng, 2015) (i.e., “obligate to nature”) and the Confucianist emphasis on “man's moral obligation to nature” (Liu, 2018). With the idea of the unity of nature and humanity embedded in Chinese philosophy and culture for millennia, the concept of ecological civilisation has been readily accepted by the Chinese people. This, combined with the *organised political forces* of the CCP (Xiao and Zhao, 2017), has made ecological civilisation widespread in China, influencing people's perceptions of environmental protection (Huang and Westman, 2021; Wang et al., 2020b).

In the context of wildlife governance, these political and problem streams aligned with a proposed solution, a *policy stream* that involved changes in Chinese legislation to prioritise species conservation. The resulting *policy window* saw significant amendments to the 2016 WPL, notably prioritising species conservation over utilisation as described in Phase 2. This also established a strong *national mood* towards eco-conservation, lasting effects in the opening of the *problem window* that was driven by COVID-19 (Fig. 3).

5.2. A COVID-19 problem window accelerates shifts in wildlife governance

An unpredictable *problem window* drove phase 3 in the wildlife governance timeline, that was the COVID-19 pandemic (Fig. 3). It was a *real crisis*, with enormous economic and public health impacts across the globe (Laborde et al., 2020) and, thus, became a *focusing event* drawing global attention to the problem between public health and the environment, especially wildlife trade. Wildlife trade in China, specifically the wet market, became a *powerful symbol* that raised worldwide discussion (Roe et al., 2020), given the potential origins of the virus. As such, the pandemic became an effective *problem stream*, sparking discussions and reforms to address the conflict between wildlife management and zoonosis prevention.

At the same time, the *political window* of ecological civilisation remained active. And given the resonance between the enhanced eco-conservation values under the concepts of ecological civilisation and the conservation crisis behind the urgency to control and prevent COVID-19, the strong political influence of the *political window* spilled over to the *political stream* of the new *problem window*, which greatly enriched the *political stream* beyond the ongoing efforts of ecological civilisation. Political forces exerting guidance and suggestions to address the epidemic have strengthened the *political stream* (see Fig. 3).

This is aligned with a series of proposed *policy stream* solutions, notably around the tightened governance of wildlife. Following the COVID-19 outbreak, the CCP and the government quickly declared intentions to enhance wildlife governance to combat the epidemic and protect public health (see Phase 3). Democratic parties also proposed measures for epidemic control (CPPCC, 2020). Proposals from these *visible participants* typically align with government budgetary costs and mainstream thinking (Kingdon, 2014). Given the substantial economic and human costs of COVID-19, the Chinese government's responses

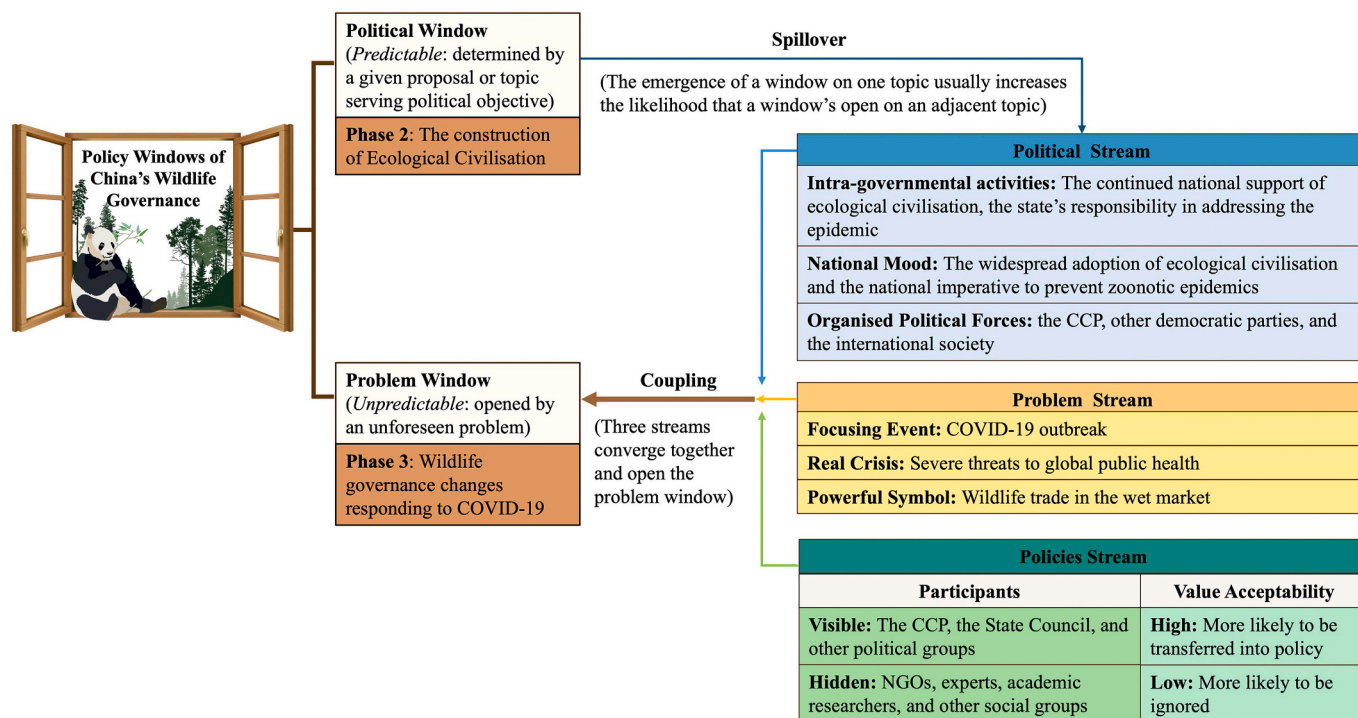


Fig. 3. Kingdon's Multiple Streams Model (MSM) of policymaking, applied to changes in China's wildlife governance.

appear to meet these criteria, thus gaining high *value acceptability*. The *policy stream* also drew inputs from *hidden participants*, like academic experts and NGOs, on how to reform wildlife governance (Wang, 2020). This *coupling of problem, political and policy streams* Fig. 3 resulted in the boom of legislation seen since 2020, as described in Phase 3.

6. Discussion

Our analysis of 147 documents relevant to wildlife governance in China identified three phases marked by two distinct changes in overall legislative priorities: one brought about by the construction of the ecological civilisation and the other by COVID-19. These two waves of change can be seen as two interrelated policy windows in Kingdon's MSM of policy making. We found that although the emphasis on wildlife conservation was present in each phase, the drivers behind the legislation were distinct.

The primary driver of Phase 1 was the scarcity of certain wildlife that affected the functional integrity of ecosystems (wildlife protection) or human use (wildlife utilisation), so rare or precious wildlife were protected, with the primary focus of legislation across this phase prioritising utilisation. Phase 2 was characterised by ecological value as a driver: legislation began to redress the balance between conservation and utilisation with increased emphasis on the former while still enabling the latter. Phase 3 was driven by public health concerns but has arguably seen the most notable advances in conservation. Overall, our analysis revealed that the imperative to safeguard public health has driven more substantial changes in wildlife governance in China than the ecological values promoted by the concept of ecological civilisation. Given that changes driven by human interests—such as utilisation and public health—are present across all three phases, we began to question what these shifts in motivation for policy changes in wildlife governance actually mean for “wildlife conservation.”

6.1. Human interest: A consistent driving force in wildlife governance across three phases

Although each phase has different drivers for establishing wildlife

governance, human interest consistently parallels these forces, which is a double-edged sword. At times, it exacerbates biodiversity loss, while at other times, it enhances conservation efforts.

Legislation in Phase 1 was primarily driven by the scarcity of wildlife, aiming to protect the integrity of the ecosystem and prevent the extinction of rare species. However, this scarcity also positioned wildlife utilisation as a crucial economic tool for boosting the economy in the country's early years. In other words, during this phase, the ecological value of wildlife was deprioritised in favour of its economic value (Wang, 2014), with human interest actually becoming the main driving force behind wildlife governance. Consequently, this period saw the rapid growth of wildlife-related industries. Unfortunately, as scarcity drives up prices (Ren, 2020), economic growth also stimulates the smuggling and poaching of endangered species, leading to significant biodiversity loss across China (Harkness, 1998).

Governance in Phase 2 was driven by ecological civilisation, indicating that China no longer prioritises development over the environment (Ranjan, 2019). Specifically, the WPL began to recognise the ecological value of wildlife. However, this reform was motivated not only by environmental conservation but also by the pursuit of human interests. President Xi emphasised that constructing ecological civilisation should also meet people's growing demands for a beautiful environment (Xi, 2017). Fortunately, this goal, aligned with environmental protection, has brought reforms that enhance biodiversity conservation and ecosystem restoration (Ranjan, 2019).

While the ecological civilisation *political window* was influential and laid the theoretical groundwork for more radical changes seen in Phase 3 due to the COVID-19 *problem window* (Fig. 3), it still faces trade-offs inherent in socio-ecological challenges. This is because, in China, ecological progress is not an independent target but is intertwined with economic and social progress (Ranjan, 2019). Consequently, wildlife-related industries, notably those close to wildlife utilisation in TCM, continued to thrive during this period. Therefore, the challenge for China remains how to efficiently use environmental resources to achieve a win-win between a green economy and ecological security (Ranjan, 2019).

In Phase 3, the post-COVID-19 era, wildlife utilisation for purposes

such as TCM, scientific research, and fur is still permitted, and even relaxed breeding regulations on “Sanyou” animals were introduced, which raised concerns about balancing conservation and wildlife use (Cui, 2023). Similarly, conservationists have criticised the designation “limited to wild population” in the List of Wildlife under Special State Protection. They are concerned that this change could encourage the illegal breeding of endangered species, particularly the non-terrestrial wildlife categories (59 kinds of species cover Reptilia, Amphibia, Osteichthyes, etc.). The underdeveloped technology for breeding these species and the difficulty in distinguishing between bred and wild populations could lead to the laundering of protected wild animals (Gone, 2020), like the Chinese giant salamanders (*Andrias davidianus* s. l.) (Lu et al., 2020). Moreover, although the pangolin's protection status was upgraded to Class I in 2020, the Pharmacopeia revised that same year still includes it as an ingredient in nine types of prescriptions rather than removing it entirely, retaining the threats to this endangered species (Wang et al., 2023). Despite these allowances, China's wildlife legislation underwent unprecedented and drastic changes in response to the zoonotic epidemic. Public health concerns, one typical human interest, became the driving force, leading to significant improvements in wildlife conservation.

These three phases illustrate that wildlife conservation is never just an ecological issue but is closely linked to human interests. The concept of ecological civilisation emphasises that all humans are part of a shared destiny. The COVID-19 outbreak has demonstrated that humans are interconnected not only with each other but also with animals and the environment, aligning with the “One Health” concept (Jenkins et al., 2015). Though pursuing human interests results in environmental harms like biodiversity loss, zoonotic diseases, and climate change, the radical shifts in Phase 3 offer a new approach to enhancing wildlife conservation: formulating wildlife policies and legislation from the perspective of human interests. The importance, urgency, and initiative to solve a problem are often driven by perceived threats to human well-being. Thus, protecting animals, plants, and the environment through a human-centred approach can achieve results that exclusive ecological conservation efforts might not. This perspective ensures that conservation measures are not only ecologically sound but also socially and economically viable.

6.2. One-party rule: China's unique system that influences policy windows and conservation strategy

Under China's system of one-party rule, the CCP and the State administrative agencies usually dominate a closed process of policy making and changing, especially the Politburo of the CCP Central Committee, which decides the major policy guidelines (Li, 2020), including environmental governance.

Such a one-party system often faces criticism for prioritising party concerns during policymaking (Snape and Wang, 2020) and for limiting alternative viewpoints. And yet this very structure allows for policies and initiatives endorsed by the CCP and its core leaders to be thoroughly implemented across the country through top-down approaches, such as reform of legal institutions, revision of relevant legislation, and strong and effective enforcement (Ranjan, 2019). In this case of ecological civilisation, those are largely positive for conservation and the broader environment. This political system has been pivotal in opening the *political window* in Phase 2 and steering the *problem window* in Phase 3, marking the political stream's substantial influence on shaping these policy windows.

In political dynamics, internal government events can shape policy agendas, including leadership changes or shifts in ideological focus (Kingdon, 2014). In China, the CCP dominates, ensuring that policy directions remain relatively stable despite leadership changes (State Council Information Office, 2007). This stability means that once a political direction is set in China, it tends to endure longer than in other systems. Therefore, the philosophy of ecological civilisation, rooted in

ex-President Hu Jintao's era, has continued to grow under President Xi Jinping, further cementing itself as one of the critical political streams of the problem window in Phase 3.

This political framework has significantly influenced Phase 3's changes. While policy windows allow for the translation of various values into policy, in China's system, directives from visible participants like the president and high-ranking officials more readily become policy (Kingdon, 2014). Thus, the government could swiftly enact legislation and policies to ensure strict wildlife governance after the epidemic breakout while maintaining wildlife farming and utilisation based on economic reasons. In contrast, calls from experts and the public (hidden participants) for a complete ban on wildlife trade and to end medicinal wildlife use (Wang and Jiang, 2020) were overlooked.

However, it must be acknowledged that China's political system has long been a powerful force binding wildlife governance and utilisation together. As previously noted, wildlife utilisation has persisted throughout all three phases, remaining constant even during the push for ecological civilisation and amidst public health crises. This enduring presence is due to the Chinese government's designation of wildlife as a natural resource for economic development. For example, wildlife farming has been recognised and supported for its role in job creation and poverty alleviation, particularly in rural areas (Li, 2020). Though wildlife trade can benefit sustainable conservation in some ways (Roe et al., 2020), market demands for wildlife and its products in China continue unabated, posing significant challenges to wildlife conservation.

7. Conclusions

China has a uniquely rich history of wildlife use and governance and an outsized role in shaping current wildlife trade dynamics. Throughout its history, China has shown a trend of increasingly striving to protect nature and wildlife, with post-COVID efforts appearing as part of this ongoing progression. Yet, significant advances in wildlife protection have often been hindered by economic and cultural pressures to use wildlife resources (Zhu and Zhu, 2020). The recent legal changes after COVID-19 highlight the persistent challenges and possibilities China faces in its mission to conserve wildlife without compromising economic growth and social order. These changes call for more in-depth examinations to gauge their actual impact on preventing zoonotic diseases and conservation improvement in practice.

Additionally, this study highlights that strong conservation policies don't always stem only, or even primarily, from a direct desire to protect wildlife. As noted, the early wildlife legislation in Phase 1 focused on the economic benefits of wildlife utilisation, whereas Phase 3's substantial reforms were driven by public health concerns – both rooted in human interests. This indicates that in our human-centric world, exploring indirect methods to enhance wildlife protection could be beneficial. For instance, strategically leveraging “human interests” to gain policymaker support for conservation recommendations can be effective.

Moreover, our finding reveals China's unique (dis)advantage in conservation efforts. China's commitment to ecological civilisation as a core governance philosophy, coupled with swift and substantial responses post-outbreak, highlights the strengths of its centralised system in enacting and enforcing new policies. The policy windows of wildlife governance in China underline that a governance philosophy supportive of conservation, within such a state system, can significantly expedite conservation efforts, emphasising the importance of aligning party values with progressive conservation strategies. However, long-standing policies that support wildlife trade and utilisation also pose significant challenges for conservation efforts.

Overall, the evolution of wildlife conservation legislation in China over the past 70 years demonstrates that the factors influencing conservation are complex rather than straightforward, creating opportunities for those who want to bridge the gap between conservation science and policy (Troiano et al., 2024). This analysis offers both

individual conservationists and broader conservation movements a valuable historical perspective, revealing trends and shifts in the motivations and discourses that shape conservation efforts. A more macro-level understanding of conservation policy is crucial for predicting how individual proposals may be received, how lobbying efforts can be most effectively framed, and how public movements can engage with policymakers.

CRediT authorship contribution statement

Miaomiao Tian: Writing – review & editing, Writing – original draft, Visualization, Resources, Methodology, Funding acquisition, Formal analysis, Conceptualization. **Gary R. Potter:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Jacob Phelps:** Writing – review & editing, Visualization, Supervision, Methodology, Funding acquisition, Formal analysis, Conceptualization.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.biocon.2024.110817>.

Data availability

We have uploaded supported materials as appendixes

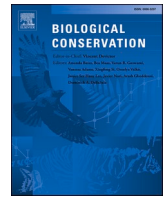
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Chapter 5

Conservation criminalisation and China's evolving wildlife sanctions



Policy analysis

Conservation criminalisation and China's evolving wildlife sanctions

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ABSTRACT

Criminal law remains a ubiquitous part of environmental governance and conservation. However, there is increasing interrogation of the risks of over-criminalisation in conservation. There are also calls for conservation to learn more from criminology, as policies seek to navigate impacts on social justice and biodiversity. This study explores the conservation criminalisation debate through a doctrinal legal analysis of significant, recent (2020–2022) legislative changes in China's wildlife criminal legislation. These reforms which, on the surface, seem like widely expanded criminalisation, actually reflected more nuanced responses that have created more pronounced distinctions between serious and minor offences. We employed the fishing net analogy to discuss this bifurcation that created changes to the thresholds that determine what actions are actually criminalised and that determine the severity of crimes and thus define the corresponding penalties. Much of this was achieved through the introduction of a monetary threshold system that introduced a standardised approach to placing monetary values on different species as a way to define criminal offences. These changes illustrate the complexity of legislative drafting to address and balance biodiversity conservation, social justice and socio-economic interests, and the importance of doctrinal legal analysis to both debates on conservation criminalisation and conservation design.

1. Introduction

The conservation field has long recognised the importance of strong legal frameworks to establish clear formal rules, punish and deter offenders, and protect biodiversity (Doremus, 1991). Criminalisation remains a central part of State-led environmental governance. Efforts to combat environmental crimes such as illegal wildlife trade often emphasise law enforcement, stricter penalties, and criminal prosecution as key conservation tools, reflected in international agreements, donor budgets, national legislation and practices globally (discussed in Duffy et al., 2015; Mogomotsi and Madigele, 2017; Paudel et al., 2019; Wilson and Boratto, 2020). The COVID-19 pandemic further intensified enforcement efforts, as concerns over zoonotic disease transmission fuelled calls for stricter wildlife trade regulations and enforcement measures (Borzée et al., 2020; Evans, 2020).

However, strict enforcement-based conservation strategies have also seen growing debate globally. While stringent measures, including shoot-on-sight policies, have been identified as potentially strong deterrents (Mogomotsi and Madigele, 2017; Sturrock, 2017; Tan, 2021), they have also raised serious concerns about legal due process, human

right violations, conflicts with local communities, and excessive criminalisation in the name of conservation that reproduces historical injustices (Duffy et al., 2015; Duffy et al., 2019; Ashaba, 2020). There is also wide evidence that the social justice impacts of conservation efforts have consequences that shape conservation outcomes (Armstrong, 2024; Pascual et al., 2014; Sandbrook et al., 2023). Conservation scholars increasingly recognise that effective biodiversity protection often requires addressing the root causes of offences rather than over-relying on punitive approaches. Drivers such as poverty, lack of legal awareness, forced participation in illegal activities, and retaliatory killings linked to human-wildlife conflicts also play critical roles in shaping conservation outcomes, and must be considered within and alongside enforcement strategies (Duffy et al., 2015; Cooney et al., 2016; Paudel et al., 2019; Ashaba, 2020). Moreover, evidence suggests that increasing the severity of penalties does not always translate to improved conservation outcomes, and that there is a need for conservation science to further engage with lessons and theory from criminology to help design more effective and just conservation outcomes (Wilson and Boratto, 2020).

These debates have become increasingly salient in China, a country

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Table 1
Overview of key legislation governing wildlife offences.

Law	Summary points
Constitution [Art. 9] (Revised 2018) Wildlife Protection Law (Revised 2022)	<ul style="list-style-type: none"> ● Assigns protected status to plants and animals deemed 'rare' ● Classifies protected wildlife into 3 categories: <ul style="list-style-type: none"> ○ Nationally-protected wildlife under 'Special State Protection', precious and endangered species under Class I and Class II level protections; ○ Nationally-protected 'Sanyou animals',¹ terrestrial wildlife of important ecological, scientific or social value ○ Provincially-protected 'Wildlife under special local protection'; ● Regulates trade and use; protection of habitats, and artificial breeding; ● Stipulates administrative punishments (fines, imprisonment), and indicates when the severity of offences means the Criminal Law applies instead; ● Stipulates offenders' civil liabilities to remedy harm
Criminal Law [Art. 151, Para 2; Art. 341 Para 1–3; Art. 344a] (Revised 2020)	<ul style="list-style-type: none"> ● Defines wildlife offences that are criminal in nature, notably: <ul style="list-style-type: none"> ○ Smuggling precious wildlife and the products thereof whose import and export are prohibited by the State and wildlife listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); ○ Endangering precious and endangered species and their products; ○ Illegal hunting of wildlife other than wildlife under 'Special State Protection'; ○ Offences towards terrestrial wildlife (other than wildlife under 'Special State Protection') that grow and reproduce naturally in the wild environment for the purpose of consuming; ○ Illegally importing, releasing or discarding alien invasive species. ● Stipulates criminal penalties for the offences, including fines, asset forfeiture, criminal detention, public surveillance, fixed-term imprisonment, and life imprisonment
Judicial Interpretations related to wildlife crimes (2000, 2014, 2022)	<ul style="list-style-type: none"> ● Guide from the Court on the application of criminal laws in wildlife cases, with further instruction on how these should be applied related to: <ul style="list-style-type: none"> ○ Circumstances (thresholds) for what constitutes crimes; ○ Circumstances under which different penalties should be applied; ○ Further explanations of key terms or concepts

¹ Transliterated from the Chinese term “三有动物” (literally, “animals with three values”), this term refers to terrestrial animals that have at least one of three specific values: ecological, scientific, or social.

with long-standing cultural and economic traditions of wildlife use (Wong, 2019; Zhu and Zhu, 2020), but also a history of strong approaches to formal enforcement (Cao, 2016; Jiang, 2024). There is active domestic debate over whether wildlife legislation should prioritise biodiversity conservation or emphasise human wellbeing (Qin, 2024). These debates are globally significant, as China is a major actor in the legal and illegal wildlife trades at the domestic and international levels (Evans, 2020; Beirne, 2021; Wong, 2019), with markets spanning traditional medicine, meat consumption, and cultural and luxury products (Jiao et al., 2021; Mallapaty, 2020).

Although China has faced long-term international pressure to strengthen its conservation legislation and enforcement (Stiles, 2004), the COVID-19 pandemic accelerated legislative reforms – including a ban on wildlife consumption, the closure of wildlife farms, and the restrictions on species allowed for artificial breeding for consumption (Beirne, 2021; Huang et al., 2021; Koh et al., 2021; Mallapaty, 2020; Normile, 2023; Tian et al., 2024; You, 2020; Zhu and Zhu, 2020). China has also introduced a number of recent reforms to its criminal law on wildlife offences that could have significant implications for offenders, justice and biodiversity conservation.

In parallel with these changes, however, there have been mounting calls among Chinese conservationists, legal scholars and the public to ensure fair sentences, amidst concerns about the risk of excessive punishment in wildlife crime cases (Chen, 2021; Jiang, 2024; Teller Report, 2023).

This research examines changes to China's wildlife criminal legislation from 2020 to 2022, a period of rapid and significant legal reform that immediately followed the COVID-19 pandemic (Tian et al., 2024). It does this in order to understand how changes in legislation affected the criminalisation of wildlife offences, providing empirical legislative analysis that contributes to debates on conservation criminalisation. It also provides insights for conservationists into the legislative nuances that shape both biodiversity and social justice outcomes of conservation.

1.1. Overview of China's wildlife criminal legislation

China is recognised for its relatively consistent enforcement and strict criminal penalties for offences affecting protected species of wild

animals (Cao, 2016). These species were granted protections under the 1982 Constitution, further governed by two key laws: the Wildlife Protection Law (WPL) and the Criminal Law (Table 1).

The WPL classifies two main groups of animals under national-level protections: wildlife under 'Special State Protection', and 'Sanyou animals' of important ecological, scientific or social values (Table 1). Offences involving these species face sanctions ranging from administrative punishment for minor violations to criminal penalties for more serious offences (Luo, 2023). In this respect, the WPL is a pre-positive law¹ to China's Criminal Law (Liu, 2019; Luo, 2023), which also identifies crimes that apply to several key wildlife categories (Table 1) along a continuum from 'minor' to 'particularly serious' crimes, prescribing corresponding sanctions. The application of sanctions is further guided by Judicial Interpretations, rulings issued by the Supreme Court and/or the Supreme Procuratorate to guide decision-making in the lower courts.

Since this research specifically examines crimes involving wild animals, the term 'wildlife' in this paper refers exclusively to wild animals, unless otherwise stated.

2. Methods

2.1. Collection of legislation

We conducted a systematic review to compile China's national-level wildlife crime-related legislation from 1950 to 2024 (building on Tian et al., 2024). We initially searched for the legislation from China's national legal database (<https://flk.npc.gov.cn/>) using Chinese keywords and subsequently cross-checked with the professional legal database LexisNexis (<https://hk.lexiscn.com/>) with English keywords to ensure

¹ The WPL serves as a foundational law that defines protected species and outlines prohibited activities, which may result in either administrative punishments or criminal penalties. Criminal law complements this framework by specifying corresponding criminal penalties. However, the scope of protected species and punishable behaviours under Criminal law cannot extend beyond the boundaries established by the WPL.

Table 2
List of reviewed legislation and official documents.

Document No.	Title	Summary
Laws		
Order of the President of the People's Republic of China No. 41	Amendment VIII to the Criminal Law of the People's Republic of China (25th February 2011)	Changed the penalty for crime of smuggling wildlife and their products.
Order of the President of the People's Republic of China No. 66	Amendment XI to the Criminal Law of the People's Republic of China (26th December 2020)	Introduced criminal offences regarding wildlife consumption and alien invasive species.
Order of the President of the People's Republic of China No. 18	Criminal Law of the People's Republic of China (enacted in 1997, recently amended in 29th December 2023)	Stipulates crimes destroying wildlife and the corresponding penalties; however, the 2023 amendments did not address wildlife crimes.
Order of the President of the People's Republic of China No. 56	Biosecurity Law of the People's Republic of China (17th October 2020)	Regulations to prevent and respond to biosecurity risks, and guarantee public health.
Order of the President of the People's Republic of China No. 126	Law of the People's Republic of China on the Protection of Wildlife (enacted in 1988, recently revised in 30th December 2022)	Fundamental legislation to govern wildlife.
Judicial Interpretations and judicial documents		
Fa Shi [2000] No.37	Interpretation of the Supreme People's Court on Several Issues Concerning the Specific Application of Law in the Trial of Criminal Cases Destroying Wildlife Resources (27th November 2000; expired in 2022)	Guidance on implementation of laws when trying wildlife cases.
Attachment for Fa Shi [2000] No.37	List of 'Smuggling, illegal hunting, killing, acquisition, transportation, and sale of precious and endangered terrestrial wildlife major cases, especially serious case filing standards' (27th November 2000)	Numeric standards for determining severity of wildlife crimes.
Lin An Zi [2001] No. 156	State Forestry Administration and Ministry of Public Security on Jurisdiction and Case Filing Standards for Forest and Terrestrial Wildlife Criminal Cases (9th May 2001)	Numeric standards for determining criminalisation of wildlife crimes.
Fa Shi [2014] No.10	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues Concerning the Application of Law to Handling of Criminal Cases Involving Smuggling (12th August 2014)	Guidance on implementation of laws when trying smuggling cases (including cases smuggling wildlife).
Fa Shi [2016] No.17	Provisions of the Supreme People's Court on Several Issues concerning the Trial of the Relevant Cases Occurring in the Sea Areas under China's Jurisdiction (II) (10th August 2016)	Guidance on trying cases involving marine species.
Gong Tong Zi [2020] No.19	Circular of the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security and the Ministry of Justice on Issuing the Guiding Opinions on Punishing Crimes of Illegal Wild Animal Trade in Accordance with the Law (18th December 2020)	Guidance on punishing illegal wildlife trade crimes.
Fa Shi [2021] No.8	Interpretation of the Supreme People's Court on Several Issues concerning the Application of Laws in the Hearing of Criminal Cases Involving Covering up or Concealing Criminal Gains and the Proceeds Thereof (2015, revised in 13th April 2021)	Including guidance on implementation of laws when trying lower crimes involving wildlife and products.
Fa Shi [2022] No.12	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues Concerning the Application of Law in the Handling of Criminal Cases on the Destruction of Wildlife Resources (6th April 2022)	Guidance on implementation of laws when trying wildlife cases.
Departmental documents		
Announcement No. 3 of 2021 from the National Forestry and Grassland Administration and the Ministry of Agriculture and Rural Affairs	List of Wildlife under Special State Protection (1989, revised in 1st February 2021)	980 kinds and 8 categories of wildlife are classified into Class I and Class II (both terrestrial and aquatic species), enjoying special state protection.
Announcement No. 17 of 2023 from the National Forestry and Grassland Administration	List of Terrestrial Wildlife which are Beneficial or of Important Economic or Scientific Value (2000, revised in 26th June 2023 as List of Terrestrial Wildlife of Important Ecological, Scientific or Social Value)	Covers 1924 terrestrial species that enjoy state protection.
Attachment to Order No. 46 of the State Forestry Administration	List of standards for the baseline value of terrestrial wildlife (29th September 2017)	Legislative monetary value of listed wildlife.
Order No. 46 of the State Forestry Administration	Methods for valuing wildlife and products thereof (1st November 2017)	Introduces methods to calculate the value of affected terrestrial wildlife and their products.
Order No. 5 of 2019 from the ministry of Agriculture and Rural Affairs	Measures for Valuation of Aquatic Wild Animals and Their Products (27th August 2019)	Introduces methods to calculate the value of affected aquatic wildlife and their products.
Order of the Ministry of Agriculture and Rural Affairs of the People's Republic of China, the Ministry of Natural Resources, the Ministry of Ecology and Environment, and the General Administration of Customs [2022] No.4	Administrative Measures for Invasive Alien Species (31st May 2022)	Regulations to prevent and respond to the harm caused by invasive alien species.

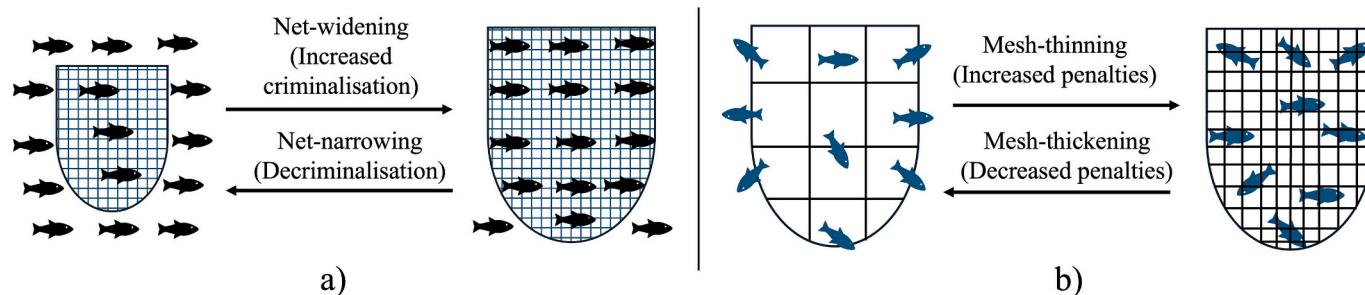


Fig. 1. The fishing net analogy to describe approaches to criminalisation. The mesh symbolises the intensiveness of penalty thresholds, and the fish denote the individuals or actions subjected to criminal control. a) net-widening and net-narrowing represent expanded or reduced scope of criminal justice control, and b) mesh-thinning and mesh-thickening represent harsher or less harsh penalties.

comprehensive coverage. The English versions of the legislation provided by LexisNexis also ensured precise and professional translations (Anderson et al., 2012). To ensure comprehensive identification of wildlife-related legislation, our search terms included both “wildlife” and “wild animal” (野生动物),² as well as “biodiversity” (生物多样性) and “endangered species” (濒危物种). Within the collected legislation, we then conducted a targeted search using keywords such as “offence” (罪行), “crime” (犯罪), “criminal liability” (刑事责任), “punishment” (处罚), and “penalty” (刑罚), to further isolate legislation specifically related to criminalisation. Additionally, we gathered any attachments associated with the collected legislation as supportive documents. The searches yielded three types of legislation: Laws, Judicial Interpretations, and Departmental documents (enacted by specific governmental departments, including administrative regulations and supplementary materials to relevant laws) (see Table 2).

We then focused specifically on changes in wildlife legislation between 2020 and 2022, the period following the peak of the COVID-19 epidemic. Although a relatively short time horizon, historical analysis of Chinese wildlife legislation since 1950 highlights this short period as a distinct phase in environmental policy and a significant boom in new legislation (Tian et al., 2024, see also Huang et al., 2021). By comparison, over the preceding ten-year period (2010–2019), 37 pieces of new legislation were enacted, and 24 pieces of existing legislation were revised, while during the two-year period we focus on, 27 new pieces of legislation were introduced, with seven revised (Tian et al., 2024). There were no legislative changes addressing wildlife crime between 2022 and 2024. Notably, during the 2-year target period, China amended the Criminal Law (2020) and had a newly enacted Judicial Interpretation (2022) (Table 2). To understand these legislative changes, we then compared the 2020–2022 legislation with previous related legislation in the dataset (cf. Dubber, 1998).

In order to assess possible changes in judicial practices resulting from legislative changes during 2020–2022, we evaluated crime statistics before (2017–2020) and after (2023) the target time period. We accessed official judicial statistics published by the Environmental and Resources Adjudication of China (SPCPRC, 2018, 2020, 2021, 2022, 2023, 2024) and Report on the Development of Environmental Judiciary in China: 2022 (Lv, 2023), which starting from 2018 reported the annual number of criminal cases by category of offence (details such as sanctions are not reported). We looked at reported case numbers for the three relevant reported categories of crimes: (1) endangering precious and endangered species and their products, and (2) illegal hunting of wildlife not listed under ‘Special State Protection’; and (3) smuggling of precious wildlife and their products (for which data are unavailable for the years 2017–2018 and 2022). We then compared the number of criminal

prosecutions before our target 2020–2022 timeframe, with those in 2023.

2.2. Approach to analysing changes in legislation

We applied doctrinal legal analysis to the legislation, a method also known as black-letter analysis that focuses on the legal text of legislation as it is written (Hutchinson and Duncan, 2012), to identify recent changes in the criminalisation and penalties associated with wildlife offences. By comparing the legal texts of new regulations with previous versions (e.g., Criminal Law 2011 vs. 2020; Judicial Interpretations 2000 vs. 2022), we were able to delineate the changes.

In our analysis, one of the key changes we identified was a shift in approach to determining the legal thresholds that define wildlife crime; we observed a change from thresholds based on the number of harmed individual animals to one based on the monetary value of the injured animals or their products. To enable comparison across these two approaches, we converted the current monetary thresholds into the equivalent numbers of individual animals, using the official benchmark prices for each species and the calculation rules set out in legislation (see Supplementary Information).

We then drew on criminological theory to describe and group four key changes identified in the database. In particular, we drew on the fishing net analogy from criminology (Cohen, 1979; Brown, 2004; Rubin, 2012; Aebi et al., 2015; Muncie, 2019). In this framework, the “net” represents the criminal justice system. “Net-widening” refers to expanding criminal justice control over an increasing number of individuals or actions, as new legal provisions are implemented (Siegel and Welsh, 2018; Fig. 1); net-widening indicates increased criminalisation, whereas net-narrowing signifies decriminalisation. The “mesh” in the analogy represents the thresholds that trigger criminal penalties. Mesh-thinning, a reduction in the mesh size (Fig. 1), indicates a reduction in these thresholds, resulting in harsher penalties for even minor offences (O’Brien and Yar, 2008), making it more difficult for offenders to avoid punishment. Conversely, mesh-thickening increases the thresholds, leading to less severe punishment and, in some cases, allowing minor offences to be downgraded to administrative fines, escaping criminal penalties. Consequently, we classified the observed changes in legislation into four categories: net-widening (increased criminalisation), net-narrowing (decriminalisation), mesh-thinning (increased penalties), and mesh-thickening (decreased penalties).

2.3. Green criminology perspective

Our analysis was informed by an expanding body of green criminology research interested in wildlife conservation (cf. Nurse and Wyatt, 2020; Duffy and Brockington, 2022; van Uhm, 2023). Although we do not interrogate the legitimacy of formal wildlife legislation and the view that related offences often merit formal penalties, we acknowledge that the designation and sanctioning of criminal behaviour in the

² When legal databases translate Chinese law into English, or Chinese scholars publish academic articles in English, the term “野生动物” (‘wild animal’) is often translated as ‘wildlife’ (Tian et al., 2023; Zeng et al., 2020).

Table 3

Key types of changes in the criminalisation of wildlife offences observed in legislative reforms over 2020–2022.

Theme (see Fig. 1)	Specific changes in legislation
Increased criminalisation (net-widening)	New crime introduced: Illegally hunting, purchasing, transporting or selling other terrestrial wildlife that naturally grows and reproduces in the wild environment for consumption are added as constitutes a crime now (Paragraph 3, Article 341, 2020 Criminal Law) Activities under 'Crime of covering up or concealing the criminal proceeds' concerning wildlife expanded from only 'purchasing' to include 'selling illegal gains and other relevant activities' (Article 9, 2022 Judicial Interpretation)
Decriminalisation (net-narrowing)	New crime introduced: Illegally importing, releasing or discarding alien invasive species. (Article 344a, 2020 Criminal Law) Minimum threshold for criminalisation under the unified monetary threshold system replaced the previous "one goes to jail" principle, causing possible decriminalisation for some offences. (Articles 2, 6, 7, 8, 2022 Judicial Interpretation) Decriminalisation caused by the introduction of mitigating circumstances and obviously minor offence: The newly introduced mitigating circumstances may lead to actions that exceed the minimum sanction threshold and may be downgraded to minor offences and thus exempted from criminal penalties; offences identified as obviously minor shall not be considered as crime. (Article 6, 2022 Judicial Interpretation) New exemption about crime involving artificially bred wildlife - If the animal involved in the case is artificially bred and is listed in the list of artificial breeding wildlife under 'Special State Protection'; or the artificial breeding technology is mature with a certain scale, and the animal is being traded or transported as a pet, the case will be generally not handled as a crime. (Article 13, 2022 Judicial Interpretation)
Increased penalties (mesh-thinning)	The introduction of the unified monetary threshold system has lowered the threshold for defining the severity of criminal circumstances when the involved species with high monetary value, thereby increasing penalties (Articles 2, 6, 7, 8, 2022 Judicial Interpretation) Introduction of aggravating circumstances justifying heavier penalties leading to increased penalties (Articles 2, 6, 7, 2022 Judicial Interpretation)
Decreased penalties (mesh-thickening)	The introduction of the unified monetary threshold system has increased the threshold for defining the severity of criminal circumstances when the involved species with low monetary value, thereby decreasing penalties (Articles 2, 6, 7, 8, 2022 Judicial Interpretation) Introduction of mitigating circumstances degraded the severity of crime, leading to decreased penalties (Articles 2, 6, 7, 2022 Judicial Interpretation)

environmental sector has frequently led to over-criminalisation, especially impacting poor and marginalised communities (e.g., Duffy et al., 2015; Paudel et al., 2019; Shao et al., 2021). Moreover, we recognise that decisions about criminal acts and punishments are often influenced by political pressures and public concerns (Carter and Ward, 2022), and that these changes to criminal regimes and how they define and treat different serious and minor offences are often dynamic and complex (cf. 'bifurcation', Rowe, 2007; 'net-widening', Cohen, 1979). These issues have not only ethical implications, but also impact conservation outcomes (cf. Pascual et al., 2014). As such, we also drew on discussions of the principle of proportionality in criminalisation and punishment to explore how these observed legal revisions rendered penalty severity proportionate to the gravity of criminal behaviours (von Hirsch, 1992; Bagaric, 2000; Goh, 2013).

3. Results

Between 2020 and 2022, changes in China's wildlife criminal legislation reshaped the country's criminal justice responses to wildlife offences. Notably, these changes happened in a short, 2-year time period post-COVID-19 during which a number of legislative changes were made (Tian et al., 2024). These appear to have had significant impacts on enforcement patterns: We identified changes that altered the scope of conduct subject to criminalisation, such as increased criminalisation through the introduction of new offences and some decriminalisation exemptions (Table 3). We also identified notable shifts in the annual number of criminal cases on three types of wildlife crimes from 2017 to 2023, reflecting the possible influence of recent legal amendments on judicial practice (Fig. 2).

3.1. Unified monetary threshold system to define crime

Many of the observed changes were driven by legislative reforms that resulted in the adoption of a unified monetary threshold system to determine conviction thresholds and offence severity, coupled with the incorporation of aggravating and mitigating circumstances under this system.

Historically, offences involving wildlife products³ were defined by the monetary value of the products, whereas crimes involving intact

³ 'Wildlife products' refers to parts of a species' body and its derivatives, including products (Table 2, L12, Article 2).

wildlife⁴ (alive or dead) were determined by the number of individuals harmed (i.e., 'numeric criteria', e.g., 2000 Judicial Interpretation, Fa Shi [2000] No.37; 2014 Judicial Interpretation, Fa Shi [2014] No.10, Table 2). Each species had its own numeric criteria that marked the threshold for criminalisation and that also helped determine the severity of the offence and, thus, its corresponding punishment.

The 2022 Judicial Interpretation introduced a unified monetary standard for both intact wildlife and wildlife products, replacing the numeric criteria. This new standard established minimum thresholds for criminalisation and offence severity, to be uniformly applied across species for a given offence. For example, crimes threatening endangered species newly required that the value of harmed wildlife exceed CNY 2 million (approx. USD 275,440). Each species was also assigned its own official monetary value (Order No. 46 of the State Forestry Administration, Table 2)—for instance, a giant panda *Ailuropoda melanoleuca* was valued at CNY 5 million (approx. USD 688,600), whereas a Tibetan antelope *Pantholops* spp. was valued at CNY 500,000 (approx. USD 68,860). Converting these monetary thresholds into equivalent numbers of individuals indicates how thresholds across species have changed over time. The monetary threshold system influenced both the scope of criminalisation and the severity of offences and penalties, and so has wide impacts on conservation criminalisation.

3.2. Increased criminalisation (net-widening)

Recent reforms created new criminal offences related to the consumption of wildlife as food (as distinct from medicinal consumption); covering up illegal proceeds from wildlife crimes; and the illegal import, release, or disposal of invasive alien species. These new offences significantly widened the criminal net on multiple fronts.

3.2.1. Crimes of illegally hunting, purchasing, transporting or selling terrestrial wildlife for the purpose of eating

The Criminal Law (2020) was amended to include new criminal behaviours aiming to eat wildlife (Table 3). Previously, the purchase of wildlife for consumption and actions to produce, operate or utilise food made from such wildlife were both prohibited for species under 'Special State Protection'. The latter prohibition also applied to actions involving other non-listed species⁵ that lacked evidence of legitimate origin

⁴ 'Wildlife' refers to the entire species body, including spawn and egg (Table 2, L12, Article 2).

⁵ Includes 'Sanyou animals', terrestrial wildlife under special local protection, and other terrestrial wildlife not protected by law.

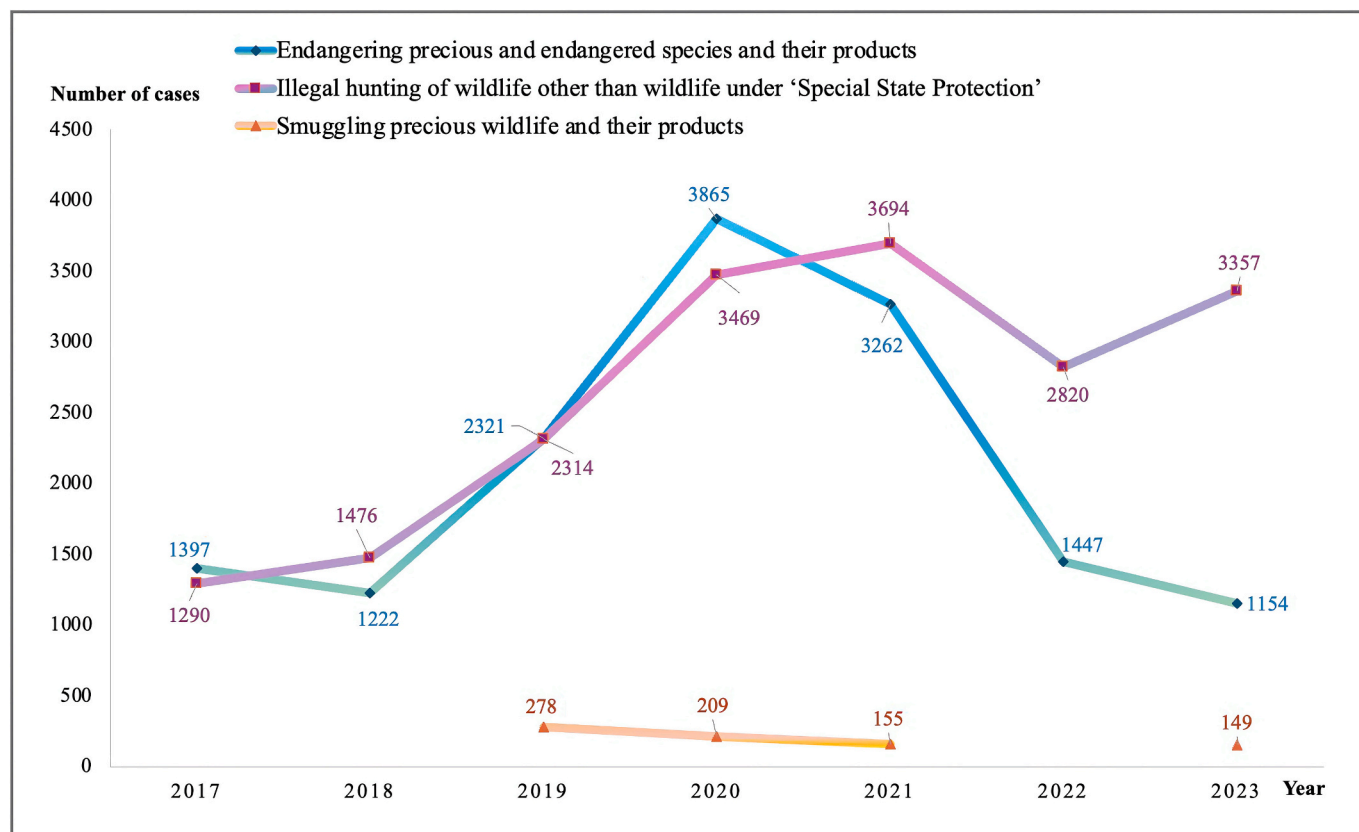


Fig. 2. Annual number of criminal prosecutions for two types of wildlife offences (2017–2023). Data from the Environmental and Resources Adjudication of China.

(Article 30, 2018 version of WPL). Violations were addressed with administrative fines or criminal liability in cases of significant harm. However, at that time, no corresponding offence was explicitly stipulated in Criminal Law.

The 2020 Criminal Law specifically criminalised the illegal hunting, purchasing, transporting or selling of terrestrial species of wild origin for the purpose of eating, including species not covered by 'Special State Protection'. However, actions are only criminalised if they meet the new 'serious circumstances' thresholds (Paragraph 3, Article 341, further clarified in 2022 Judicial Interpretation (Fa Shi [2022] No.12, Table 2). 'Serious circumstances' now refer to the minimum monetary values of the affected wildlife (for 'Sanyou animals' and terrestrial wildlife under special local protection, this minimum is \geq CNY 10,000, approx. USD 1380, and for other terrestrial species \geq CNY 50,000, approx. USD 6900).

Consequently, actions related to the consumption of species under 'Special State Protection' are still largely criminalised. However, actions involving most non-listed species are only criminalised if they involve large volumes, given their typically low individual monetary value. For example, cases involving bamboo rats (a 'Sanyou animal') for consumption would need to involve at least 50 individual rats in order to exceed the new criminalisation threshold. Thus, for many of these species, the new provisions are most likely to criminalise commercial-scale harvest, trade and restaurant service, while violations by individuals at lower volumes are more likely to result in administrative penalties under the WPL. The revised WPL (2022) established specific administrative fines for these non-criminal offences.

3.2.2. Crimes of covering up or concealing the criminal proceeds

The 2022 Judicial Interpretation newly criminalised "covering up or concealing the criminal proceeds" related to wildlife offences (Table 3). This expansion recognised that culpability lies not only with 'frontline' actors involved in the illegal trade chain, such as illegal hunters, but also

those who abet and benefit from acts such as buying and selling wildlife (Han, 2022). The 2015 Judicial Interpretation (Fa Shi [2021] No.8, Table 2) had already acknowledged that buying >50 individuals of a species, knowing they were acquired through illegal hunting, fell under this crime. The 2022 Judicial Interpretation went further by including not just buying but also selling and other activities involving the concealment of illegally hunted wildlife. Additionally, it broadened the scope of this crime to include illegal fishing.

3.2.3. Crimes of illegally importing, releasing or discarding invasive alien species

The revision of 2020 Criminal Law added a new provision that criminalises the illegal import, release or disposal of invasive alien species,⁶ thereby expanding the actions subject to criminalisation (net-widening, Table 3). Since 2016, the WPL had imposed administrative restrictions on the introduction of alien species⁷ into 'nature protection areas', albeit without specified punishments. The 2021 Biosecurity Law extended these controls to include the 'release and discard' of alien species regardless of where they were released, and stipulated administrative fines. Subsequently, the 2022 Measures for Managing Invasive Alien Species reiterated these prohibitions and clarified that administrative punishments should align with the Biosecurity Law, and that the

⁶ 'Invasive alien species' refer to alien species that are introduced to China which threaten or cause damage to ecosystems, habitats and species, affect China's ecological environment, or cause harm to the sustainable development of agriculture, forestry, animal husbandry, fisheries, biodiversity (Table 2., L18, Article 2).

⁷ 'Alien species' refer to species that are not indigenous to the territory of the People's Republic of China but are introduced through natural or man-made means, including all parts of the species that may survive and reproduce (Table 2, L18, Article 2).

Criminal Law should apply when a crime is suspected. The result is that the illegal introduction, release, or disposal of alien species is subject to administrative punishment under the Biosecurity Law, and can face additional criminal penalties under the Criminal Law if they involve invasive alien species.

3.3. Decriminalisation (net-narrowing)

Some actions that were previously punishable as criminal offences were recently decriminalised, reflecting net-narrowing. This resulted from the introduction of the unified monetary threshold system, described in Section 3.1, and revisions that eliminated criminal penalties for certain actions related to artificially (captive) bred wildlife.

3.3.1. Decriminalisation under the wildlife monetary threshold system

The introduction of a wildlife monetary threshold system has led to the decriminalisation of certain offences by establishing a minimum threshold for criminalisation and incorporating specific mitigating circumstances (Table 3; Section 3.1).

The previous numeric thresholds were only established for ‘serious’ and ‘particularly serious’ crimes, and the minimum thresholds for wildlife crimes were not specified. This was thus widely interpreted as the ‘one goes to jail’ policy (Wen, 2022), whereby harm to a single individual of a species under legal protection could lead to criminal penalties. In contrast, the new unified monetary thresholds set the minimum thresholds of criminalisation for wildlife crimes. When such monetary thresholds are converted into equivalent numbers of harmed individuals and compared with the previous numeric criteria, it becomes evident that the new standard could bring decriminalisation to offences involving certain species (Supplementary Information). For instance, while harming a single black squirrel was previously considered a crime, its monetary value under the new standard is too low to trigger criminal liability, which would require harm to >13 individuals instead (Supplementary Information). Importantly, this decriminalisation applies only to species with low monetary value; for species with high monetary value, such as pandas, the harm of a single individual exceeds the minimum threshold and remains criminalised under the new regime.

The unified monetary thresholds also introduced decriminalisation measures for offences involving ‘Sanyou animals’ (Table 3). The official value list for species’ monetary values (Order No. 46 of the State Forestry Administration, Table 2) reportedly assigns above-market values for 75 % of species (Luo, 2023). For example, for illegal actions involving the sparrow *Passer domesticus* (a ‘Sanyou animal’), the official monetary value is CNY300/individual (approx. USD 41), which implies a criminalisation threshold of >13 individuals. By contrast, using the market price of CNY20 (approx. USD 3) sets the threshold at >500 individuals. Consequently, use of official values under the new system would result in a lower threshold and thus increased criminalisation (Zhou et al., 2022). In response, the 2022 Judicial Interpretation mandates that thresholds for ‘Sanyou animal’ species should first consider the monetary value of the illegal proceeds obtained by the offender, followed by standard market prices, and only use the official values if the others are unavailable – effectively decriminalising many wildlife offences through net-narrowing.

Decriminalisation also emerged from a specific mitigating circumstance introduced in the 2022 Judicial Interpretation (Table 3) that allowed crimes to receive reduced penalties if the act “does not cause the death of animals, or the inability to recover animals or the products thereof”. The exception also applied to cases where the affected products could be recovered, and the offender returned any illegal proceeds and paid compensation, showing repentance.

Under these circumstances, actions that formerly led to imprisonment can be treated as ‘minor offences’ that may not incur criminal penalties. For example, for actions harming wildlife with an official monetary value of CNY20,000–200,000 (approx. USD 2760–27,600), the minimum threshold for the criminal penalty, equivalent to two

pangolins or four red pandas or 133 black great squirrels, Supplementary Information), if the mitigating circumstances are met, then the actions may only lead to administrative punishments (Wen, 2022). Furthermore, the 2022 Judicial Interpretation also introduced a new offence category, ‘obviously minor’ (a term that is not yet legally defined), under which certain offences are not considered criminal (Supplementary Information).

3.3.2. Decriminalisation of offences involving artificially bred wildlife

The 2022 Judicial Interpretation also introduced the decriminalisation of offences involving artificially bred wildlife (Table 3). Although China has long promoted breeding programs to meet domestic demand for endangered species (Wang et al., 2019; Zhu and Zhu, 2020), related violations that involved species under ‘Special State Protection’ were previously criminalised. Under the new interpretation, violations are decriminalised in two circumstances. First, offences involving artificially bred wildlife under ‘Special State Protection’ (e.g., illegal purchases or sales) are no longer considered criminal. This applies to >30 precious and endangered species (Han, 2022) that have mature breeding technology in place; there is no requirement to source breeding progeny from the wild; the scale of artificial breeding can meet reasonable market demands; and breeding activities help alleviate conservation pressure on wild populations (Hou, 2017). In addition, for artificially bred wildlife that have matured breeding techniques and scaled farming levels, trading and transporting them as pets would also no longer be regarded as a criminal offence, although the specific scope of the species involved is unknown. In cases where criminal liability is still considered, lenient treatment is recommended by the 2022 Judicial Interpretation.

3.3.3. Net-widening and narrowing reflected in judicial practice

Criminal prosecutions for wildlife offences showed a strong upward trend for both categories of crime on which statistics were reported before 2020 (Fig. 2). Following legislative changes during the target 2020–2022 period, criminal cases involving crime endangering precious and endangered species and their products declined by nearly 70 % between 2020 and 2023. Although data for 2022 is unavailable, criminal cases involving wildlife smuggling also show an overall downward trend during the observed period, with an approximately 30 % decline (Fig. 2). Cases of illegal hunting, a category affected by legislative changes involving both the decriminalisation of certain offences and the introduction of new offences, remained relatively stable since 2020 (Fig. 2).

3.4. Increased and decreased penalties (mesh-thickening and mesh-thinning)

There are also changes to penalties caused by the official monetary threshold system and specific circumstances.

3.4.1. Impacts of the unified monetary threshold system on penalties

The unified monetary threshold system changed the thresholds for penalties relative to the previous numeric criteria (Table 3). These adjustments exert differentiated impacts on wildlife crimes: for species with high monetary values, the threshold was lowered, producing a ‘mesh-thinning’ effect, whereas for species with low monetary values, the threshold was raised, resulting in ‘mesh-thickening’.

For example, the threshold for defining a crime of serious circumstance was altered: while harming eight individual pangolins *Pholidota* (species of high-monetary value) was previously considered a serious crime, under the new system this was defined by harm to three individuals, with more severe penalties (Supplementary Information), thinning the mesh of the criminal net.

Conversely, harming five red pandas *Ailurus fulgens* (a species with lower monetary value), was previously classified as a ‘particularly serious circumstance’; under the new system, similar severity and penalties would require harm to at least 50 individuals, thereby thickening the mesh. Notably, these changes have little impact on very high-value

species, such as the giant panda *Ailuropoda melanoleuca*, for which harming even one individual remains classified as a ‘particularly serious’ crime under both systems (Supplementary Information).

3.4.2. Changes caused by new aggravating and mitigating circumstances

The introduction of new aggravating and mitigating circumstances brought changed approaches to penalties (Table 3).

The 2022 Judicial Interpretation introduced aggravating circumstances justifying heavier penalties, thinning the mesh. These circumstances included situations where the offender leads a criminal group, uses special transportation means (e.g., military vehicles) to evade surveillance, significantly impacts wildlife research, violently resists arrest, or causes substantial damage to wildlife habitat, and ‘having received administrative punishments for destroying wildlife resources within the last two years.’ These have been applied as aggravating circumstances to some or all of the wildlife crimes, such as smuggling wildlife and products, endangering precious and endangered wildlife, and illegally hunting wildlife. When any of these circumstances are met, the offenders shall bear harsher punishment.

On the contrary, the new mitigating circumstances introduced by the 2022 Judicial Interpretation (section 3.3.1) lessened the severity of some offences, expanding the effects of mesh-thickening (Table 3). If these specific circumstances apply, offences initially considered ‘particularly serious crimes’ were treated as ‘serious crimes,’ and actions labelled as ‘serious crimes’ were to be penalised at a level equivalent to the minimum punishment threshold and so on (Supplementary Information).

4. Discussion

The results show that legislative changes in this time period – one characterised by rapid legislative reforms amidst demands for increased enforcement following COVID-19 (Tian et al., 2024) – actually had a significant ‘bifurcating’ or ‘twin-track’ effect in China’s wildlife crime enforcement, in which some aspects of criminal justice policy became tougher while others became more lenient (cf. Wilson, 2019), the result of complex social, political and ecological considerations (Tian et al., 2024).

Although judicial practice is shaped by many factors, the bifurcation effects of legislative changes during the 2020–2022 period seem to be reflected in the official prosecution statistics. The significant decreases in criminal cases involving precious and endangered species (Fig. 2) were consistent with the identified net-narrowing trend. The decline appeared to be linked to legislative changes such as the implementation of the unified monetary valuation system, which raised the threshold for criminal liability, as well as the decriminalisation of offences involving artificially bred wildlife. In contrast, the number of prosecutions for illegal hunting of wild animals plateaued after 2020, fluctuating within a relatively narrow range (Fig. 2). This may reflect the dual net-widening and net-narrowing legislative effects that influenced this offence: new offences, such as the criminalisation of illegal hunting for consumption, were introduced during this period, while others were partial decriminalisation, including removal of the ‘one goes to jail’ rule and the introduction of mitigating circumstances. Such bifurcation underscores policymakers’ efforts, during this period of rapid policy change, to navigate the balance between social justice and conservation objectives (Tan, 2021).

4.1. Social justice impacts

The reforms have significant impacts on the social justice outcomes of wildlife legislation. Notably, the examples of net-narrowing and mesh-thickening lower the risk of over-criminalisation of small-scale offenders. At the same time, the observed net-widening – particularly the recognition of new offences across the wildlife trade chain – helps to ensure that offenders face shared risks along crime chains, potentially

including consumers.

4.1.1. Implications for diverse types of wildlife offenders

Although net-widening within the criminal justice system is often critiqued for resulting in unnecessary social control and wasting judicial resources (Brown, 2004; CJCJ, 2001; McMahon, 1990), it can sometimes enhance fairness by distributing personal risks of criminal justice intervention across the criminal chain.

The reforms criminalised new actions, such as covering up or concealing the proceeds from wildlife crimes, which potentially helps distribute the risks across social groups (Liebling, 2007). Notably, illegal hunting is often linked to poverty and lack of livelihood alternatives in marginalised communities (e.g., Duffy et al., 2015; Paudel et al., 2019; Shao et al., 2021). In contrast, wildlife consumption for many species is concentrated among more affluent socio-economic groups (Chausson et al., 2019; Wang, 2020; Wilson-Wilde, 2010; Shao et al., 2021), and intermediary actors such as vendors and merchants often gain the greatest economic benefits (see Verissimo and Wan, 2018). Net-widening to cover the entire trade chain means that responsible parties, including more affluent and powerful actors, are more likely to share legal responsibility (Kelly, 2012).

Moreover, the 2022 Judicial Interpretation’s focus on proportional punishment is expected to ensure fairer penalties. From 2017 to 2021, 46 % of wildlife smuggling cases were considered ‘particularly serious’, while only 11 % of all prosecuted crimes (across all types of crime) were of this severity, implying that wildlife crimes may have been excessively punished (Zhou et al., 2022). While this may indicate prosecutors’ focus on only the most severe wildlife crimes, recent reforms could nonetheless better align punishment to severity (Bagaric, 2000; Goh, 2013) and reduce excessively harsh penalties for minor offences, a point stressed by the head of China’s Judicial Research Office⁸ (Han, 2022).

4.1.2. Implications for minor offences

The observed mesh-thickening may also help to prevent the risks of over-criminalisation and over-sanctioning, particularly of harmful, but comparatively modest offences. Indeed, a few high-profile wildlife cases have sparked public debate about perceived excessive sentences (Huang, 2015; Teller Report, 2023). In 2014, university student Yan Xiaotian received a 10.5-year prison sentence and an approx. USD 1382 fine for a ‘particularly serious crime’ involving 16 individuals Class II protected birds. Under the new monetary threshold system, his actions would only meet the threshold for a ‘serious’ crime. Moreover, since 14 of the birds were alive and potentially recoverable, the new mitigating circumstances would apply, warranting a maximum imprisonment term of 5 years.

Decriminalising also has implications for actions that involve artificially bred wildlife, likely preventing individuals from entering the criminal justice system. For example, on April 18, 2022, the case against Wang Lei for purchasing 30 artificially bred Hermann’s tortoises (*Testudo hermanni*, CITES Appendix II species) was dropped due to the legal updates (Jiang, 2022; Wang, 2022), reversing the previous three-year prison sentence and a fine (Wang, 2022). In addition, from 2015 to 2017, the lack of clear regulations on artificially bred wild animals led to inconsistent sentencing, with 32 parrot traders receiving penalties ranging from suspended sentences to 11 years in prison (Jiang, 2022); full decriminalisation may help resolve such inconsistent sentencing in future cases (Huang and Wang, 2022).

4.1.3. Implications for artificially bred wildlife

The legislative reforms decriminalising offences involving artificially bred wildlife may also have impacts on economic opportunities. China has developed an extensive wildlife farming network to satisfy market

⁸ The Research Office of the Supreme People’s Court and the Legal Policy Research Office of the Supreme People’s Procuratorate

demand for wildlife and its products (Zhu and Zhu, 2020). Over 16 million people work in wildlife breeding in China, and the number has increased to nearly 29 million with the inclusion of related industries (Gao, 2022), with USD 143 billion generated in 2016 (Beirne, 2021). Thus, wildlife farms have been pivotal in poverty reduction efforts as a critical source of jobs and income, especially in economically challenged regions like Yunnan and Jiangxi provinces (You, 2020; Li, 2007). In 2022, the updated WPL made getting approval for breeding ‘Sanyou animals’ easier, which, coupled with the latest decriminalisation measures, could boost economic activity, including opportunities for people from impoverished and rural areas.

Decriminalising actions involving artificially bred wildlife also raises public health concerns as close interactions at farms and inadequate quarantine measures can foster zoonotic diseases (Gostin and Powers, 2006; Beauchamp, 1976; Beirne, 2021; You, 2020) and the legal pet trade may be exploited to acquire wildlife for consumption, while the transportation and storage of live animals further heighten disease risks (Bush et al., 2014; Ribeiro et al., 2022).

4.2. Conservation impacts

Some of the legal changes seem to try to find a compromise between the conservation of wild populations and respect for traditional and economic wildlife use by increasing the criminalisation of offences against wild populations, while allowing for legal breeding and trade of artificially bred animals. This potentially expands legal protection to more species, but raises the well-known risks of laundering wild-caught wildlife (Jiang and Aron, 2022) and of introducing invasive alien species (Ji et al., 2020). Besides, introducing monetary thresholds into the criminal system could impact the conservation of high- and low-value species differently, potentially increasing the conservation divide between them.

4.2.1. Benefits for conservation

The observed net-widening introduces a number of potentially positive impacts on conservation. These are associated with both expanded legal protections for more species, and expanded criminalisation against targeted groups of offenders who have been historically overlooked.

The changes reduce the legal disparities among species that were previously treated differently based on their perceived economic or ecological values (Nurse, 2013; White, 2013; Huang et al., 2021; Simmons et al., 2023). Traditionally, the legality of wildlife trade has hinged on the species’ endangered status (Sollund, 2013; van Uhm, 2018), so that endangered species receive strict protection in China (Zhou et al., 2022). However, illegal harvesting and trade of wildlife affect a much wider range of species (see Scheffers et al., 2019), and trends have often shifted from targeting endangered wildlife to animals with lower levels of protection (Duffy et al., 2015; Roe et al., 2015). New changes may help address this bias and better respond to the dynamic nature of wildlife trade, creating deterrence for illegal impacts on a broader range of species that have historically been under-protected. While differences in legal treatment for endangered versus other species persist, the move towards less species bias could have positive impacts on biodiversity conservation.

The net-widening could also benefit conservation through the criminalisation of actors across the wildlife trade chains. Notably, the reforms help to better target those actors who benefit most from illegal activity (e.g., intermediaries), with potentially disruptive impacts on illegal trade chains and organised crime (Phelps et al., 2016). Moreover, the net-widening creates the risk of enforcement for intermediaries and consumers that have not historically been the subjects of enforcement, for whom increased risks could be a deterrence, and also drive public awareness. Further, the increased legal distinctions between major and minor offences could also have impacts on public support for conservation. Fairness is an increasingly well-recognised factor in shaping attitudes towards conservation (Travers et al., 2019; Wilson and Boratto,

2020), and overcriminalisation has been a hotly debated issue in China that is likely part of the reason for recent reforms (Jiang, 2024). Reforms to better balance social expectations of proportionality and to ascribe sentences to more affluent and powerful actors, could have broader positive impacts on conservation.

4.2.2. Challenges for conservation

New changes also introduce potential challenges for conservation.

Notably, decriminalisation and the establishment of lighter, administrative punishment for more minor wildlife offences may have social justice benefits, but could result in increased offence rates among small and medium-scale actors. If these offences are no longer seriously considered important by the State, this could have unintended consequences for conservation. Meanwhile, the rapid introduction of many new categories of administrative offences could overburden administrative departments, such as the Competent Wildlife Protection Department and the Competent Forestry and Grassland Department, and potentially hinder conservation effectiveness (Jiang, 2022).

Decriminalising the trade of artificially bred wildlife can pose conservation risks, as legal trade does not always equate to sustainability (Bush et al., 2014). Although Chinese law strictly regulates the use of products from artificially bred animals (Wang et al., 2019) and states that such breeding should not impact wild populations (WPL, Art. 26), there are many instances where it has had unintended impacts on wild populations. Among these is the risk that reforms may facilitate wildlife laundering, whereby wild animals are illegally traded as though they were artificially bred (Fischer, 2004; Schuppli et al., 2014; Wang, 2020; Meeks et al., 2024). This is a well-recognised challenge in China (You, 2020) that could accelerate extinction and threaten conservation (Turvey et al., 2018; White, 2020). Reforms that decriminalise artificial breeding and related trade will also face the long-standing difficulty of distinguishing artificially bred from wild-caught animals (Jiang, 2022; Jiang and Feng, 2023), which is now a requirement for establishing criminal liability (Article 13, 2022 Judicial Interpretation).

There are similar concerns regarding the trade in exotic pets, a driver of biodiversity loss (Bush et al., 2014; Ji et al., 2020), as the 2022 Judicial Interpretation legalised the trade in pets bred ‘using established technology on a significant scale’, a term that currently lacks legal definition (Jiang, 2022). This could facilitate unregulated wildlife pet trade. For instance, 75 % of 155 pet turtle species sold in Hong Kong are endangered, and their origins are hard to trace (Schuppli et al., 2014; Gong et al., 2009). The rise of online pet trade is likely to exacerbate this challenge, including distinguishing wild from artificially bred animals (Ji et al., 2020; Bush et al., 2014; Schuppli et al., 2014). Moreover, the exotic pet trade is also a primary way through which invasive species are introduced, which is a growing issue in China (Ji et al., 2020; Meng et al., 2017; Schuppli et al., 2014). Even though criminal law has started to penalise the release of invasive species, vigilant monitoring of the exotic pet trade is needed, especially with moves towards decriminalisation.

The new reforms are heavily shaped by the introduction of the unified monetary threshold system, which itself has implications for conservation and public understanding of conservation. As value is often conceptualised in terms of human utility (Adams, 2014; White, 2013; Zhu and Zhu, 2020), monetary valuations are unlikely to represent a species’ conservation importance or threat (Engeman et al., 2002). For example, red pandas *Ailurus fulgens*, listed as IUCN Red List ‘Endangered’ since 2008 (Glatston et al., 2015), are legally valued at CNY 40,000 (approx.USD 5500) each, while the giant panda *Ailuropoda melanoleuca*, IUCN Red List ‘Vulnerable’ since 2016 (Shi, 2016), receives much stricter protection and has a higher official value of CNY 5 million (approx.USD 688,600). The monetary system could unintentionally increase effects targeting species with lower monetary values but high conservation importance (Jiang, 2022; Han, 2022). Moreover, the use of a monetary system retrenches a narrow, economist view of nature, at a time when understanding and broader policy initiatives are challenging

this perspective (Jiang, 2024) and calling for decision-makers to better recognise more diverse values and relationships (Pascual et al., 2017). Although pragmatic, the monetary system will need to be closely monitored to ensure it delivers on broader conservation objectives.

5. Conclusion

The criminal justice system engages a wide range of wildlife offences and holds the potential to influence conservation outcomes. However, there is also growing awareness of its implications for social justice and human well-being. Balancing conservation, social justice, public health and economic demands presents significant challenges.

Although Chinese wildlife legislation has had several significant policy phases since 1950, and enforcement has been a key theme throughout, this most recent period was characterised by widespread increased demands for tightened legislation and enforcement in response to public health concerns following the COVID-19 pandemic (Tian et al., 2024). However, this period was also characterised by strong public and policy demands to account for the economic importance of the wildlife industry and concerns about over-criminalisation. This study explores how China has navigated those pressures amidst competing for decriminalisation and proportionality, providing an important and unique empirical case based in legal analysis to complement a growing body of political ecology and green criminology literature on conservation criminalisation (Duffy, 2010; Massé et al., 2020; Paudel et al., 2019). China's responding legislative changes may seem to be increasing criminalisation, but actually reflect a bifurcation that involves both the widening and narrowing of the criminalisation net, including increased and decreased penalties. By reshaping what actions are deemed criminal offences and establishing a range of new categories of more minor offences that are not criminalised, these changes respond both to demands for stronger conservation and greater social justice implications. These, in turn, will likely indirectly impact wildlife-related economic activities, such as the artificial breeding industry and trade for consumption and pets, with further downstream implications for employment and public health. Equally, by introducing new types of criminal offences and aggravating circumstances, the reforms could help increase fairness and yield broader deterrence impacts by targeting higher-level offenders including intermediaries and consumers.

The impacts on conservation are less certain. Expanded protections for more species, criminalisation of higher-level offenders, decriminalisation of other activities, and new gaps in legal frameworks could all have unintended consequences for biodiversity. It will be incumbent on government bodies, but also on researchers and conservationists, to track and understand how these profound reforms shape both enforcement patterns and longer-term impacts on biodiversity. This example highlights the complexities of legal drafting that seek to further both conservation and social justice goals, and the complexity of related analyses. Although traditionally the ambit of lawyers and judges, legal drafting can have broad, cascading impacts that are of immediate importance to related industries and conservationists, for whom there can be many, often unanticipated consequences. This is not unique to China, and there is a need to strengthen legal literacy among conservationists, and to build greater communication channels among these groups during the legislative process. Moreover, there is now a need for conservationists and the broader public to understand the scale and scope of these recent reforms. Future research needs to explore the real-world impact of these changes by analysing criminal statistics and cases to assess their influence on criminal justice and social justice, as well as examining biodiversity data to evaluate actual conservation outcomes.

CRedit authorship contribution statement

Miaomiao Tian: Writing – review & editing, Writing – original draft, Resources, Methodology, Funding acquisition, Formal analysis, Data

curation, Conceptualization. **Gary R. Potter:** Writing – review & editing, Supervision, Project administration, Methodology, Formal analysis, Conceptualization. **Jacob Phelps:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Formal analysis, Conceptualization.

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Declaration of competing interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.biocon.2025.111238>.

Data availability

We have uploaded supported materials as appendixes

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Chapter 6

Towards a coherent account of wildlife governance

6. Towards a coherent account of wildlife governance

This chapter brings the three published papers together by integrating their analyses into a coherent account of the thesis as a whole. Although each paper focuses on distinct aspects of legal governance of wildlife, they share the same doctrinal method and a common concern with legal dimensions of conservation governance. By bridging the three studies together, this chapter highlights the overall contributions of the thesis, acknowledges the limitations, and reflects on further considerations that emerged during the research process.

6.1 Contribution: doctrinal details matter for wildlife conservation

This thesis contributes to interdisciplinary debates on wildlife conservation by offering a detailed, doctrinal analysis of wildlife legislation, as a key component of, and window into, conservation governance. Rather than evaluating conservation outcomes or enforcement practices, the research examines how conservation objectives are framed, organised, and limited through formal legal structures. Its contribution lies in demonstrating how legal definitions, legislative priorities, and sanctioning frameworks shape the formal regulations governing wildlife. Through three interrelated studies, the thesis provides a detailed legal analysis that complements existing work in conservation science and green criminology, and offers a clearer basis for cross-disciplinary engagement with the legal dimensions of conservation.

6.1.1 A doctrinal approach to wildlife law

This thesis adopts a doctrinal legal research approach, often referred to as black-letter law, which takes law itself as the primary object of analysis. As explored throughout the thesis, doctrinal research focuses on the systematic examination of legal texts, including statutes, legal definitions, legislative structures, and sanctioning frameworks, to clarify their content, internal coherence, and normative design (McConville and Chui, 2007; Hutchinson and Duncan, 2012). Rather than investigating how law operates in practice, this method concerns how legal rules are formulated, structured, and related to one another within a legal system.

The use of a doctrinal approach is particularly appropriate for research on wildlife conservation law, where legal protection is articulated in detail through formal legal

instruments. As a matter of legal design, conservation depends on how categories are defined, which forms of harm are recognised, and how obligations and prohibitions are expressed in legislation. Doctrinal analysis allows these elements to be examined in detail, enabling identification of the formal scope, orientation, and internal logic of conservation law without making claims about enforcement, compliance, or behavioural or conservation outcomes.

This methodological focus explains the close attention paid throughout the thesis to legal definitions, legislative evolution and criminal law provisions. Each of the three substantive chapters applies doctrinal analysis to a different component of the legal framework governing wildlife protection: the construction of the legal category of ‘wildlife’, the development of legislative objectives and principles over time, and the design of criminal offences and sentencing thresholds.

While doctrinal research is sometimes characterised as inward-looking, this thesis adopts it as a means of enabling clearer interdisciplinary engagement. Particularly, it fills a gap in the conservation literature, where law is often regarded as a ‘black box’ invoked generally through calls for stricter enforcement (e.g., tough sentencing, Wilson and Boratto, 2020) or stronger governance (e.g., control of corruption, Smith et al., 2003), but seldom explores the details of the legal rules, such as the definitions, classifications and regulatory techniques (see Pascual et al., 2021). The doctrinal approach in this thesis, therefore, draws attention to these detailed contents of law that are often taken for granted in conservation debates, but are actually overlooked. Similarly, although green criminology increasingly critiques the punitive focus of conservation (White, 2008; Wellsmith, 2012; Wilson and Boratto, 2020) and broadens the concept of harm beyond legally defined crime (South and White, 2014), the discipline seldom engages with the legislative nuances that determine how such harms are translated into formal regulatory or criminal categories.

As such this doctrinal research provides a necessary foundation for dialogue with conservation science and green criminology, extending debates from what the law seeks to achieve to how the law formally defines, recognises and designs wildlife governance. Without close engagement with these legal details, interdisciplinary dialogue risks remaining abstract, as claims about harm are detached from legal mechanisms through

which harm is recognised, categorised, and becomes actionable. In this sense, the focus on black-letter law is not an end in itself, but a methodological choice aimed at ensuring conceptual clarity and thus strengthening interdisciplinary understanding by bringing legal detail into conversation where it is often absent.

6.1.2 The primacy of legal frameworks to wildlife governance

Building on the doctrinal approach outlined above, this thesis demonstrates how wildlife conservation governance is formally constituted through legal frameworks. Environmental law scholarship has long recognised that regulatory systems do not merely implement policy goals but structure how environmental problems are defined, prioritised, and addressed within governance arrangements (Fisher et al., 2019). This thesis advances that insight within the context of wildlife law by showing how conservation is framed, enabled, and constrained through legal definitions, legislative orientation, and the design of criminal provisions.

Chapter 3 (Tian et al., 2023) establishes this primacy at the foundational level of legal definition. By analysing the legal meaning of ‘wildlife’, the chapter shows that definitional choices operate as a gateway to protection: only entities recognised within the legal category can be regulated and protected as wildlife. Conservation scope is therefore shaped, in the first instance, by legal classification rather than by ecological status alone (cf. IUCN conservation categories). Chapter 4 (Tian et al., 2024) demonstrates how legislative orientation further structures conservation governance - whilst, in turn, being shaped by competing (e.g., cultural, economic and public health) concerns beyond pure conservation goals. Through a historical analysis of China’s wildlife legislation, the chapter shows how shifts in statutory purpose, from utilisation to protection, with turning points of ecological civilisation and COVID-19, reconfigure the underlying regulatory logic of the legal framework. Chapter 5 (Tian et al., 2025) extends this analysis to criminal law, examining how offence types, valuation standards, and sentencing thresholds define the formal boundaries of criminalisation for wildlife crime in China. Without assessing enforcement outcomes, the chapter assesses the potential implications of legal design choices for the formal scope and consistency of criminalisation. Across the three chapters, this thesis demonstrates the importance of legal details in wildlife conservation governance, showing how the internal legal design affects potential governance outcomes and shapes conservation priorities.

A growing body of scholarship has revealed the persistence of legal loopholes in wildlife conservation governance across jurisdictions and regulatory practices, including ambiguous offence definitions, inconsistencies in the scope of protected species, and forms of selective regulation (Wyatt, 2013; Cooney et al., 2017; Brisman and South, 2018). These recurring problems are often explained primarily at the level of implementation, with emphasis on weak enforcement capacity and limited institutional resources. However, the persistence of these loopholes suggests that they cannot be fully understood as implementation failures alone. Understanding why legal loopholes emerge and how they can be avoided if possible, requires close attention to the internal design of the legal framework, such as how wildlife is legally defined and classified, how thresholds of criminalisation or exemption are constructed, and how discretion is allocated within regulatory regimes. By examining and clarifying these legal details, doctrinal analysis makes the internal structure of legal governance visible through which loopholes are created. This focus on legal details helps to ensure the importance of robust legislative design, providing a clearer basis for understanding regulatory loopholes, symbolic legislation, and selective protection as structural features of legal governance, rather than mere implementation failures. Accordingly, close attention to legal texts is essential to effective wildlife conservation governance.

Additionally, the attention to legal details also makes it possible to identify how broader values are embedded within legal frameworks. Notably, examining specific content and changes of legal provisions enables us to learn which normative priorities are institutionalised through law, rather than remaining at the level of policy commitment (Fuller, 1969). This is particularly evident in the integration of ‘ecological civilisation’ into China’s Constitution and Wildlife Protection Law, where an abstract political value is translated into a formal legislative principle. More specifically, and in a manner directly relevant to Chapter 4 of this thesis (Tian et al., 2024), the legislative responses following the COVID-19 outbreak illustrate how shifting governance priorities are embedded through legal design. Amendments to wildlife-related legislation explicitly incorporated public health and biosecurity concerns, reshaping the regulation of wildlife use and management. From a doctrinal perspective, the significance of such changes lies not in their political symbolism, but in the way public health considerations are transformed into binding legal norms capable of shaping regulatory interpretation,

enforcement priorities, and legal obligations (Fuller, 1969; Raz, 2009). Attention to such legal detail hence plays an important role in tracing changes in governance orientation over time and in understanding how these shifts are expressed and constrained through formal legal materials.

6.1.3 Law as a translational bridge between conservation science and green criminology

A further contribution of this thesis lies in its role as a translational bridge between legal analysis and wider conservation scholarship. While wildlife conservation is often framed through ecological data or criminological insights, this thesis demonstrates that legal structure provides the language and framework through which such knowledge must be translated to shape formal governance in many contexts. By making legal concepts, categories, and reforms legible beyond the legal discipline, the thesis clarifies how law mediates the relationship between conservation knowledge, policy ambition, and regulatory action.

Chapter 3 (Tian et al., 2023) contributes to this bridging function by showing that scientific or conservation priorities only become legally enforceable when they are translated into legal categories and embedded in formal legal provisions. The analysis of the legal definition of ‘wildlife’ highlights the point at which scientific classification encounters legal recognition, and shows that species or ecological entities identified as conservation priorities remain outside formal protection unless they are legally cognisable. This finding encourages closer engagement between conservation science and legal design, particularly where advocacy depends on legal recognition rather than scientific consensus alone.

Chapter 4 (Tian et al., 2024) strengthens this translational role by situating China’s wildlife legislation within its broader legal and political context. By tracing legislative developments alongside shifts towards ecological civilisation and the rapid reforms following COVID-19, the chapter provides interpretive tools for understanding the legal language, priorities, and constraints that shape conservation governance in China. This contextualisation is particularly relevant for international conservation organisations and researchers, for whom effective engagement requires an understanding not only of

biological evidence, but of the legal narratives and statutory objectives through which conservation claims are framed.

Chapter 5 (Tian et al., 2025) strengthens the thesis's translational contribution by demonstrating the importance of the detailed legal design of wildlife crime for both conservation and green criminology. By analysing changes in offence formulation, monetary valuation standards, and sentencing thresholds, the chapter shows that conservation criminalisation is not a straightforward process of expanding criminal law, but one shaped by complex legal distinctions and classifications. These detailed changes influence how wildlife-related conduct is categorised, how seriousness is assessed in law, and where the boundary between criminal and administrative responses is drawn. The chapter highlights the importance of engaging with the technical detail of wildlife law to understand how wildlife crime is constructed and governed within legal frameworks, rather than assuming that stronger criminalisation necessarily results from legislative reform.

Across these analyses, the thesis highlights the value of dialogue among legal scholars, conservation scientists, and green criminologists that is attentive to legal detail, disciplinary limits, and the complexity of wildlife law, rendering wildlife law more accessible to nonlegal scholars. Conservation scholars have increasingly emphasised the essential role of law in advancing (ecological as well as legal) justice and building robust governance (Bennett and Satterfield, 2018), while green criminologists have similarly stressed that understanding environmental crime, and pursuing (social as well as ecological and legal) justice requires attention to how law defines and constructs crime (Lynch and Stretesky, 2003). At the same time, it has been noted that law is often invoked without systematic engagement with its internal structure or legislative design, limiting its effective use in interdisciplinary research (Hall, 2014). These literatures reveal a growing recognition among non-legal scholars of the importance of law for understanding governance, justice, and environmental harm, while also revealing a persistent gap between such interest and the expertise required to engage with legal materials in a systematic way. This thesis responds to this gap by rendering wildlife law legible and usable as an object of interdisciplinary inquiry. This matters because many conservation scientists and green criminologists already recognise that law shapes environmental outcomes, but they often cannot work directly with legal materials. As a

result, law is frequently treated as background context or as a tool of governance, rather than as something that can be examined, compared, and questioned. Making law accessible allows non-legal scholars to engage with it directly, rather than relying on simplified summaries or assumptions, and enables law to function as a shared object of interdisciplinary analysis rather than a disciplinary barrier. This thesis addressed this gap by adopting doctrinal analysis to unpack wildlife legislation in a way that makes legal rules accessible and usable for non-legal scholars.

6.1.4 Insight into China's wildlife legal framework

Another contribution of this thesis lies in its in-depth doctrinal analysis of China's wildlife law, a jurisdiction that has become a central focus of global conservation and policy attention. Given its biodiversity, substantial wildlife market, and central position in international wildlife trade networks, China's legal framework has conservation implications that extend beyond its domestic context. Moreover, recent years have seen growing international calls for stronger wildlife legislation in China, driven by both the long-standing concerns about conservation and the renewed attention to public health risks following serious zoonotic disease outbreaks such as SARS and COVID-19 – highlighting the global importance of Chinese legal frameworks.

At the same time, environmental law and enforcement are recognised as being shaped by domestic political values and the social construction of public agendas (South, 2014), leading to significant variation across different countries (a criminal violation in one jurisdiction may not be recognised as an offense once it crosses national borders, Lynch and Stretesky, 2003). Similarly, Chinese views of human-nature relationships and of wildlife conservation are distinct to many other countries (i.e., ecological civilisation, Wang and An, 2025). These differences highlight the limits of treating law, like wildlife regulation, as uniform or purely technical exercise (Robbins, 2012; Halliday and Shaffer, 2015). In the case of China, international debates usually focus on enforcement capacity, political will, or regulatory outcomes, with far less attention paid to the detailed content of domestic law itself. This thesis fills this gap by examining how conservation priorities are articulated through specific design of China's wildlife legislation, rather than as research on conservation law that generally analyse solely at the level of policy objectives or implementation results (Bennett et al., 2017).

Specifically, this thesis offers a structured legal reading of China's evolving wildlife governance. It traces how the precision of regulatory language, shifts in legislative purpose, and sanctioning design shape the state's approaches to conservation. This analysis adds depth to existing comparative and policy-oriented conservation research by examining Chinese wildlife law in greater detail than is typically possible in broader studies. In doing so, it highlights that national frameworks are the primary vehicles through which abstract global conservation goals obtain concrete legal force. At the same time, this thesis also contributes jurisdiction-specific legal knowledge that is necessary and valuable for a global audience seeking to engage with informed discussion and critique about - as well as to learn from - wildlife governance in China.

Overall, this work clarifies how China's legal design constructs specific conservation priorities and identifies the resulting implications for international cooperation. For researchers, conservation organisations, and policymakers working across borders, the thesis offers a framework for navigating the commitments and constraints inherent in the Chinese system. It bridges the gap between normative conservation claims and the actual language of Chinese statutes, demonstrating that a deep doctrinal understanding of national law is essential for a realistic and promising global conservation governance.

Beyond its jurisdictional specificity, the focus on China also responds to a broader governance reality: even the most ambitious international conservation goals rely, ultimately, on domestic legislation (Bashyal et al., 2023). Where softer or non-mandatory measures fall short, law frequently functions as a governance backstop, supplying the authority and enforcement mechanisms needed to give effect to regulatory objectives (Hawkins, 2003). Global commitments to biodiversity conservation, wildlife protection, or control of IWT only acquire practical meaning when they are translated into national legislation, safeguarded in enforcement practices (Young, 1999). As studies of transnational governance stressed, international norms do not operate in isolation, but are stabilised and become effective through domestic legal frameworks, where legal authority is actually exercised (Halliday and Shaffer, 2015). From this perspective, effective engagement with wildlife conservation governance requires not only familiarity with international instruments and policy goals, but also detailed understanding of how those commitments are interpreted, adapted, and operationalised within specific national legal systems. And this thesis contributes to a more complete understanding of wildlife

legal governance in China by providing detailed doctrinal analyses of a jurisdiction that has often been discussed, but rarely examined in depth.

6.2 Limitations and future research

The scope and methodology of this thesis necessarily create certain limitations. These limitations define the boundaries of the research and clarify how its findings should be interpreted, but also point to opportunities for future investigation.

6.2.1 Evaluating the impacts of legislation

One key limitation of this thesis is the focus on legal design rather than empirical impact. The analysis concentrates on how conservation objectives and normative commitments are articulated and structured within legislation. Although the papers discuss possible and likely implications of the specific legislation and legal reforms, the thesis does not examine how they operate in practice, nor does it assess whether they lead to measurable changes either in enforcement or in conservation outcomes. It also does not attempt to establish causal links between legislative reform and conservation or social justice outcomes. Accordingly, the analysis avoids claims about impact and remains focused on changes in legal structure, orientation, and regulatory design as they appear in the law itself.

One aspect of this limitation concerns the application of wildlife legislation within the criminal justice system. The thesis does not explore how the legal provisions analysed are adopted or operationalised by enforcement agencies, prosecutors, or courts, nor does it examine patterns of arrest, prosecution, or sentencing. Addressing these questions would require empirical research into law-in-practice, such as case-study analyses, institutional studies, or statistical analysis of criminal justice data. Such work could explore how criminalisation and social justice objectives articulated in the statutes are translated into practice, and how they may be reshaped or constrained by routine legal decision-making.

Another more important limitation concerns conservation outcomes. This thesis does not assess whether legislative reforms lead to measurable changes in biodiversity protection, species recovery, or ecosystem health. Addressing such questions would require

engagement with ecological data and conservation science. At the same time, the relationship between law and conservation outcomes is rarely direct. Legal reform does not translate automatically into ecological improvement, but operates through changes in governance priorities, enforcement practices, and institutional decision-making. Given the complex ecological, economic, and social contexts in which wildlife governance operates, isolating the effects of legal change therefore presents significant methodological challenges: pre-post analyses and attempts to establish appropriate counterfactuals are possible but face many challenges. Future research could benefit from combining legal analysis with conservation science and green criminology to examine how legislative strategies reshape governance priorities and enforcement dynamics, and how these, in turn, influence ecological outcomes (Hall, 2014; Wilson and Boratto, 2020). Such an approach would move beyond assumptions of a linear relationship between legislative reform and conservation success, allowing for a more nuanced assessment of regulatory effectiveness.

China continues to provide an interesting case for future research that seeks to address these questions. Its comparatively centralised governance structure, the relatively consistent application of wildlife legislation, and the growing availability of legal and environmental data (Geall, 2017) may provide opportunities to examine both enforcement practices and conservation outcomes in greater depth. The constitutional and statutory incorporation of ecological civilisation also raises important questions about how political commitments are reflected not only in legal texts, but in regulatory priorities and environmental practice. In fact, some scholars have started to examine the practical operation of wildlife legislation, including patterns of enforcement, prosecutions, convictions, and sentencing (Wong, 2019; Wang and An, 2025). These studies provide valuable insights into how wildlife law is applied within the criminal justice system but they do not systematically assess whether legislative reforms have contributed to measurable improvements in biodiversity protection, species recovery, or ecosystem health. Future research could build on both doctrinal analysis and existing empirical work by linking legal change more directly to conservation outcomes. This would require combining legal analysis with ecological data, such as species population trends or habitat indicators, to explore whether, and under what conditions, legislative reform translates into ecological improvement.

6.2.2 Cross-jurisdictional comparative analysis

While China plays a significant role in global wildlife governance, the analysis reflects the specific institutional and constitutional features of its legal system. The findings are therefore not intended to be directly generalisable to other jurisdictions without further comparative study. There is significant potential for comparative legal research across jurisdictions. By applying the doctrinal methodology developed in this thesis to other nations, researchers could map the different ways global conservation priorities are translated into domestic legal frameworks. However, because key legal concepts are usually highly context-dependent among jurisdictions, reflecting distinct legal traditions, institutional arrangements, and policy priorities (Zweigert and Kötz, 1987), such comparison is neither straightforward nor merely descriptive.

As the analysis in Chapter 3 (Tian et al., 2023) demonstrates, even comparative analysis of basic concepts such as ‘wildlife’ requires careful attention to differences in legal language, legislative purpose, and regulatory structure, rather than assuming functional equivalence across legal systems (Bennett et al., 2017). And it is because such legal translation is difficult, comparative analysis would be particularly valuable. It not only illuminates variation in sanctioning strategies and governance models, but also helps to identify legal approaches that have proved more effective or coherent in certain contexts. In this way, comparative doctrinal research can provide a basis for learning across jurisdictions, enabling legislators and policymakers to reflect on how different legal designs respond to similar conservation challenges while remaining attentive to local institutional and political conditions.

6.2.3 Looking beyond doctrinal analysis: harm, victims and liability

The existing work is also tightly limited by its focus on law as it is written, without engaging the social legitimacy of that legislation; whether and how it meaningfully addresses notions of justice, and whether it reflects harm as it is experienced on the ground. To the contrary, legality, legitimacy, and broader claims of justice often fail to align neatly (South, 2014). For example, there are many actions that may cause serious harm or injustice while remaining formally lawful (South, 2014). Similar tensions have also been highlighted by political ecologists; through a harm-based analysis of wildlife trade, Duffy et al. (2025) demonstrate how significant ecological and social harms can

arise within conservation and trade regimes, yet remain marginal to legal and criminal justice frameworks.

Recognising these tensions does not deny the central role of law in environmental regulation or crime prevention, nor does it suggest that attention to law should be reduced. As Hall (2014) argues within green criminology, critical engagement with harm and justice still requires careful analysis of the black-letter forms of hard laws, including statutes, case law, and treaties. It is through such legal detail that environmental harm is translated into formal legal categories, recognised or excluded as a matter of concern, and linked to particular forms of responsibility and response. From this perspective, the questions that follow concern how wildlife-related conduct is conceptualised as harm or crime, how affected non-human entities are recognised or remain unrecognised within legal frameworks, and how responsibility and redress are allocated when legal protection is partial or incomplete.

6.2.3.1 Zemiology and harm to wildlife

Across jurisdictions, legal responses to wildlife offences commonly focus on identifying prohibited conduct, defining offences, and attaching sanctions to violations of statutory rules, typically through a mix of criminal and administrative regulatory frameworks. Yet it is widely acknowledged that the justice system's response to wildlife offences is often inadequate, in part because national legislation frequently overlooks or underrepresents the broader harm that offences cause to wildlife.

This limitation is closely linked to the anthropocentric orientation of many legal systems. This is because much of the legislation reflects anthropocentric views of nature, in which animals are valued mainly for their utility to humans (Wyatt and Nurse, 2020), as has historically been the case in China (see Chapter 4, Tian et al., 2024). As a consequence, wildlife crime is often narrowly defined in law as specific prohibited acts, such as the unlawful taking, killing, or trading of wildlife beyond the legally permitted scope, rather than as a broader set of damaging practices affecting non-human life (Wyatt and Nurse, 2020; Pascual et al., 2021). While criminal law is designed to address harm arising from human behaviour, it does not necessarily capture all forms of harm that are socially or ecologically significant (Hillyard et al., 2004). This issue is particularly evident in relation to wildlife crimes, which are often marginalised within mainstream criminal

justice priorities (Nurse, 2023). Historically, wildlife offences in many jurisdictions have been treated as low-level crimes or regulatory infractions, with penalties that do not reflect their wider ecological implications (Nurse, 2011; Wyatt, 2013). These concerns reveal a long-standing question in environmental governance scholarship: whether environmental harm can be fully integrated into existing criminal justice and regulatory frameworks, especially when formal legality is inconsistent with broader claims of legitimacy (South, 2014), leaving certain forms of ecological harm poorly captured by legal recognition.

These limitations invite reflection beyond the confines of crime-based legal analysis. In this context, the emerging field of zemiology offers a useful conceptual lens for exploring wildlife offences (Hillyard and Tombs, 2004; Aertsen, 2022; Dore et al., 2022). Zemiology, derived from the Greek *zemia* (harm), shifts analytical attention from legally defined crimes to the broader spectrum of social (and can be extended to include environmental) harms they generate (Hillyard and Tombs, 2004). It expands the focus beyond individual criminal acts to include harms arising from inaction, structural conditions, societal indifference, and established practices that may be lawful yet damaging (Hillyard and Tombs, 2007; Canning and Tombs, 2021; Canning et al., 2023). Applied to wildlife governance, this perspective draws attention to the gap between the harms experienced by wildlife and ecosystems and the narrower range of conduct that criminal law is equipped to recognise.

While the place of zemiology within green criminology has prompted reflection on the coherence of the field (Brisman and South, 2018), it has also been closely associated with broader discussions about justice in green criminological scholarship. Environmental and biodiversity harms are increasingly understood as intertwined with social justice concerns (White, 2013; Duffy et al., 2025). Harm to non-human animals and ecosystems may reverberate back to human communities through the loss of ecosystem services, heightened zoonotic disease risks, or the erosion of livelihoods (Potter, 2017; Duffy et al., 2025). From this perspective, biodiversity loss and species decline can be understood as social harms in their own right, while patterns of poverty and unequal resource distribution that underpin biodiversity exploitation further expose the interconnections between environmental degradation and social injustice (Paudel et al., 2019; Armstrong, 2024).

There is scope to approach future wildlife offences research through a zemiological lens, with wildlife offences appearing not as an isolated criminal phenomenon but as one component within a wider system of wildlife exploitation. While poaching and trafficking may be clearly criminalised, other practices that contribute to biodiversity loss, such as habitat degradation, legally sanctioned wildlife use (e.g., trading artificially bred wildlife that with matured breeding techniques as pet in China, see Chapter 5, Tian et al., 2025), or entrenched structural inequalities, may remain lawful or under-enforced (Duffy et al., 2025). In this sense, the boundary between legal and illegal wildlife use is porous. Legal and illegal activities may operate together to produce suffering and injustice, shaped by broader structural factors including unequal power relations, colonial legacies, and development trajectories (Duffy et al., 2025). For example, demand from consumers in the Global North for exotic wildlife products may externalise social and environmental costs onto communities and ecosystems in the Global South (Duffy et al., 2025).

It should be acknowledged that some core zemiological scholarship goes beyond analytical critique and explicitly challenges crime and criminal law as the primary organising frameworks for understanding social harm, advocating instead for harm-based approaches that operate independently of criminalisation (Hillyard and Tombs, 2004). However, the perspective adopted here does not necessarily suggest that criminal law should be replaced by a harm-based framework, nor that all forms of harm should be subject to criminalisation. Rather, it highlights the analytical value of distinguishing between harm and crime when assessing the scope and limits of wildlife governance. Zemiology functions here as a diagnostic tool, revealing what criminal law is structurally capable of addressing and what it leaves beyond its reach. By making these boundaries visible, it helps to situate crime-based approaches to IWT within a broader landscape of wildlife-related harm, and opens space for considering complementary responses beyond arrest-and-prosecute strategies, including those oriented towards habitat protection, community rights, and demand reduction (Aertsen, 2022).

6.2.3.2 Rethinking the victims of wildlife offences

The thesis also raises a closely related question: beyond defining what counts as wildlife (Chapter 3, Tian et al., 2023), how does the law recognise victimhood when wildlife is harmed? Under the conventional criminal justice systems, including those in China and

reflected in this thesis, the scope of the victim is firmly human-focused, typically referring to individuals, communities or states whose legally protected rights or interests are violated, even within the study of environmental crime (Hall, 2013; White, 2018), including wildlife offences. As observed by White (2018), the victim of the legally defined ‘crime’ is not usually the same as the bearer of the environmental harm. Though wildlife laws are explicitly framed around identifying offenders and imposing sanctions, the way that wildlife and ecosystems are recognised as the subjects of harm, is less clear. Such an orientation has caused persistent tension in the regulation of wildlife crime: the law increasingly positions wildlife as the object of protection, but rarely as the subject of victimhood. Chapter 4 (Tian et al., 2024) demonstrates how this tension has shaped China’s wildlife legislation, where animal protection has been consistently mainly grounded in anthropocentric rationales, ranging from resource management to more recent emphases on zoonotic risk prevention. Hence, environmental offences, including wildlife crimes, were traditionally treated as victimless crimes (South, 2014; Dybing, 2016). Criminal proceedings thus tend to proceed with limited attention to the animals or ecosystems that suffer the consequences of such offences, beyond their instrumental value to conservation.

Insights from victimology help to clarify this absence. Victimhood is not a neutral or automatic status in criminal law, but one shaped by legal definitions, institutional priorities, and social expectations. As victimological scholarship has long shown, this process renders certain victims visible and legitimate, while leaving others marginal or excluded (Christie, 1986; Walklate, 2007; Hall, 2013; White, 2018). Applied to wildlife crime, this perspective makes it clear why non-human animals fall outside the dominant legal frameworks of victim recognition. Although wildlife is often central to the offence, it is rarely acknowledged as a victim in its own right within criminal proceedings (Wyatt, 2013). The law may condemn prohibited conduct, but it offers only limited recognition to those who bear the consequences of that conduct, leaving an open question about whom the wildlife crime law is ultimately designed to speak for.

In a way that mirrors the limitations identified in relation to legally defined harm, a zemiological perspective also draws attention to the narrow scope of victimhood recognised in most law (White, 2018). As White (2013) argued, the study of victimisation in wildlife crime should go beyond the categories established by legal definitions alone.

Building on this insight, White (2018) proposed a tripartite framework for green victimology, distinguishing between environmental justice, concerned with harm to humans; species justice, addressing harm to animals and plants; and ecological justice, focused on harm to ecosystems. Considered alongside the doctrinal analysis developed in this thesis, this framework helps to make visible the range of affected interests that fall outside the scope of victimhood formally recognised in black letter law.

Recognising this gap does not suggest abandoning criminal justice approaches to wildlife offences. Instead, it highlights a more cautious reflection on whether crime-based responses alone are sufficient to address the full range of interests implicated in biodiversity loss. From this perspective, attention can be directed towards alternative or complementary legal mechanisms through which the interests of affected wildlife and ecosystems might be acknowledged and, in some cases, remedied through legal processes, raising questions about how non-human interests are recognised and addressed beyond the criminal justice framework.

6.2.3.3 Liability litigation as a complementary route to remedy

As discussed and reflected in this thesis, formal wildlife governance is often tightly associated with prohibitions and sanctions, yet the scope of harm and victims associated with wildlife crime extends well beyond what is formally captured by criminal offences. For example, even debates over appropriate sanctioning (Chapter 5, Tian et al., 2025), do not necessarily consider scales of harm but remain focused on determining criminal penalties, such as the range of fines and lengths of imprisonment, according to the monetary value of the wildlife concerned. Such a focus on punishment leads to a significant gap in conservation governance. Even where wildlife crime is successfully prosecuted, criminal sanctions such as fines or imprisonment rarely identify the full range of harm involved, nor do they provide remedies for the harm caused. As Cohen (1991) and White (2017) have observed in broader critiques of criminal justice and environmental harm, criminal punishment often serves as a deterrent or symbolic function while leaving underlying harm unresolved. In the context of wildlife crime, this means that harm to wildlife and ecosystems may remain unaddressed within the legal process, despite the formal sanction of the illegal acts.

In such a context, liability litigation has emerged in recent years as a complementary legal pathway that merits further research. Rather than centring on punishing offenders, liability-based approaches focus on responsibility and redress, pursuing remedies for harm that criminal sanctions alone do not serve (Phelps, 2019, 2021). In this way, liability litigation shifts attention from the offender alone to the consequences of harmful acts and the interests affected by them, engaging with the gaps identified through zemiology and victimology.

Seen against the doctrinal analysis presented in this thesis, liability litigation brings into sharper relief the limitations of wildlife crime law identified in the preceding chapters. Specifically, the analysis of legal definitions, thresholds, and sanctions demonstrates how black-letter law regulates protection primarily through offence identification and punishment, an orientation that has been widely recognised as limiting within sanction-focused governance (Hall, 2015; Nurse, 2023). The emergence of liability litigation confirms the practical consequences of these boundaries, while providing alternative routes through which neglected harms may be acknowledged and remedied. In the Chinese context, this potential can be observed within the environmental public interest litigation (EPIL) framework, where liability-based claims have been adopted not only to pursue remedies for ecological damage that already happened, but also, in certain cases, to prevent foreseeable harm through predictive litigation (Feng, 2018b; Chu, 2023). And criminal incidental civil public interest litigation is increasingly becoming the common format of EPIL in wildlife cases. The combination of criminal sanctions and liability litigation not only reveals the limitations of the existing legal framework, but also offers a more comprehensive account of how law responds to wildlife harm, highlighting the tensions inherent in relying on punishment alone to carry conservation objectives.

The above sections suggest directions for future research based on comparative doctrinal analysis across jurisdictions, examining how different countries address wildlife-related violations in law and how distinct legal designs respond to similar conservation challenges within their respective institutional and political contexts. Such an approach can help explain why similar governance strategies expand protection or enable accountability in some legal systems, yet struggle or fail in others once translated into legal rules. At the same time, comparing how legal systems define harm, victimhood, and responsibility offers insight into how underlying values and conceptions of justice

are embedded in wildlife law, particularly in the ways non-human interests are recognised or marginalised through legal design.

6.3 Conclusion

This thesis has approached wildlife governance through strict doctrinal analysis, focusing on how legal definitions, legislative priorities, and sanctioning mechanisms structure conservation in law. By examining the content and evolution of black-letter law, this research highlights that legal protection of wildlife is influenced not only by policy goals, but also by the way legal rules are drafted and defined. Such a legal framework determines what counts as permitted conduct, how criminal activities are defined, and which interests are prioritised and formally acknowledged within legal conservation governance. Drawing across and beyond the three published papers, the final chapter reflects on these findings by situating them within a broader discussion of harm, victimhood, and liability associated with wildlife-related wrongdoing. Rather than moving beyond doctrinal analysis, this reflection clarifies what the doctrinal findings reveal about the reach and limitations of crime-based legal responses to wildlife harm.

At the same time, this thesis does not deny the importance of law in practice. While the analysis has focused mainly on the design and content of legal frameworks, it recognises that legal texts alone cannot explain how conservation goals are implemented, challenged, or realised in practice. Questions concerning enforcement patterns, prosecutorial strategy, sentencing outcomes, and ecological impact fall beyond the scope of the doctrinal analysis, but remain essential for understanding the practical operation of wildlife and conservation law.

Nevertheless, understanding wildlife and conservation governance requires attention to legal details, rather than only to policy goals or enforcement outcomes. Its contribution lies in demonstrating how doctrinal analysis can provide a clear basis for interdisciplinary dialogue, while recognising the constraints and possibilities of law as a tool for governing wildlife. On this basis, the thesis also offers a clear point of reference for future empirical and interdisciplinary research into how wildlife legislation operates in practice, and how legal design interacts with criminal justice processes and conservation outcomes, in order

to assess whether legal frameworks can meaningfully support conservation goals, rather than remaining effective only on paper.

Appendices

Appendix A: Supplementary materials for Chapter 3

Table A. Legal terms collected from the legislation of China and the UK.

China	UK
Wildlife, Aquatic wildlife, Bred wildlife, Precious or endangered wildlife, Precious and rare wildlife, Terrestrial wildlife, Wildlife products, Wildlife under special state protection, Wildlife under special local protection, Wildlife park	Wildlife, Wild creatures
Animal, Animal husbandry, Animal products, Bred animal, Captive animal, Companion animal, Dead animal, Destructive animal, Diseased animal, Domesticated (domesticated) animal, Endangered animal, Endangered wild animal, Experimental animals, Exported animal, Farmed animal, Fur animal, Infected animal, Infectious animal, Imported animal, Live animal, Medicated animal, Performing animal, Precious animal, Protected animal, Raise animal, Rare animal, Semi-wild medicinal animals/plants, National precious and endangered wild animal and plant medicinal materials, Rare and endangered wild medicinal animals and plants, Wild animal, Wild animals forbidden from consumption, Wild animals with important	Animal, Animal husbandry, Animal products, Animal by-product, Animal kept for trade purposes, Animal material, Animal waste, Affected animal, Bred animal, Captive animal, Circus animal, Companion animal, Contaminated animal, Dangerous wild animal, Dead animal, Destructive animal, Destructive imported animal, Destructive non-indigenous animal, Diseased animal, Domesticated (domesticated) animal, Donor animal, Endangered animal, Endangered wild animal, Endemic animal, Exhibited animal, Experimental animals, Exported animal, Farmed animal, Feral animal, Fur animal, Infected animal, Infectious animal, Immature animal, Imported animal, Injured animal, Live animal, Native animal, Non-native animal, Non-food animal, Non-susceptible animal, Performing animal, Pet animal,

ecological, scientific and social value, Terrestrial wild animal	Production animal, Protected animal, Pure-bred animal, Purebred breeding animal, Quarantine animal, Sick animal, Slaughter animal, Straying animal, Suspected animal, Susceptible animal, Unvaccinated animal, Vaccinated animal, Vulnerable animal, Wild animal, Zoo animal
Fauna	Fauna
Flora	Flora
Species, Domestic species, Endangered species, Invasive alien species, Terrestrial species, Wild medicinal species	Species, Breeding animal species, Dangerous species, Domestic species, Endangered species, European protected species, Food-production species, Invasive species, Invasive alien species, Invasive non-native species, Migratory species, Migratory species of bird, National protected species, Native species, New species, Non-indigenous mammalian species, Non-native species, Priority species, Protected species, Threatened species
Livestock, Special livestock	Livestock, Livestock undergoing conversion, Organic livestock
Game	Game, Game bird, Farmed game, Feathered game, Foreign game, Ground game, Wild game, Wild game bird
Meat, Meat product	Meat, Meat product, Bushmeat, Farmed game bird meat, Fresh meat, Game meat, Meat preparation, Mechanically separated meat, Minced meat, Poultry meat, Wild game meat
Fungus, Fungus plant	Fungus, Fungus plant

<p>Plant, Plant material, Plant oil, Plant pest, Plant products, Plant proteins, Plant seed, Plants specimens, Plants under special state protection, Plants under special local protection, Agricultural plants, Agricultural plants products, Aquatic wild plants, Ancient plants, Characteristic plant resources, Endangered plant (species), Energy plants, Forestry plants, Fruit plant, Fungus plant, Genetically modified plants, Genetically modified forest plants, Genetically modified forest plant product, High-risk plants, Invasive (alien) plants, Medicinal plants, Medicinal wild plants, Mother plant, Native plants, New plant varieties, Oil plants, Ornamental plant, Precious or rare wild plants, Sand-fixing plants, Sugar plants, the mother plants of narcotic drugs, the mother plants of the narcotic drugs for medical use, the plants of opium poppy, coca, marijuana, Wild plant, Vegetable (plant)</p>	<p>Plant, Plants for planting, Plant material, Plant oil, Plant pest, Plant products, Plant protection product, Plant proteins, Plant-propagating material, Plant seed, Plant stanol, Plant trader, Agricultural plants, Aquatic plants, Arable plants, Basic mother plant, Cannabis plants, Certified mother plant, Certified plant material, Controlled plant pest, Endangered plant (species), Fiber plant, Fruit plant, Fungus plant, Genetically modified plants, High-risk plants, Host plant, Invasive (alien) plants, Invasive non-native plants, Mother plant, New plant varieties, Ornamental plant, Susceptible plants, Wild plant, Vegetable (plant), Vegetable Plant Material</p>
<p>Others. Artificial breeding progeny, Birds, migratory bird, Flesh, Pet, Poultry, Specimen, Live specimen, Mammal, Aquatic mammal, Terrestrial mammal, Wild mammal, Zoo</p>	<p>Others. Birds, Farmed bird, other captive bird, Susceptible bird, Wild bird, Carcase, Flesh, Flesh product, Herd, Production herd, Restricted herd, Pet, Poultry, Specimen, Live specimen, Mammal, Fur-bearing mammal, Wild mammal, Wild land mammal, Venison, Zoo</p>
<p>40 definitions of 28 terms were extracted</p>	<p>182 definitions of 69 terms were extracted</p>

Table B. Legal definitions of “wildlife” and relevant terms in China and the UK

Table B.1 China’s definitions

Term	Legislation title	Definition
Wildlife	Law of the People's Republic of China on the Protection of Wildlife (Revised in 2022)	The wildlife protected under this Law refers to the rare or endangered species of terrestrial and aquatic wildlife and the species of terrestrial wildlife which are of important ecological, scientific, or social value.
	Measures of the People's Republic of China for Value Assessment of Wildlife and Its Products	The whole terrestrial wildlife (including eggs).
	Measures for the Sheltering and Rescue of Wildlife	The terrestrial wild animals protected by law.
	Measures for the Administration of Domestication and Breeding Licenses for Wildlife under special State Protection (Revised in 2015)	The terrestrial wild animals under special State protection.
	Letter of the Ministry of Forestry on requesting assistance in the export management of Chinese patent medicines containing wild animal medicinal ingredients	The wildlife mentioned in this letter refers to the wildlife under special state protection and other terrestrial wildlife that are beneficial or of economic or scientific research value which is expressly restricted from export by the State, as well as other wildlife protected under the CITES.

	Standard for terminology of zoo	Animals that have natural population distribution in the wild or only artificially raised populations whose biological characteristics have not changed significantly.
	Measures for quarantine of wildlife (Enacted in 2023)	Article 10: The wildlife mentioned in this Measure refers to terrestrial vertebrate wildlife that are protected under the "WPL" and non-native terrestrial vertebrate wildlife that are approved as wildlife under special state protection.
Aquatic wildlife	Implementing Regulations of the People's Republic of China on Aquatic Wildlife Protection (Revised in 2013)	For the purpose of these regulations, aquatic wildlife is rare and endangered aquatic wildlife; and products of aquatic wildlife are any part of aquatic wildlife and their derivatives.
Terrestrial wildlife	Implementing Regulations of the People's Republic of China on Terrestrial Wildlife Protection (Revised in 2016)	The term "terrestrial wildlife" (hereinafter referred to as the wildlife) mentioned in these Regulations refers to the species of terrestrial wildlife which are precious or being endangered and the species which are beneficial or of important economic and scientific research value.
Wildlife products	Law of the People's Republic of China on the Protection of Wildlife (Revised in 2022)	The wildlife and its products in this Law refer to the entire (including spawn, egg) and parts of its body and its derivatives.
	Measures of the People's Republic of China for Value Assessment of Wildlife and Its Products	"Wildlife products" refers to parts of terrestrial wildlife and their derivatives, including products.

	Implementing Regulations of the People's Republic of China on Terrestrial Wildlife Protection (Revised in 2016)	The “products of wildlife” refers to any part of wildlife and their derivatives.
Wildlife Park	Standard for terminology of zoo	A zoo with group, mixed, and loose housing displays.
Wildlife under special local protection	Law of the People's Republic of China on the Protection of Wildlife (Revised in 2022)	The wildlife under special local protection, refers to the wildlife under special protection in provinces, autonomous regions, or municipalities directly under the Central Government except for wildlife under special state protection.
Animal	Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants	“Animals” mean the live animals, whether domesticated or wild, such as livestock, poultry, beasts, snakes, tortoises, fishes, shrimps and prawns, crabs, shellfishes, silkworms and bees.
	Law of the People’s Republic of China on Animal Epidemic Prevention (Revised in 2021)	For the purpose of this Law, animals refer to farm livestock and poultry as well as other animals artificially raised or captured.
Animal products	Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants	“Animal products” mean the non-processed products or the processed products, from animals, still liable to spread epidemic diseases, such as raw hides, hairs, meats, viscerae, fat and grease, aquatic animal products, dairy products, eggs, blood, semen, embryos, bones, hoofs and horns.
	Circular of the Ministry of Commerce, the Ministry of	Animal products refer to all sorts of domestic animal and preliminarily

	Finance and the State Administration of Taxation on Carrying out Pilot Chain Operations of Agricultural Products	processed products that are raised by men and obtained through breeding and capturing, which include: 1. Meat Products (1) Beasts, birds and reptiles (including all sorts of livestock, poultry and artificially domesticated and bred wild animals and other economic animals), such as cattle, horses, pigs, sheep, chickens and ducks, etc..
	Law of the People's Republic of China on Animal Epidemic Prevention (Revised in 2021)	For the purpose of this Law, animal products refer to animals' meat, rawhides, raw wool, down, viscera, fat, blood, semen, spawn, embryos, bones, hoofs, heads, horns and tendons as well as milk and eggs possibly spreading animal epidemic diseases.
Captive animal	Standard for terminology of zoo	Wild animals in captivity
Domesticated animal	Measures for the Administration of Domestication and Breeding Licenses for Wildlife under special State Protection (1991, revised in 2015)	The “domesticated animals” refer to the domestication and breeding of wild animals for protection, research, scientific experiment, exhibition and other economic purposes under artificial control conditions.
Experimental animals	Administrative Regulations on Experimental Animals (Revised in 2017)	The term “experimental animals” used in these Regulations refers to animals which are artificially fed and bred, the micro-organisms on or in whose bodies are kept under control, whose genetic backgrounds are definite or whose sources are clear, and

		which are to be used in scientific research, teaching, production, examination and verification and other scientific experiments.
Precious animal	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues concerning the Application of Law to Handling of Criminal Cases Involving Smuggling	The “precious animals” prescribed in Paragraph 2 of Article 151 of the Criminal Law include the wild animals under first-grade and second-grade state protection listed in the List of Wild Animals under Special State Protection, the wild animals listed in Appendix I and Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and above-mentioned animals tamed and bred.
Semi-wild medicinal animals/plants	Good Agricultural Practice for Chinese Crude Drugs (for Trial Implementation)	Semi-wild medicinal animals/plants refer to wild animals/plants or those derived from cultivation with proper management, and intertilling, weeding, fertilizing or feeding, etc..
Wild animals forbidden from consumption	Notice of the State Forestry and Grassland Administration on Regulating the Scope of Classified Management of Fasting Wild Animals	Refers to terrestrial wild animals that are bred and eaten before the release of the “Decision” (the Bushmeat Ban enacted after the COVID-19 outbreak) and are not within the scope of livestock and poultry, excluding terrestrial wildlife for the purpose of protection and breeding, scientific research, ornamental display, medicinal use, pets, etc. and aquatic wild animals.

Wild medicinal species	Regulation on Protection of Wild Medicinal Resources	<p>Wild medicinal species under class 1: endangered, rare and precious wild medicinal species (shall be prohibited from being gathered; The medicinal parts of dead wild medicinal species under class 1 shall be traded and managed by medicinal materials companies at all levels and shall not be allowed for export).</p>
		<p>Wild medicinal species under class 2: important wild medicinal species, of which the distributed area shrinks and of which the resources are nearly exhausted (shall be obtained and purchased in accordance with approved program formulated by health departments at or above the county level; are not allowed to be gathered within gathering-restricted area or during gathering-restricted period by gathering-restricted tools; The medicinal parts of wild medicinal species under class 2 and 3 shall be exported in limited quantity, except stipulated by other State Regulations).</p>
		<p>Wild medicinal species under class 3: major wild medicinal species, of which the resources have decreased largely (shall be obtained and purchased in accordance with approved program formulated by health departments at or above the county level; are not allowed to be gathered within gathering-restricted area or during gathering-restricted period by gathering-restricted tools; The medicinal parts of wild</p>

		medicinal species under class 2 and 3 shall be exported in limited quantity, except stipulated by other State Regulations).
Flesh products	Administrative Measures for the Supervision of Inspection and Quarantine of Imported and Exported Flesh Products (Revised in 2018)	Flesh products refer to any part of a slaughtered animal that is edible for humans, including the body, viscera, by products, and products made of the aforementioned products as raw materials, excluding cans.
Artificial breeding progeny	Law of the People's Republic of China on the Protection of Wildlife (Revised in 2022)	Artificial breeding progeny refers to progeny individuals born under artificial controlled conditions and whose parents are also born in such conditions.
Zoo	Standard for terminology of zoo	Places where wildlife is kept for display and open to the public
Plant	Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants (Amended in 2009)	“Plants” mean cultivated plants, wild plants, their seeds and seedlings and other propagating materials.
Wild plants	Regulations of the People's Republic of China on Wild Plants Protection (Amended in 2017)	Wild plants protected under these Regulations refer to plants growing in natural conditions, which are specious or which are rare or near extinction and of important economic, scientific or cultural value.
		Wild plants shall be classified into two categories: ones under special protection by state and ones under special protection by localities.

		Wild plants under special state protection shall be classified into two classes: ones under first class state protection and ones under second class state protection.
Medicinal plants	Circular of the Ministry of Commerce, the Ministry of Finance and the State Administration of Taxation on Carrying out Pilot Chain Operations of Agricultural Products	Medicinal plants are rootstocks, stems, peels, leaves, flowers and fruit of various plants that can be used as proto-medicine of Chinese traditional medicine.
	Standards of Import and Export of Green Medicinal Plants and Their Preparations (from government website)	Medicinal plants: the raw materials and extract of plants that are used for medical treatment and healthcare.
Oil plants	Circular of the Ministry of Commerce, the Ministry of Finance and the State Administration of Taxation on Carrying out Pilot Chain Operations of Agricultural Products	The oil plants are primary products of rootstocks, stems, leaves, fruit, flowers or embryos of various plants that are mainly used to extract the oil, such as colza seeds (including mustard seeds), peanuts, beans, sunflower seeds, castor oil seeds, sesame seeds, benne seeds, tea seeds, tung-oil seeds, olive kernels, palm kernels and cottonseeds, etc..
Sugar plants	Circular of the Ministry of Commerce, the Ministry of Finance and the State Administration of Taxation on Carrying out Pilot Chain	Sugar plants refer to all sorts of plants that are mainly used to refine sugar, such as sugar canes and sugar beets, etc..

	Operations of Agricultural Products	
Plant products	Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants (Amended in 2009)	“Plant products” mean the non-processed products or the processed products, from plants, still liable to spread diseases, insect pests or harmful organisms, such as grain, beans, cotton, oils, fibers, tobacco, kernel, dried fruits, fresh fruits, vegetables, raw medicinal herbs, logs and feeding stuffs.
Agricultural plant products	Circular of the Ministry of Commerce, the Ministry of Finance and the State Administration of Taxation on Carrying out Pilot Chain Operations of Agricultural Products	Agricultural plant products shall include primary products and preliminarily processed products of various plants that are grown by hand or naturally, which include: grain, horticultural plants, fruit and nuts, tea leaves, oil plants, medicinal plants, sugar plants.
New plant variety	Regulations of the People's Republic of China on the Protection of New Plant Varieties (Revised in 2014)	The new plant variety referred to in these Regulations means a cultivated plant variety, or a developed one based on a discovered wild plant, which is new, distinct, uniform and stable, and whose denomination is adequately designated.
Precious or rare plants	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues concerning the Application of Law to Handling of Criminal Cases Involving Smuggling	The “precious or rare plants” stated in Paragraph 3 of Article 151 of the Criminal Law include the wild plants under first-grade and second-grade state protection, natural crude drugs under special state protection and precious trees listed in the List of Wild Plants under Special State Protection, the List of Wild Medicinal Species under Special State Protection and

		the National List of Precious Tree Varieties, the wild plants listed in the Appendix I and Appendix II to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the above-mentioned plants as artificially cultivated.
Vegetables	Circular on Issues Concerning the Exemption of Value-Added Tax on Vegetables in Circulation	Vegetables refer to herbaceous or woody plants which may be used as non-staple foodstuffs, including various vegetables, fungus plants and a handful of woody plants which may be used as non-staple foodstuffs.

Table B.2 The UK’s definitions

Term	Legislation title	Definition
Wildlife	The Countryside Access Regulations 1994	“Wildlife” means—(a)any animal species (other than a species of bird) which is ordinarily resident in England or Wales in a wild state; (b)any species of bird which is ordinarily resident or is a visitor to England or Wales in a wild state; and (c)any species of plant which ordinarily grows in England or Wales in a wild state.
	The Habitat (Former Set-Aside Land) Regulations 1994	“Wildlife” means—(a)any animal (other than a bird) which is ordinarily resident in England in a wild state; (b)any bird which is ordinarily resident in or is a visitor to England in a wild state; and (c)any plant which is of a kind which ordinarily grows in England in a wild state.
	The Habitat (Water Fringe) Regulations 1994	“Wildlife” means—(a)any animal (including any fish but excluding any bird) which is ordinarily resident in England in a wild state; (b)any bird which is ordinarily resident in or is a visitor to England in a wild state; and (c)any plant which is of a kind which ordinarily grows in England in a wild state.
Animal	Corporation Tax Act 2009	“Animal” means any animal or other living creature;
	Income Tax (Trading and Other Income) Act 2005	
	Agriculture Act 1970	“Animal” includes any bird, insect or fish;

	Slaughterhouses Act 1974	“Animal” does not include bird or fish;
	Pet Animals Act 1951	“Animal” includes any description of vertebrate.
	Performing Animals (Regulation) Act 1925	“Animal” does not include invertebrates;
	Animal Boarding Establishments Act 1963	“Animal” means any dog or cat;
	Animal Health and Welfare Act 1984	<p>“Animal” includes anything that may, by virtue of an order under section 87 below (1981 c. 22.), be included for any of the purposes of this Act in the definition of animals or of poultry contained in that section, and “carcases” is to be construed accordingly.”</p> <p>-----“animals” means—(a)cattle, sheep and goats, and (b)all other ruminating animals and swine. (2) The Ministers may by order for all or any of the purposes of this Act extend the definition of “animals” in subsection (1) above so that it shall for those or any of those purposes comprise—(a)any kind of mammal except man; and (b)any kind of four-footed beast which is not a mammal.</p>
	Animal Health Act 1981	<p>“Animals” means—(a)cattle, sheep and goats, and (b)all other ruminating animals and swine; The Ministers may by order for all or any of the purposes of this Act extend the definition of “animals” in subsection (1) above so that it shall for those or any of those purposes comprise— (a)any kind of mammal except man; and (b)any</p>

		kind of four-footed beast which is not a mammal.
	Veterinary Surgeons Act 1966	“Animals” includes birds and reptiles;
	Food Safety Act 1990	“Animal” means any description of cattle, sheep, goat, swine, horse, ass or mule; and paragraph (b) of that subsection shall not apply where accident, illness or emergency affecting the animal in question required it to be slaughtered as mentioned in that paragraph.
	Animal (Cruel Poisons) Act 1962	“Animal” means any mammal.
	Cinematograph Films (Animals) Act 1937	“Animal” means a “protected animal” within the meaning of the Animal Welfare Act 2006.
	Value Added Tax Act 1994	“Animal” includes bird, fish, crustacean and mollusc.
	Human Fertilisation and Embryology Act 1990 / 2008	“Animal” is an animal other than man.
	Road traffic Act 1972 / 1988	“Animal” means any horse, cattle, ass, mule, sheep, Pig, goat or dog.
	The Foot-and-Mouth Disease (England) Order 2006	“Animals” in section 87(1) of the Act is extended to comprise all four- footed beasts;
	The Welfare of Animals at the Time of Killing (England) Regulations 2015	“Animal” means solipeds, ruminants, pigs, rabbits, poultry or ratites.

The Specified Animal Pathogens Order 1998 / 2008	the definition of “Animal” is extended so as to comprise any kind of mammal except man, and any kind of four-footed beast which is not a mammal;
The welfare of Animals (Transport) (England) Order 2006	the definitions of “Animals” and “Poultry” in section 87 of the Act are extended to cover all vertebrate animals and cold-blooded invertebrate animals.
The Non-Commercial Movement of Pet Animals Order 2011	“Animal” means any kind of mammal except man.
The Environmental Permitting (England and Wales) Regulations 2016	“Animal” includes a bird or a fish.
The Animal Gatherings Order 2010	“Animals” means cattle (excluding bison and yak), deer, goats, sheep and pigs;
Zoo Licensing Act 1981	“Animals” means animals of the classes Mammalia, Aves, Reptilia, Amphibia, Pisces and Insecta and any other multi cellular organism that is not a plant or a fungus.
Animal Health Act 1981	“Animals” means— (a) cattle, sheep and goats, and (b) all other ruminating animals and swine;
The Welfare of Animals during Transport Order 1994	“Animal” includes any animal and any bird;
The Avian Influenza and Influenza of Avian Origin in Mammals (England) (No.2) Order 2006	the definition of “Animals” In section 87 (1) of the Act is extended to include all mammals, except man;

The importation of Animals Order 1977	“Animals” means cattle, sheep, goats and all other ruminating animals and swine, and for the purposes of this definition, the expression “ruminating animals” includes llamas, guanacos, alpacas, vicunas, Bactrian camels and Arabian camels;
The Welfare of Farmed Animals (England) Regulations 2000	“Animal” means any animal (including fish, reptiles or amphibians) bred or kept for the production of food, wool, skin or fur or for other farming purposes;
The Zoonoses Order 1989	“Animal” means any kind of mammal, except man, and any kind of four-footed beast which is not a mammal;
The Veterinary Medicines Regulations 2013	“Animal” means all animals other than man and includes birds, reptiles, fish, molluscs, crustacea and bees;
Agriculture Act 2020	In this section “Animals” has the same meaning as it has for the purposes of section 8 of the Animal Health Act 1981.”
Wild Animals in Circuses Act 2019	“Animal” has the meaning given by section 1(1) of the Animal Welfare Act 2006;
Rent (Agriculture) Act 1976	“Animal” includes bird but does not include fish.
Human Fertilisation and Embryology Act 2008	“Animal” is an animal other than man.
Animal Welfare Act 2006	“Animal” means a vertebrate other than man.
Animal Welfare (Sentience) Act 2022	“Animal” means— (a) any vertebrate other than homo sapiens,

		(b)any cephalopod mollusc, and (c)any decapod crustacean.
Animal products	The Foot-and-Mouth Disease (England) Order 2006	“Animal product” means anything originating or made (whether in whole or in part) from an animal or from a carcase.
Animal by-product	The Animal By-Products Regulations 2003	“Animal by-product” includes catering waste of all kinds, including catering waste to which the Community Regulation does not apply because of Article 1(2)(e) of that Regulation.
Affected animal	The Tuberculosis (England) Order 2014	“Affected animal” means— (a) a cow which is affected with tuberculosis of the udder or is giving tuberculous milk, or (b) a bovine animal which is affected with tuberculous emaciation or is excreting or discharging tuberculous material or is affected with a chronic cough or shows any other clinical sign of tuberculosis;
Contact animal	The Importation of Animals Order 1977	“Contact animal” means any creature which is not an animal for the purposes of this order, but which is, to the satisfaction of a veterinary inspector, capable of transmitting disease to an animal;
Dangerous wild animal	Dangerous Wild Animals Act 1976	“Dangerous wild animal” means any animal of a kind for the time being specified in the first column of the Schedule to this Act;
Destructive animal	Destructive Imported Animals Act 1932	“Destructive animal” means a musk rat or other animal to which the 1932 Act [Destructive Imported Animals Act 1932 (c. 12)] applies.
Endangered animal	Animals (Scientific Procedures) Act 1986	“Endangered animal” means an animal of a species which— (a) is listed in Annex A to the

		Council Regulation; and (b) is not within the scope of Article 7(1) of that Regulation; and “endangered primate” and “non-endangered primate” are to be construed accordingly.
Farmed animal	The Welfare of Farmed Animals (England) Regulations 2007	“Farmed animal” means an animal bred or kept for the production of food, wool or skin or other farming purposes, but not including— (a) a fish, reptile or amphibian; (b) an animal whilst at, or solely intended for use in, a competition, show or cultural or sporting event or activity; (c) an experimental or laboratory animals; or (d) an animal living in the wild.
Licensed animal	The Welfare of Wild Animals in Travelling Circuses (England) Regulations 2012	“Licensed animal” means a wild animal kept in a travelling circus in respect of which a licence has been applied for or obtained in accordance with regulation 4;
Protected animal	Animal Welfare Act 2006	An animal is a “protected animal” for the purposes of this Act if— (a) it is of a kind which is commonly domesticated in the British Islands, (b) it is under the control of man whether on a permanent or temporary basis, or (c) it is not living in a wild state.
Pure-bred animal	The Zootechnical Standards (England) Regulations 2012	“Pure-bred”, in respect of an animal of a breed, means that its parents and grandparents appear in a herd-book or flock-book of the breed, and it appears itself or is eligible to appear in a herd-book or flock-book of the breed;
Quarantine animal	The Importation of Animals Order 1977	“Quarantine animals” means imported animals landed or intended to be landed in Great Britain

		under the authority of an import licence which contains a requirement that the animals to which it relates shall be detained in quarantine at approved quarantine premises;
Straying animal	Highways Act 1980	“Straying animal” means any horses, cattle, sheep, goats or swine are at any time found straying or lying on or at the side of a highway.
Suspected animal	The Tuberculosis (England) Order 2014	“Suspected animal” means a bovine animal that is suspected of being infected with tuberculosis, and includes a reactor; Also in this law, 'Control of infection from other animals" ----“animal” means any kind of farmed mammal except a bovine animal, deer or camelid.
Susceptible animal	The Foot-and-Mouth Disease (England) Order 2006	“Susceptible animal” means a cow, bull, sheep, goat, deer, camel, llama, alpaca, guanaco, vicuna, any other ruminant, any swine (that is, a member of the suborder Suina of the order Artiodactyla), elephant or rodent (other than a pet rodent);
Wild animal	Finance Act 2014	“Wild animal” means an animal of a kind which is not commonly domesticated in the British Islands (and in this definition “animal” has the meaning given by section 1(1) of the Animal Welfare Act 2006).
	Wildlife and Countryside Act 1981	“Wild animal” means any animal (other than a bird) which is or (before it was killed or taken) was living wild;
	Zoo Licensing Act 1981	“Wild animals” means animals not normally domesticated in Great Britain.

	Wild Animals in Circuses Act 2019	“Wild animal” means an animal of a kind which is not commonly domesticated in Great Britain.
	The Welfare of Wild Animals in Travelling Circuses (England) Regulations 2012	“Wild animal” means an animal that is a member of a species not normally domesticated in Great Britain.
Species	Wildlife and Countryside Act 1981	“Species” means any kind of animal or plant.
	Infrastructure Act 2015	“Species” means any kind of animal or plant.
	The Invasive Alien Species (Enforcement and Permitting) Order 2019	“Species” includes— (a) any hybrid, variety or breed of a species that might survive and subsequently reproduce; and (b) any subspecies or lower taxon of a species.
	Deer Act 1991	“Species” includes any hybrid of different species of deer.
	Animal Health Act 1981	“Species” means any species of bird or mammal, except man, and references to wild members of any species in an area are references to members of the species in the area that are neither domesticated nor held in captivity.
Invasive species	Infrastructure Act 2015	A species is “invasive” if, uncontrolled, it would be likely to have a significant adverse impact on— (a) biodiversity, (b) other environmental interests, or (c) social or economic interests.
	Wildlife and Countryside Act 1981	A species is “invasive” if, uncontrolled, it would be likely to have a significant adverse impact on—(a) biodiversity, (b) other environmental interests, or (c) social or economic interests.

	Infrastructure Act 2015	A species is “invasive” if, uncontrolled, it would be likely to have a significant adverse impact on—(a) biodiversity, (b) other environmental interests, or (c) social or economic interests.
Invasive alien species	Wildlife and Countryside Act 1981	“Invasive alien species” means a species, subspecies or lower taxon of animal, plant, fungus or micro-organism included on the Union list.
	The Invasive Alien Species (Enforcement and Permitting) Order 2019	“Invasive alien species” means any species of animal, plant, fungus or micro-organism included from time to time on the Union list;
Invasive non-native species	Natural Environment and Rural Communities Act 2006	an animal or plant which— (a) is within section 14(1) or (2) (animals and plants which must not be released etc. into the wild), (b) is of a description prescribed for the purposes of this section by an order made by the Secretary of State, and (c) is a live animal or live plant.
Nationally protected species	The A63 (Castle Street Improvement, Hull) Development Consent Order 2020	“Nationally protected species” means any species protected under the Wildlife and Countryside Act 1981;
New species	Wildlife and Countryside Act 1981	any animal which— (a) is of a kind which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state; or (b) is included in Part I[F74 , IA or IB] of Schedule 9;
Non-indigenous mammalian species	Destructive Imported Animals Act 1932	“Non-indigenous mammalian species” means a mammalian species which at the date of the commencement of this Act was not established in a wild state in Great Britain, or had only become so established during the preceding fifty

		years: Provided that nothing in this section shall apply to any species which was at the said date commonly kept in Great Britain in a domesticated state.
Non-native species	Wildlife and Countryside Act 1981	A species is “non-native” if—(a) it is listed in Part 1 or 2 of Schedule 9, or (b) in the case of a species of animal, it is a species— (i) whose natural range does not include any part of Great Britain, and (ii) which has been introduced into Great Britain or is present in Great Britain because of other human activity.
	Infrastructure Act 2015	A species is “non-native” if—(a) it is listed in Part 1 or 2 of Schedule 9, or (b) in the case of a species of animal, it is a species— (i) whose natural range does not include any part of Great Britain, and (ii) which has been introduced into Great Britain or is present in Great Britain because of other human activity.
Priority species	The Countryside Stewardship (England) Regulations 2020	“Priority Species” means those living organisms identified as being of principle importance in England in accordance with section 41 of the Natural Environment and Rural Communities Act 2006;
Protected species	The Environmental Damage (Prevention and Remediation) (England) Regulations 2015	“Protected species” means a species of a kind mentioned in Article 4(2) of Council Directive 2009/147/EC (Directive 2009/147/EC of the European Parliament and of the Council) or listed in Annex I to that Directive or Annexes II and IV to Council Directive 92/43/EEC (Council Directive 92/43/EEC);

Livestock	Wildlife and Countryside Act 1981	“Livestock” includes any animal which is kept—(a) for the provision of food, wool, skins or fur; (b) for the purpose of its use in the carrying on of any agricultural activity; or (c) for the provision or improvement of shooting or fishing;
	The Conservation of Habitats and Species Regulations 2017	“Livestock” includes any animal which is kept— (a) for the provision of food, skins or fur; (b) for the purpose of its use in the carrying on of any agricultural activity; or (c) for the provision or improvement of shooting or fishing.
	Countryside and Rights of Way Act 2000	“Livestock” means cattle, sheep, goats, swine, horses or poultry.
	Animal Health Act 1981	“Livestock” means—(a) any creature, including a fish, which is kept, fattened or bred for the production of food, wool, skin or fur; (b) any creature, other than a dog, which is kept for use in the farming of land; and (c) any equine animal;
	The Health Protection (Coronavirus, Restrictions) (All Tiers) (England) Regulations 2020	“Livestock” means— (a) any animal which is kept—(i) for the provision of food, wool, skins or fur, (ii) to be used in carrying on any agricultural activity, and (b) horses.
	Agriculture Act 2020	“Livestock” includes any creature kept for the production of food, drink, oils, fibres or leathers, or for the purpose of its use in the farming of land;

	Rent (Agriculture) Act 1976	“Livestock” includes any animal which is kept for the production of food, wool, skins or fur, or for the purpose of its use in the carrying on of any agricultural activity.
	The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991	“Livestock” means—(a)any animals kept for the production of food or wool; or (b)any birds kept for the production of food;
	The Organic Farming Regulations 1999	“Livestock” means any animal or fowl kept for the production of food, wool or skins or for the breeding of any animal for any such purpose;
	Agriculture Act 1947	“Livestock” includes any animal;
Organic livestock	The Organic Farming Regulations 1999	“Organic livestock” means livestock that are identified in an approved plan as being livestock that fully conform to those UKROFS standards which apply in relation to the organic farming of livestock;
Farmed bird	The Food Hygiene (England) Regulations 2006	Farmed birds (including birds that are not considered as domestic but which are farmed as domestic animals, but not including ratites).
Other captive bird	The Avian Influenza (Preventive Measures) (No 2) Regulations 2005	“other captive bird” means any bird other than poultry kept in captivity, including any bird kept for shows, races, exhibitions and competitions (such as ornamental birds and racing pigeons);
Susceptible bird	The Avian Influenza (Preventive Measures) (No 2) Regulations 2005	“Susceptible bird” means any species of bird that is likely to be susceptible to avian influenza and which is not intended for the production of animal products;

Wild bird	Wildlife and Countryside Act 1981	<p>“Wild bird” means any bird of a [F878species] which is ordinarily resident in or is a visitor to [F879any member State or the European territory of any member State] in a wild state but does not include poultry.</p> <p>(2) A bird shall not be treated as bred in captivity for the purposes of this Part unless its parents were lawfully in captivity when the egg was laid.</p>
	Protection of Birds Act 1954	<p>“Wild bird” in sections five, ten and twelve of this Act means any wild bird, but in any other provision of this Act does not include pheasant, partridge, grouse (or moor game), black (or heath) game, or, in Scotland, ptarmigan.</p>
Game bird	Wildlife and Countryside Act 1981	<p>“Game bird” means any pheasant, partridge, grouse (or moor game), black (or heath) game or ptarmigan;</p>
Farmed game bird	The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995	<p>“Farmed game birds” means birds, including ratites, but excluding poultry, which are not generally considered domestic but which are bred, reared and slaughtered in captivity;</p>
Wild game bird	The Avian Influenza (H5N1 in Wild Birds) (England) Order 2006	<p>“Wild game bird” means a bird which lives freely in the wild and is hunted for human consumption.</p>
Game	Poaching Prevention Act 1862	<p>The word “game” in this Act shall for all the purposes of this Act be deemed to include any one or more hares, pheasants, partridges, eggs of pheasants and partridges, woodcocks, snipes,</p>

		rabbits, grouse, black or moor game, and eggs of grouse, black or moor game.
Farmed game	The Farmed Game Meat (Hygiene and Inspection) (Charges) Regulations 1993	“Farmed game” means wild land mammals which are reared and slaughtered in captivity, excluding—(a)mammals of the family Leporidae, or (b)wild land mammals living within an enclosed territory under conditions of freedom similar to those enjoyed by wild game;
	Council Directive 91/495/ EEC of 27 November 1990	“Farmed game”: land mammals, including reindeer, or birds, which are not considered as domestic and not referred to in Article 1 (1) of Directive 64/433/EEC or in Article 2 of Directive 71/118/EEC, but which are farmed as domestic animals. However, wild mammals living within an enclosed territory under conditions of freedom similar to those enjoyed by wild game shall not be deemed farmed game;
		Article 1 (1) of Directive 64/433/EEC: This Directive shall apply to intra-Community trade in fresh meat of domestic animals of the following species: bovine animals, swine, sheep and goats and solipeds.
Wild game	The Welfare of Animals (Slaughter or Killing) Regulations 1995	“Wild game” means wild land mammals which are hunted (including wild mammals living within an enclosed area under conditions of freedom similar to those enjoyed by wild game) and wild birds.
	The Wild Game Meat (Hygiene and Inspection) Regulations 1995	“Wild game” means— (a)wildland mammals which are hunted (including wild mammals living within an enclosed area under conditions

		<p>of freedom similar to those enjoyed by wild game); and (b) wild birds;</p> <p>“large wild game” means wild ungulates;</p> <p>“small wild game” means wild mammals of the Leporidae family and wild birds intended for human consumption;</p>
	The Fresh Meat (Hygiene and Inspection) Regulations 1995	<p>“Wild game meat” means all parts of wild game which are suitable for human consumption and which have not undergone any preserving process other than chilling, freezing, vacuum wrapping or wrapping in a controlled atmosphere;</p>
	COUNCIL DIRECTIVE 92/45/EEC	<p>“Wild game”: wild land mammals which are hunted (including wild mammals living within an enclosed area under conditions of freedom similar to those enjoyed by wild game) and wild birds which are not covered by Article 2 of Council Directive 91/495/ EEC of 27 November 1990, concerning public health and animal health problems affecting the production and placing on the market of rabbit meat and farmed game meat (1); ‘large wild game’: wild ungulates;</p> <p>‘Small wild game’: wild mammals of the Leporidae family and wild game birds intended for human consumption;</p>
Meat	The Food Information Regulation 2014	<p>“Meat” means the skeletal muscles of mammalian and bird species recognised as fit for human consumption with naturally included or adherent tissue but does not include mechanically separated meat;</p>

	The Requirements for School Food Regulations 2014	“Meat” means the skeletal muscles of mammalian and bird species recognised as fit for human consumption with naturally included or adherent tissue but does not include mechanically separated meat (which has the meaning given in point 1.14 of Annex I to Regulation (EC) No 853/2004 of the European Parliament and of the Council laying down specific hygiene rules for food of animal origin) (3);
	The Farmed Game Meat (Hygiene and Inspection) (Charges) Regulations 1993	“Meat” means all parts of farmed game meat which are suitable for human consumption;
	The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995	“Meat” means all parts of a bird or rabbit which are fit for human consumption;
Meat product	The Requirements for School Food Regulations 2014	“Meat product” has the same meaning as in the Meat Products Regulations;
	The Meat Products (Hygiene) regulations 1994	“Meat products” means products for human consumption prepared from or with meat which has undergone treatment such that the cut surface shows that the product no longer has the characteristics of fresh meat, but not—(a) meat which has undergone only cold treatment; (b) minced meat; (c) mechanically recovered meat; (d) meat preparations;

	The Foot-and-Mouth Disease (England) Order 2006	“Meat product” means a processed product resulting from the processing of meat or from the further processing of such processed products, so that the cut surface shows that the product no longer has the characteristics of fresh meat;
Fresh meat	The Foot-and-Mouth Disease (England) Order 2006	“Fresh meat” means meat (including offal) that has not undergone any preserving process other than chilling, freezing or quick-freezing, including meat that is vacuum wrapped or wrapped in a controlled atmosphere;
	The Import and Export Restrictions (Foot- And- Mouth Disease) (No. 13) Regulations 2001	Fresh meat obtained from wild game of species susceptible to foot-and-mouth disease and conforming to the following conditions— (i) the meat must be obtained from wild game killed within the areas specified for the respective category of meat in the appropriate column in Schedule 2; (ii) there has been no outbreak of foot-and-mouth disease in the administrative area from which the animal was sourced during the 90 days prior to dispatch; (iii) the meat originates from animals killed at least 20 kilometres from areas not included in Schedule 2; (iv) after the animals were killed, the carcasses were handled in accordance with the provisions of Annex I, Chapter III of Council Directive 92/45/EC and transported to an establishment which is either a wild game collection centre or an approved processing hose, for chilling;

		<p>(v) the wild game collection centre or the approved processing house must be in an area in Schedule 2;</p> <p>(vi) during post-mortem inspection by the official veterinary surgeon the carcasses were found free of lesions of foot-and-mouth disease;</p> <p>(vii) the meat derived from the animals remained in the establishment for at least 24 hours after the post-mortem inspection;</p> <p>(viii) at all stages of production the meat must have been handled in accordance with the requirements of Council Directive 92/45/EEC;</p> <p>(ix) the meat must bear the health mark in accordance with Chapter VII of Annex I to Council Directive 92/45/EEC;</p> <p>(x) the establishment must be operated under strict veterinary control;</p> <p>(xi) in the case where foot-and-mouth disease has been diagnosed in the establishment, any further preparation of meat for dispatch shall only be authorized after the slaughter of all animals present, removal of disinfection of the establishment under the control of a veterinary inspector;</p> <p>(xii) the fresh meat must be clearly identified, and transported and stored separately from meat which is not eligible for dispatch;</p>
Meat preparation	The Foot-and-Mouth Disease (England) Order 2006	“Meat preparation” means fresh meat, including meat that has been reduced to fragments, which has had foodstuffs, seasonings or additives added to it or which has undergone processes insufficient to modify the internal muscle fibre

		structure of the meat and thus to eliminate the characteristics of fresh meat;
Mechanically separated meat	The Foot-and-Mouth Disease (England) Order 2006	“Mechanically separated meat” means the product obtained by removing meat from flesh-bearing bones after boning, using mechanical means resulting in the loss or modification of the muscle fibre structure;
	The Food Information Regulation 2014	“Mechanically separated meat” has the meaning given in point 1.14 of Annex I to Regulation (EC) No 853/2004 of the European Parliament and of the Council laying down specific hygiene rules for food of animal origin F1.
Minced meat	The Foot-and-Mouth Disease (England) Order 2006	“Minced meat” means boned meat that has been minced into fragments and contains less than 1% salt;
Flesh	Food Act 1984	“Flesh” includes any part of any such animal.
Specimen	Wildlife and Countryside Act 1981	“Specimen” means— (a) any bird, other animal or plant, or (b) any part of, or anything derived from, a bird, other animal or plant.
		“Specimen” means a live specimen and includes any part, gamete, seed, egg or propagule of a species, as well as any hybrids, varieties or breeds that might grow, hatch or reproduce, as the case may be.
	The Invasive Alien Species (Enforcement and Permitting) Order 2019	“Specimen” means a specimen of any live invasive alien species, and includes any part, gamete, seed, egg, or propagule of such a species that might grow, hatch or reproduce, as the case may be;

	The Conservation of Habitats and Species Regulations 2017	“Specimen”— (a) for the purposes of Part 7 (enforcement), means any animal or plant, or any part of, or anything derived from, an animal or plant; and (b) for all other purposes has the meaning given by Article 1(m) of the Habitats Directive;
	Natural Environment and Rural Communities Act 2006	“Specimen” means—(a) any bird, other animal or plant, or (b) any part of, or anything derived from, a bird, other animal or plant.
Restricted herd	The Tuberculosis (England) Order 2014	“Restricted herd” means a herd that is under a movement restriction imposed under this Order;
Wild mammal	Wild Mammals (Protection) Act 1996	“Wild mammal” means any mammal which is not a “protected animal” within the meaning of the Animal Welfare Act 2006.
	Wild Animals in Circuses Act 2019	“Wild mammal” means any mammal which is not a protected animal within the meaning of section 17 of the Animal Health and Welfare (Scotland) Act 2006 (asp 11).
Carcase	Animal Health and Welfare Act 1984	“Animal” includes anything that may, by virtue of an order under section 87 (1981 c. 22.) below, be included for any of the purposes of this Act in the definition of animals or of poultry contained in that section, and “carcasses” is to be construed accordingly.” ----“carcase” means the carcase of an animal and includes part of a carcase, and the meat, bones, hide, skin, hooves, offal or other part of an animal, separately or otherwise, or any portion thereof;
	Animal Health Act 1981	“Carcase” means the carcase of an animal and includes part of a carcase, and the meat, bones,

		hide, skin, hooves, offal or other part of an animal, separately or otherwise, or any portion thereof;
	The Non-Commercial Movement of Pet Animals Order 2011	“Carcass” means the carcass of an animal and includes part of a carcass or any portion thereof.”
	The African Swine Fever (England) Order 2003	“Carcass” means a pig carcass and includes part of a carcass;
	The Tuberculosis (England) Order 2014	“Carcass” means the carcass of any bovine animal or other farmed or pet mammal;
	Animal Health Act 1981	“Carcass” means the carcass of an animal and includes part of a carcass, and the meat, bones, hide, skin, hooves, offal or other part of an animal, separately or otherwise, or any portion thereof;
	The Avian Influenza and Influenza of Avian Origin in Mammals (England) (No.2) Order 2006	“Carcass” means any bird carcass or mammal carcass;
	The Diseases of Poultry Order 1994	“Carcass” means the carcass of poultry and includes part of a carcass;
	The Zoonoses Order 1989	“Carcass” means the carcass of an animal or of any poultry and includes part of a carcass or any portion thereof;
	The Farmed Game Meat (Hygiene and Inspection) (Charges) Regulations 1993	“Carcass” means the whole body of a slaughtered farmed game animal after bleeding and dressing;

	The Wild Game Meat (Hygiene and Inspection) Regulations 1995	“Carcase” means the eviscerated, and in the case of birds plucked, body of any wild game, with or without the head and lower legs;
	The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995	“Carcase” means— (a) in relation to birds, the whole body of a bird after bleeding, plucking and evisceration, whether or not the heart, liver, lungs, gizzard, crop, kidneys, legs at the tarsus, head, oesophagus or trachea have been removed; and (b) in relation to rabbits, the whole body of a rabbit after bleeding, skinning and evisceration, whether or not the limbs at the carpus and tarsus, head or tail have been removed;
	Diseases of Poultry (England) Order 2003	“Carcase” means the carcass of poultry or of any bird other than poultry, as the context requires, and includes part of a carcass;
Pet	The Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018	“Pet” means an animal mainly or permanently, or intended to be mainly or permanently, kept by a person for— (a) personal interest, (b) companionship, (c) ornamental purposes, or (d) any combination of (a) to (c).
Pet animal	The Official Controls (Animals, Feed and Food, Plant Health Fees etc.) Regulations 2019	“Pet animal” has the same meaning as in Article 4(11) of Regulation (EU) 2016/429 on transmissible animal diseases.
	Regulation (EU) 2016/429 of the European Parliament and of the Council	“Pet animal” means a kept animal of the species listed in Annex I which is kept for private non-commercial purposes;

		<p>ANNEX I</p> <p>SPECIES OF PET ANIMALS</p> <p>PART A</p> <p>Dogs (<i>Canis lupus familiaris</i>)</p> <p>Cats (<i>Felis silvestris catus</i>)</p> <p>Ferrets (<i>Mustela putorius furo</i>)</p> <p>PART B</p> <p>Invertebrates (except bees, molluscs belonging to the phylum Mollusca and crustaceans belonging to the subphylum Crustacea)</p> <p>Ornamental aquatic animals</p> <p>Amphibians</p> <p>Reptiles</p> <p>Birds: specimens of avian species other than fowl, turkeys, guinea fowl, ducks, geese, quails, pigeons, pheasants, partridges and ratites (Ratitae).</p> <p>Mammals: rodents and rabbits other than those intended for food production.</p>
Poultry	Wildlife and Countryside Act 1981	“Poultry” means domestic fowls, geese, ducks, guinea-fowls, pigeons and quails, and turkeys;
	Protection of Birds Act 1954	“Poultry” means domestic fowls, ducks, geese, guinea-fowls, pigeons and turkeys;
	Countryside and Rights of Way Act 2000	“Poultry” means domestic fowls, turkeys, geese or ducks;
	The Animals and Animal Products (Import and Export) Regulations 1995	“Poultry” means domestic fowls, turkeys, geese and ducks;
	The Poultry Breeding Flocks and Hatcheries (England) Order 2007	

	The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995	“Poultry” means domestic fowls, turkeys, guinea fowls, ducks and geese;
	Animal Health Act 1981	“Poultry” means birds of the following species—(a) domestic fowls, turkeys, geese, ducks, guinea-fowls and pigeons, and b) pheasants and partridges;
	Animal Health and Welfare Act 1984	
	The Welfare of Animals (Transport) Order 1997	“Poultry and domestic birds” mean—(a) domestic fowl; (b) domestic breeds of turkeys, guinea-fowl, ducks, geese and quails; and (c) pheasants and partridges;
	The Welfare of Animals (Transport) (England) Order 2006	the definitions of animals and poultry in section 87 of the Act are extended to cover all vertebrate animals and cold-blooded invertebrate animals.
	Diseases of Poultry (England) Order 2003	“Poultry” means domestic fowls, turkeys, geese, ducks, guinea fowls, quails, pigeons, ratites and pheasants and partridges reared or kept in captivity for breeding, the production of meat or eggs for consumption or for restocking supplies of game;
	The Avian Influenza (Preventive Measures) (No 2) Regulations 2005	“Poultry” means all birds that are reared or kept in captivity for the production of meat or eggs for consumption, the production of other commercial products, for restocking supplies of game or for the purposes of any breeding programme for the production of these categories of birds;

	The Avian Influenza and Influenza of Avian Origin in Mammals (England) (No.2) Order 2006	“Poultry” means a bird reared or kept in captivity for the production of meat or eggs for consumption, or of other products, for restocking supplies of game or for the purposes of any breeding programme for the production of such categories of birds;
		the definition of “poultry” in section 87(4) of the Act is extended to include all birds;
	The Veterinary Surgery (Exemptions) Order 1973	“Poultry” means live birds of the following species, that is to say, all species of fowls, turkeys, geese, ducks, guinea fowls, pigeons, pheasants, partridges and quails;
	The Importation of Animals Order 1977	“Poultry” means birds of any species which are, to the satisfaction of a veterinary inspector, capable of transmitting disease to an animal.
	The Zoonoses Order 1989	“Poultry” means birds of any species;
	The Animal By-Products Regulations 2003	“Poultry” includes birds of all species including wild birds.
	The Specified Animal Pathogens Order 2008	“Poultry” is extended so as to comprise any species of bird;
	The Foot-and-Mouth Disease (England) Order 2006	“Poultry” in section 87(4) of the Act is extended to comprise all birds.
Venison	Deer Act 1991	“Venison” includes imported venison and means—(a) any carcase of a deer, or (b) any edible part of the carcase of a deer, which has not been cooked or canned.

Zoo	Zoo Licensing Act 1981	<p>“Zoo” means an establishment where wild animals (as defined by section 21) are kept for exhibition to the public otherwise than for purposes of a circus F1 (as so defined) and otherwise than in a pet shop (as so defined).</p>
		<p>a section of a zoo means—(i) a particular part of the zoo premises; (ii) animals of a particular description in the zoo; or (iii) animals of a particular description which are kept in a particular part of the zoo premises;</p>
Plant	Wildlife and Countryside Act 1981	<p>“Plant” includes fungi and any reference to a plant includes a reference to— (a) bulbs, corms and rhizomes of the plant; and (b) notwithstanding section 27(3ZA), seeds and spores of the plant.</p>
		<p>for the avoidance of doubt it is hereby declared that Act “plants” include fungi and algae.</p>
	Natural Environment and Rural Communities Act 2006	<p>“(2) For the avoidance of doubt it is hereby declared that in this Act “plants” include fungi and algae.”</p>
	The Plant Health (England) Order 2005	<p>“Plant” means a living plant (including a fungus or shrub), or a living part of a plant (including a living part of a fungus or shrub), at any stage of growth but excluding forest trees or forest shrubs; and living parts of a plant shall include—</p> <ul style="list-style-type: none"> (a) fruit or seed, (b) vegetables, other than those preserved by deep freezing, (c) tubers, corms, bulbs or rhizomes,

		<p>(d)cut flowers,</p> <p>(e)branches with or without foliage,</p> <p>(f)a plant or shrub that has been cut and which retains any foliage,</p> <p>(g)leaves or foliage,</p> <p>(h)a plant or shrub in tissue culture,</p> <p>(i)live pollen, and</p> <p>(j)bud wood, cuttings or scions;</p>
	Agriculture Act 2020	“Plants” includes fungi;
	Theft Act 1968	“Plant” includes any shrub or tree.
	Regulation (EU) 2016/2031 of the European Parliament of the Council	<p>‘Plants’ means living plants and the following living parts of plants:</p> <p>(a)seeds, in the botanical sense, other than those not intended for planting;</p> <p>(b)fruits, in the botanical sense;</p> <p>(c)vegetables;</p> <p>(d)tubers, corms, bulbs, rhizomes, roots, rootstocks, stolons;</p> <p>(e)shoots, stems, runners;</p> <p>(f)cut flowers;</p> <p>(g)branches with or without foliage;</p> <p>(h)cut trees retaining foliage;</p> <p>(i)leaves, foliage;</p> <p>(j)plant tissue cultures, including cell cultures, germplasm, meristems, chimaeric clones, micro-propagated material;</p> <p>(k)live pollen and spores;</p> <p>(l)buds, budwood, cuttings, scions, grafts;</p>
Basic mother plant	The Marketing of Fruit Plant and Propagating	“Basic mother plant” means a mother plant intended for the production of basic material;

	Material (England) Regulations 2017	
Certified mother plant	The Marketing of Fruit Plant and Propagating Material (England) Regulations 2017	“Certified mother plant” means a mother plant intended for the production of certified material;
Certified plant material	The Marketing of Fruit Plant and Propagating Material (England) Regulations 2017	“Certified plant material” means plant material that is certified (as the case may be) as pre-basic material, basic material or certified material;
Plant for planting	Regulation (EU) 2016/2031 of the European Parliament of the Council	“Plants for planting” means plants intended to remain planted, to be planted or to be replanted.
Plant pest	The Plant Health (England) Order 2005	“Plant pest” means any living organism, other than a vertebrate animal, in any stage of its existence, which is injurious or likely to be injurious to any plant or plant product;
Plant products	The Plant Health (England) Order 2005	“Plant product” has the same meaning as in Article 2(1)(b) of Directive 2000/29/EC;
	Council Directive 2000/29/EC —repealed by Regulation (EU) 2016/2031 of the European Parliament of the Council	“Plant products” means unmanufactured material of plant origin and those manufactured products that, by their nature or that of their processing, may create a risk of the spread of quarantine pests. Except where otherwise provided in the implementing acts adopted pursuant to Articles 28, 30 and 41, wood shall only be considered as a plant product if it fulfils one or more of the following criteria:

		<p>(a) it retains all or part of its natural round surface, with or without bark;</p> <p>(b) it has not retained its natural round surface due to sawing, cutting or cleaving;</p> <p>(c) it is in the form of chips, particles, sawdust, wood waste, shavings or scrap, and has not undergone processing involving the use of glue, heat or pressure or a combination thereof to produce pellet, briquettes, plywood or particle board;</p> <p>(d) it is, or is intended to be, used as packaging material, whether or not it is actually in use for transport of goods;</p>
Plant trader	The Plant Health (England) Order 2005	<p>“Plant trader” means—</p> <p>(a) an importer of relevant material,</p> <p>(b) a producer of relevant material,</p> <p>(c) a person in charge of premises used for the storage, aggregation or dispatch of consignments of relevant material, or</p> <p>(d) a person who in the course of a trade or business divides up or combines consignments of relevant material;</p>
Fruit plant	The Marketing of Fruit Plant and Propagating Material (England) Regulations 2017	<p>“Fruit plant” means a plant intended to be planted or replanted, after marketing;</p>
Mother plant	The Marketing of Fruit Plant and Propagating Material (England) Regulations 2017	<p>“Mother plant” means an identified plant intended for propagation;</p>

Pre-basic mother plant	The Marketing of Fruit Plant and Propagating Material (England) Regulations 2017	“Pre-basic mother plant” means a mother plant intended for the production of pre-basic material;
Wild plant	Wildlife and Countryside Act 1981	“Wild plant” means any plant which is or (before it was picked, uprooted or destroyed) was growing wild and is of a kind which ordinarily grows in Great Britain in a wild state.

Appendix B: Supplementary materials for Chapter 4

Appendix 1: Glossary for collected Chinese legislation

Terms	Definitions
Primary legislation	Primary legislation in China is formulated by the National People's Congress of the People's Republic of China (NPC) and its Standing Committee, which hold the supreme powers of law-making. Thus, the primary legislation enjoys the highest status of all legislative products. This category includes the constitution, the fundamental laws, the laws, and certain decisions made by the NPC or its Standing Committee.
Secondary legislation	Secondary legislation is the legislative product of the primary legislation. The secondary legislation of the State Council must be 'in accordance with' primary legislation. Moreover, the secondary legislation of local people's congresses should 'not contravene' primary legislation. Due to the local-level legislation not within the scope of this research, this paper only covers the Administrative documents and Normative documents promulgated by the State Council as the secondary legislation.
Tertiary legislation	The primary and secondary legislation together constitute the backbone of the Chinese legislative system. Then, the flesh covering the backbone consists of many lower regulations, the so-called tertiary legislation. The central part includes the Departmental normative documents, Departmental rules, Departmental working documents, while the regional and local part includes rules by the regional and local People's Governments. Again, the local-level parts are out of this paper's consideration.
NPC	The National People's Congress of the People's Republic of China, normally referred to as the National People's Congress (usually abbreviated NPC), is the highest organ of state power and the national legislature of the People's Republic of China

The Standing Committee of the NPC	The Standing Committee of the NPC: The majority of the power of the NPC is exercised by the Standing Committee of the National People's Congress (NPCSC), which consists of about 170 legislators and meets in continuous session, when the full session of the NPC is not held
The Constitution of the People's Republic of China	The Constitution of the People's Republic of China is nominally the supreme law of the People's Republic of China.
The State Council of the People's Republic of China	The State Council is elected by the NPC and is head of the nation's executive. It is empowered under Article 89 of the Constitution to "adopt administrative measures, enact administrative regulations and issue decisions and orders in accordance with the Constitution and statutes
Law	Law is a system of rules created and enforced through social or governmental institutions to regulate behaviours, with its precise definition a matter of longstanding debate
Administrative regulation	Administrative regulation means each statement of general applicability promulgated by an administrative body that implements, interprets, or prescribes law or policy, or describes the organization, procedure, or practice requirements of any administrative body.
Normative documents	Normative documents generally refer to the sum of legislative documents belonging to the legal category and other binding non-legislative documents formulated by state agencies and other groups and organizations.
Departmental rules	Departmental rules fill in the more generally worded legislation of the NPC, its Standing Committee and the State Council. Departmental rules are promulgated by: The ministries and commissions under the State Council; The People's Bank of China; Other departments with administrative responsibilities directly under the State Council.

Judicial interpretation	Judicial interpretation is the official interpretation made by the SPC and the SPP on the application of certain laws, and, therefore, has legal binding force.
Party regulations	Party regulations are not only the important basis of regulating and governing the party by CPC, but also a powerful guarantee for building a socialist law state. The party regulates its own organisation and governing behaviour in accordance with party regulations.

Appendix 2: The list of collected legislation (in chronological order)

Code	Effective date	Hierarchy / Type	Title (English+Chinese)
Phase 1: The foundation of the New China (1949) – The introduction of Ecological Civilisation (2007)			
L1	1950 (Expired)	Secondary legislation (Administration regulation)	The measure on Protecting Rare Organisms 关于稀有生物保护办法
L2	1959-02 (Expired)	Secondary legislation (Normative documents)	Instructions on Actively Carrying out Hunting Activities 积极开展狩猎活动的指示
L3	1962-09-14	Secondary legislation (Normative documents)	Instructions and Guidelines on Active Protection and Utilisation of Wildlife 国务院关于积极保护和合理利用野生动物资源的指示
L4	1971-11-29	Secondary legislation (Normative documents)	Notice of the State Council on Approving the Reports of the Ministry of Commerce, the Ministry of Foreign Trade, and the Ministry of Agriculture and Forestry on the Development of Hunting Production 国务院批转商业部、外贸部、农林部关于发展狩猎生产的报告的通知
L5	1979-09-13 (Expired in 1989)	Primary legislation (Law)	Environmental Protection Law of the People's Republic of China (for trial implementation) 中华人民共和国环境保护法(试行)
L6	1982-06-04 (Expired in 1992)	Secondary legislation (Administration regulation)	Import and Export Animal and Plant Quarantine Regulations of the People's

			Republic of China 中华人民共和国进出口动植物检疫条例
L7	1982-12-04 (Amended in 1988, 1993, 1999, 2004, 2018*)	Primary legislation (Constitution)	Constitution of the People's Republic of China 中华人民共和国宪法
L8	1983-04-13	Secondary legislation (Normative documents)	State Council's Decree on Strict Protection of Rare and Precious Wild Animals 国务院关于严格保护珍贵稀有野生动物的通令
L9	1983-10-15	Tertiary legislation (Departmental Rules)	Detailed Rules for the Implementation of the Import and Export Animal and Plant Quarantine Regulations of the People's Republic of China 中华人民共和国进出口动植物检疫条例实施细则
L10	1985-01-01 (Enacted in 1984; Amended in 1998, 2009*; Revised in 2019*)	Primary legislation (Law)	Forestry Law of the People's Republic of China 中华人民共和国森林法
L11	1985-07-01 (Expired in 1997)	Secondary legislation (Administration regulation)	Livestock and Poultry Epidemic Prevention Regulations 家畜家禽防疫条例
L12	1985-07-06	Secondary legislation (Administration regulation)	Measures for the Administration of Forest and Wildlife Nature Reserves 森林和野生动物类型自然保护区管理办法

L13	1986-03-17	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Commerce on Prohibiting the Purchase and Operation of Rare and Precious Wild Animals and Their Products 商业部关于严禁收购、经营珍贵稀有野生动物及其产品的通知
L14	1987-08-15	Secondary legislation (Normative documents)	Urgent Notice of the State Council on Resolutely Stopping Indiscriminate Hunting, Resale, and Smuggling of Rare Wild Animals 国务院关于坚决制止乱捕乱猎和倒卖、走私珍稀野生动物的紧急通知
L15	1987-10-28	Tertiary legislation (Departmental normative document)	Regulations on the management of Traditional Chinese medicine for health care 中药保健药品的管理规定
L16	1987-10-30	Tertiary legislation (Departmental normative document)	List of National Key Protected Wild Medicinal Species 国家重点保护野生药材物种名录
L17	1987-12-01	Secondary legislation (Administration regulation)	Regulation on Protection of Wild Medicinal Resources 野生药材资源保护管理条例
L18	1988-11-08 (Expired in 1997)	Primary legislation (Law)	Supplementary Provisions of the SCNPC Concerning the Punishment of Crimes of Catching or Killing Precious and Endangered Species of Wildlife under Special State Protection 全国人民代表大会常务委员会关于惩治捕杀国家重点保护的珍贵、濒危野生动物犯罪的补充规定

L19	1988-11-14 (Revised in 2011, 2013, 2017)	Secondary legislation (Administration regulation)	Regulation on the Administration of Laboratory Animals 实验动物管理条例
L20	1989-01-14 (Adjusted in 2003, Revised in 2021)	Secondary legislation (Administration regulation)	Lists of Wildlife under Special State Protection 国家重点保护野生动物名录
L21	1989-02-21 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Circular of the Ministry of Forestry on Issues Concerning the Implementation of the “Specialized Hunting License” 林业部 关于实行“特许猎捕证”有关问题的通 知
L22	1989-03-01 (Enacted in 1988; Amended in 2004, 2009, 2018; Revised in 2016, 2022)	Primary legislation (Law)	Wildlife Protection Law of the People’s Republic of China 中华人民共和国野生 动物保护法
L23	1989-09-01 (Revised in 2004*, 2013)	Primary legislation (Law)	Law of the People’s Republic of China on Prevention and Treatment of Infectious Diseases 中华人民共和国传染病防治法
L24	1989-09-06	Tertiary legislation (Departmental normative document)	Letter from the Office of Import and Export Administration of Endangered Species regarding assistance in managing the export of wild animals and plants for economic and medicinal purposes and their products 濒危物种进出口管理办公 室关于请协助做好经济、药用野生动 植物及其产品出口管理工作的函

L25	1989-12-26 (Revised in 2014)	Primary legislation (Law)	Environmental Protection Law of the People's Republic of China 中华人民共和国环境保护法
L26	1990-05-12	Secondary legislation (Normative documents)	Circular of the General Office of the State Council on the Current Illegal Hunting, Killing, Acquisition, and Reselling of Rare Wild Animals 国务院办公厅关于当前非法捕杀、收购、倒卖珍稀野生动物情况的通报
L27	1990-06-15	Tertiary legislation (Departmental normative document)	Letter from the Ministry of Forestry regarding the request for assistance in the management of the export of Chinese patent medicines containing wild medicinal ingredients 林业部关于请求协助做好含野生动物药材成分中成药出口管理工作的函
L28	1990-12-15	Tertiary legislation (Departmental normative document)	Notice of the Supreme People's Court, the Supreme People's Procuratorate, and the Ministry of Forestry on Severely Cracking Down on Illegal Hunting, Acquisition, Reselling, and Smuggling of Wild Animals 最高人民法院、最高人民检察院、林业部等关于严厉打击非法捕杀、收购、倒卖、走私野生动物活动的通知
L29	1991-01-08	Secondary legislation (Normative documents)	Urgent Notice of the State Council on Strengthening the Protection of Wild Animals and Severely Cracking down on Illegal and Criminal Activities 国务院关

			于加强野生动物保护严厉打击违法犯罪活动的紧急通知
L30	1991-02-01 (2012 expired)	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Forestry and the Ministry of Agriculture on Strengthening the Export Management of Rare Wild Birds, Game and Ornamental Wild Animals 林业部、农业部等关于加强珍稀野禽、野味和观赏野生动物出口管理工作的通知
L31	1991-04-01 (Revised in 2011 , 2015)	Tertiary legislation (Departmental Rules)	Measures for the Administration of Domestication and Breeding Licenses for Wildlife under special State Protection 国家重点保护野生动物驯养繁殖许可证管理办法
L32	1991-05-07 (Expired in 2009)	Tertiary legislation (Departmental normative document)	Notice of the State Administration for Industry and Commerce on Further Strengthening the Management of the Trading Activities of Wild Animals and Their Products 国家工商行政管理局关于进一步加强对野生动物及其产品买卖活动管理的通知
L33	1991-08-29 (Expired in 2002)	Tertiary legislation (Departmental working documents)	Notice of the Ministry of Forestry, the Ministry of Agriculture, and the Ministry of Justice on Studying and Publicizing the Wildlife Protection Law 林业部、农业部、司法部关于学习宣传野生动物保护法的通知

L34	1992-03-01 (Revised in 2011,2016)	Secondary legislation (Administration regulation)	Implementing Regulations of the People's Republic of China on Terrestrial Wildlife Protection 中华人民共和国陆生野生动物保护实施条例
L35	1992-04-01 (Enacted in1991 ; Amended in 2009)	Primary legislation (Law)	Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants 中华人民共和国进出境动植物检疫法
L36	1992-09-09 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Forestry on Properly Handling Terrestrial Wild Animals and Their Products from Abnormal Sources 林业部关于妥善处理非正常来源陆生野生动物及其产品的通知
L37	1993-01-01 (Enacted in 1992)	Tertiary legislation (Departmental Rules)	Notice of the Ministry of Forestry, the Ministry of Finance, and the State Price Bureau on Issuing the "Measures for Charging Terrestrial Wildlife Resources Protection and Management Fees" 林业部、财政部、国家物价局关于发布《陆生野生动物资源保护管理费收费办法》的通知
L38	1993-01-11	Party regulation	Notice of the Propaganda Department of the Central Committee of the Communist Party of China, the Ministry of Forestry, and the State Administration for Industry and Commerce on Vigorously Strengthening the Protection of Wild Animals and Legally Prohibiting Trade

			Promotion of Endangered Species and Their Products 中共中央宣传部、林业部、国家工商行政管理局关于大力加强野生动物保护和依法禁止濒危物种及其产品贸易宣传的通知
L39	1993-04-14	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Forestry on Approving Some Endangered Wild Animals as National Key Protected Wild Animals 林业部关于核准部分濒危野生动物为国家重点保护野生动物的通知
L40	1993-05-29 (Expired in 2018)	Secondary legislation (Normative documents)	Circular of the State Council on Banning the trade of Rhino Horns and Tiger Bones 国务院关于禁止犀牛角和虎骨贸易的通知
L41	1993-08-13	Tertiary legislation (Departmental normative document)	Circular of the State Administration for Industry and Commerce on Strengthening Law Enforcement of Environment and Resource Protection 国家工商行政管理局关于加强环境、资源保护执法工作的通知
L42	1993-12-11 (Expired in 2016)	Tertiary legislation (Departmental normative document)	Circular of the Ministry of Forestry, the State Planning Commission, and the Ministry of Finance on Issues Concerning the Implementation of the “Measures for Charging Terrestrial Wildlife Resources Protection and Management Fees” 林业部、国家计委、财政部关于执行《陆生野生动物资源保护管理费收费办法》有关问题的通知

L43	1994-03-01 (Enacted in 1993; Expired in 1996)	Secondary legislation (Administration regulation)	Measures of the People's Republic of China for the Control of Hunting Rifles and Ammunition Expired 中华人民共和国猎枪弹具管理办法
L44	1994-05-25 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Provisions of the Ministry of Forestry and the Ministry of Public Security on the Jurisdiction of Criminal Cases of Land Wild Transportation and the Standards for Case Filing 林业部、公安部关于陆生野 生运输刑事案件的管辖及其立案标准 的规定
L45	1994-09-01 (Amended in 2001, 2004, 2011)	Tertiary legislation (Departmental Rules)	City Zoo Management Regulations 城市 动物园管理规定
L46	1994-09-12 (Expired in 2013)	Primary legislation (Judicial interpretation)	Notice of the Supreme People's Court on Strictly Cracking down on Illegal and Criminal Activities Destroying Forest Resources 最高人民法院关于严厉打击 破坏森林资源违法犯罪活动的通知
L47	1996-01-15 (Expired in 2001)	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Forestry on how to determine the value standards of national key protected wild animals and their products in wildlife cases 林业部关 于在野生动物案件中如何确定国家重 点保护野生动物及其产品价值标准的 通知
L48	1996-02-28	Tertiary legislation (Departmental normative document)	Notice of the Office of Import and Export of Endangered Species of the People's Republic of China on Strengthening the

			Administration of the Import and Export of Live Wild Animals and Plants 中华人民共和国濒危物种进出口办公室关于加强活体野生动植物进出口管理的通知
L49	1996-05-07 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Notice on Strengthening the Construction and Management of Wildlife Parks 关于加强野生动物园建设管理的通知
L50	1996-07-05 (Amended in 2009, 2015)	Primary legislation (Law)	Gun Control Law of the People's Republic of China 中华人民共和国枪支管理法
L51	1997-01-01 (Enacted in 1996)	Secondary legislation (Administration regulation)	Implementing Regulations of the Law of the People's Republic of China on the Quarantine of Importing and Exporting Animals and Plants 中华人民共和国进出境动植物检疫法实施条例
L52	1997-03-14 (Amended in 1999, Aug 2001, Dec 2001, 2002, 2005, 2006, 2009, 2011*, 2015, 2017, 2020*)	Primary legislation (Law)	Criminal Law of the People's Republic of China 中华人民共和国刑法
L53	1997-07-03 (Revised in 2007, 2021*; Amended in 2013, 2015)	Primary legislation (Law)	Law of the People's Republic of China on Animal Epidemic Prevention Law 中华人民共和国动物防疫法

L54	2000-08-01 (Revised in 2023)	Tertiary legislation (Departmental Rules)	Lists of Terrestrial Wildlife which are Beneficial or of Important Economic or Scientific Value 国家保护的有益的或者有重要经济、科学研究价值的陆生野生动物名录
L55	2000-12-11 (Expired in 2022)	Primary legislation (Judicial interpretation)	Interpretation of the Supreme People's Court on Several Issues Concerning the Specific Application of Law in the Trial of Criminal Cases of Destroying Wild Animal Resources 最高人民法院关于审理破坏野生动物资源刑事案件具体应用法律若干问题的解释
L56	2001-05-09	Tertiary legislation (Departmental normative document)	Standards for criminal registration of the illegal capture and killing of rare and endangered terrestrial wildlife under national key protection 非法捕杀国家重点保护珍贵、濒危陆生野生动物案立案标准
L57	2001-05-09	Tertiary legislation (Departmental normative document)	State Forestry Administration and Ministry of Public Security on Jurisdiction and Case Filing Standards for Forest and Terrestrial Wildlife Criminal Cases 国家林业局、公安部关于森林和陆生野生动物刑事案件管辖及立案标准
L58	2001-06-07	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Health on Restricting the Production of Health Foods Using Wild Animals and Plants and Their Products as Raw Materials 卫生部关于限

			制以野生动植物及其产品为原料生产保健食品的通知
L59	2001-08-20 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Strengthening the Management of Alien Species of Wild Animals 国家林业局关于加强野生动物外来物种管理的通知
L60	2002-04-09	Tertiary legislation (Departmental normative document)	Notice of the State Planning Commission and the Ministry of Finance on issues related to the collection scope of terrestrial wildlife resource protection and management fees 国家计委、财政部关于陆生野生动物资源保护管理费收取范围有关问题的通知
L61	2002-07-08	Primary legislation (Documents of a Judicial Interpretation Nature)	Circular of the Supreme People's Court, the Supreme People's Procuratorate and the General Administration of Customs on Printing and Distributing the Opinions on Some Issues Concerning the Application of Law for Handling Cases of the Crime of Smuggling 最高人民法院、最高人民检察院、海关总署关于印发《办理走私刑事案件适用法律若干问题的意见》的通知
L62	2003-01-02	Tertiary legislation (Departmental working documents)	Notice of the State Forestry Administration and the State Administration for Industry and Commerce on the Clean-up and Rectification of Production Enterprises

			Using Wild Animals and Their Products and Carrying Out the Pilot Work of Labelling 国家林业局、国家工商总局关于对利用野生动物及其产品的生产企业进行清理整顿和开展标记试点工作的通知
L63	2003-04-29 (Expired in 2012)	Tertiary legislation (Departmental working documents)	Urgent Notice of the State Forestry Administration and the State Administration for Industry and Commerce on Strictly Controlling the Operation, Utilisation, Domestication and Breeding of Wild Animals 国家林业局、国家工商行政管理总局关于严格控制野生动物经营利用和驯养繁殖活动的紧急通知
L64	2003-06-10 (Expired in 2012)	Tertiary legislation (Departmental working documents)	The notice on the prohibition of illegal hunting and management of terrestrial wild animals in adapting to the needs of the situation of: State Forestry Administration, the Supreme People's Procuratorate, the Ministry of Public Security, the Ministry of Railways, the Ministry of Transport, the Ministry of Information Industry, the Ministry of Commerce, the Ministry of Health, the General Administration of Customs, the State Administration for Industry and Commerce, the State Administration of Quality Supervision, Inspection and Quarantine, and the General Administration of Civil Aviation of China

			国家林业局、最高人民检察院、公安部、铁道部、交通部、信息产业部、商务部、卫生部、海关总署、国家工商行政管理总局等部门关于适应形势需要做好严禁违法猎捕和经营陆生野生动物工作的通知
L65	2003-06-25	Party regulation	Decision of the CCP Central Committee and the State Council on Accelerating the Development of Forestry 中共中央、国务院关于加快林业发展的决定
L66	2003-07-03	Tertiary legislation (Departmental normative document)	Notice of the Protection Department of the State Forestry Administration on the implementation of the “Notice on the Prohibition of Illegal Hunting and Management of Terrestrial Wild Animals in Adapting to the Needs of the Situation of 13 departments” 国家林业局保护司关于贯彻落实《关于适应形势需要做好严禁违法猎捕和经营陆生野生动物工作的通知》有关问题的通知
L67	2003-08-04 (Expired in 2012)	Tertiary legislation (Departmental working documents)	Notice on Issuing the List of 54 Species of Terrestrial Wild Animals, including Sika Deer, with Mature Domestication and Breeding Technology for Commercial Operation 国家林业局关于发布商业性经营利用驯养繁殖技术成熟的梅花鹿等54种陆生野生动物名单的通知

L68	2003-10-21 (Expired in 2012)	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Further Strengthening the Protection and Management of Wild Animals 国家林业局关于进一步加强野生动物保护管理的通知
L69	2004-03-31	Secondary legislation (Normative documents)	Notice of the General Office of the State Council on Strengthening the Protection and Management of Biological Species Resources 国务院办公厅关于加强生物物种资源保护和管理的通知
L70	2004-09-09	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Issuing the “Guiding Opinions on Promoting the Sustainable Development of Wild Animals and Plants” 国家林业局关于下发《关于促进野生动植物可持续发展的指导意见》的通知
L71	2004-10-28	Tertiary legislation (Departmental working document)	Circular of the Ministry of Health on Issuing the “2004-2005 Winter and Spring National Infectious Severe Acute Respiratory Syndrome and Influenza Prevention and Control Work Plan” 卫生部关于下发《2004—2005 年冬春季全国传染性非典型肺炎及流感防治工作方案》的通知
L72	2005-04-01	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Determining the Implementation Units of the First Batch of Terrestrial Wild Animal Epidemic Disease

			Monitoring Sites 国家林业局关于确定第一批陆生野生动物疫源疫病监测站点实施单位的通知
L73	2005-09-27 (Revised in 2015, 2016)	Tertiary legislation (Departmental Rules)	Measures for the Administration of the Approval of the Varieties and Quantities of the Introduction of Alien Species of Terrestrial Wild Animals 引进陆生野生动物外来物种种类及数量审批管理办法
L74	2005-11-18 (Revised in 2017)	Secondary legislation (Administration regulation)	Regulation on Handling Major Animal Epidemic Emergencies 重大动物疫情应急条例
L75	2005-12-29 (Amended in 2015; Revised in 2022*)	Primary legislation (Law)	Animal Husbandry Law of the People's Republic of China 中华人民共和国畜牧法
L76	2006-04-29 (Revised in 2018, 2019)	Secondary legislation (Administration regulation)	Regulation of the People's Republic of China on the Administration of the Import and Export of Endangered Wild Fauna and Flora 中华人民共和国濒危野生动植物进出口管理条例
L77	2006-11-15 (Expired in 2017)	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Standardizing the Approval and Issuance of the "Domestication and Breeding Permit" for Wild Animals Under National First-Class Protection 国家林业局关于规范国家一级保护野生动物《驯养繁殖许可证》批准核发工作的通知

Phase 2: Ecological Civilisation (2007) – The outbreak of the COVID-19 epidemic (2019)			
L78	2008-06-16	Tertiary legislation (Departmental working document)	Notice on Carrying out the Pilot Work of Compensation for Trouble Caused by Wild Animals 国家林业局关于开展野生动物肇事补偿试点工作的通知
L79	2010-07-26	Tertiary legislation (Departmental working document)	the Notice of the State Forestry Administration on the clean-up, rectification, supervision and inspection of wildlife domestication and breeding activities of Wildlife Viewing Performance Units 国家林业局关于对野生动物观赏展演单位野生动物驯养繁殖活动进行清理整顿和监督检查的通知
L80	2010-09-17	Tertiary legislation (Departmental working document)	Circular of the Ministry of Environmental Protection on Printing and Distributing the “China Biodiversity Conservation Strategy and Action Plan” (2011-2030) (2011-2030) 环境保护部关于印发《中国生物多样性保护战略与行动计划》(2011—2030年)的通知
L81	2010-10-18	Tertiary legislation (Departmental normative document)	Opinions of the Ministry of Housing and Urban-Rural Development on Further Strengthening the Management of Zoos 住房和城乡建设部关于进一步加强动物园管理的意见
L82	2010-12-28	Secondary legislation (Normative documents)	the Notice of the General Office of the State Council on Doing a Good Job in the Management of Nature Reserves 国务院

			办公厅关于做好自然保护区管理有关工作的通知
L83	2011-05-01	Primary legislation (Laws)	Measures Amendment VIII to the Criminal Law of the People's Republic of China 中华人民共和国刑法修正案（八）
L84	2011-08-01	Tertiary legislation (Departmental Rules)	Measures for the Administration of National Forest Parks 国家级森林公园管理办法
L85	2012-09-17	Primary legislation (Documents of a Judicial Interpretation Nature)	Circular of the Supreme People's Court, the Supreme People's Procuratorate, the State Forestry Administration, the Ministry of Public Security and the General Administration of Customs on Issues concerning the Assessment of the Value of Terrestrial Wild Animal Products Listed in Appendix I and Appendix II to the CITES Involved in Criminal Cases of Destroying Wild Animal Resources 最高人民法院、最高人民检察院、国家林业局等关于破坏野生动物资源刑事案件中涉及的 CITES 附录I和附录II所列陆生野生动物制品价值核定问题的通知
L86	2012-11-28	Tertiary legislation (Departmental normative document)	the Urgent Notice of the State Forestry Administration on Effectively Strengthening Law Enforcement of Wildlife Protection 国家林业局关于切实

			强化野生动物保护执法工作的紧急通知
L87	2013-04-01	Tertiary legislation (Departmental Rules)	Administrative Measures for Monitoring and Control of Epidemics and Epidemic Sources for Terrestrial Wildlife 陆生野生动物疫源疫病监测防控管理办法
L88	2013-05-01 (Revised in 2017)	Tertiary legislation (Departmental Rules)	Provisions on Administration of Wetland Protection Revised 湿地保护管理规定
L89	2013-06-24	Tertiary legislation (Departmental working document)	Notice of the Ministry of Housing and Urban-Rural Development on Printing and Distributing the National Zoo Development Outline 住房和城乡建设部关于印发全国动物园发展纲要的通知
L90	2014-02-17	Tertiary legislation (Departmental working document)	Catalogue of the Ministry of Agriculture on Publishing Administrative Examination and Approval Items 农业部公布行政审批事项目录
L91	2014-05-01	Tertiary legislation (Departmental Rules)	Measures for the Administration of the Import and Export Certificates for Wild Animals and Plants 野生动植物进出口证书管理办法
L92	2014-09-01 (Expired in 2017)	Tertiary legislation (Departmental normative document)	Notice of the State Forestry Administration on Printing and Distributing the “Regulations on the Administration of Containment and Rescue of Terrestrial Wild Animals” 国家林业局关于印发《陆生野生动物收容救护管理规定》的通知

L93	2014-04-24	Primary legislation (Legislative interpretation)	Interpretation of the Standing Committee of the National People's Congress on Article 341 and Article 312 of the Criminal Law of the People's Republic of China 全国人民代表大会常务委员会关于《中华人民共和国刑法》第三百四十一条、第三百一十二条的解释
L94	2014-09-10	Primary legislation (Judicial interpretation)	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues concerning the Application of Law to Handling of Criminal Cases Involving Smuggling 最高人民法院、最高人民检察院关于办理走私刑事案件适用法律若干问题的解释
L95	2014-10-01 (Revised in 2020)	Tertiary legislation (Departmental Rules)	Catalogue of Industries Encouraged to Develop in the Western Region 西部地区鼓励发展产业目录
L96	2015-01-01 (Enacted in 2014)	Tertiary legislation (Departmental working document)	Notice of the Price Certification Centre of the National Development and Reform Commission on Printing and Distributing the "Rules for Price Identification of Wild Animals and Their Products (Goods)" 国家发展和改革委员会价格认证中心关于印发《野生动物及其产品(制品)价格认定规则》的通知
L97	2015-04-28	Tertiary legislation (Departmental normative document)	Announcement No. 8 of 2015 of the State Forestry Administration—announcement on matters related to the special signs for

			the management and utilisation of wild animals in China 国家林业局公告 2015 年第 8 号——关于中国野生动物经营利用管理专用标识有关事项的公告
L98	2015-05-29 (Revised in 2021)	Primary legislation (Judicial interpretation)	Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Criminal Cases of Covering up or Concealing Criminal Proceeds and Gains from Criminal Proceeds 最高人民法院关于审理掩饰、隐瞒犯罪所得、犯罪所得收益刑事案件适用法律若干问题的解释
L99	2015-10-21 (Amended in April, May and November of 2018)	Tertiary legislation (Departmental Rules)	Measures for the Supervision and Administration of Quarantine of Imported and Exported Traditional Chinese Medicine 进出境中药材检疫监督管理办法
L100	2015-12-01 (Revised in 2020)	Tertiary legislation (Departmental working document)	The No. 67 Announcement of National Food and Drug Administration on the Release of the Chinese Pharmacopoeia (2015 Edition) 国家食品药品监督管理总局公告 2015 年第 67 号——关于发布《中华人民共和国药典》(2015 年版)的公告
L101	2016-02-22	Secondary legislation (Normative documents)	Circular of the State Council on Promulgating the Outline of the Strategic Plan for the Development of Traditional Chinese Medicine (2016-2030) 国务院关

			于印发中医药发展战略规划纲要（2016—2030年）的通知
L102	2016-03-02	Primary legislation (Documents of a Judicial Interpretation Nature)	Reply of the Research Office of the Supreme People's Court on the Legal Issues Applicable to the Acquisition, Transportation and Sale of Some Wild Animals with Mature Artificial Domestication and Breeding Technology 最高人民法院研究室关于收购、运输、出售部分人工驯养繁殖技术成熟的野生动物适用法律问题的复函
L103	2016-12-26	Tertiary legislation (Departmental working document)	Notice of the Office of the State Forestry Administration on Printing and Distributing "China's National Plan for the Implementation of the 2030 Agenda for Sustainable Development - Forestry Action Plan" 国家林业局办公室关于印发《中国落实 2030 年可持续发展议程国别方案——林业行动计划》的通知
L104	2016-12-29	Secondary legislation (Normative documents)	Notice of the General Office of the State Council on Orderly Stopping the Commercial Processing and Sale of Ivory Products 国务院办公厅关于有序停止商业性加工销售象牙及制品活动的通知
L105	2017-07-01	Tertiary legislation (Departmental normative document)	Announcement No. 13 of 2017 of the State Forestry Administration - Artificial Breeding List of National Key Protected Terrestrial Wild Animals (First Batch) 国家林业局公告 2017 年第 13 号—人工繁

			育国家重点保护陆生野生动物名录(第一批)
L106	2017-07-01	Tertiary legislation (Departmental normative document)	Notice of the Office of the State Forestry Administration on Further Strengthening the Supervision and Management of Forestry Nature Reserves 国家林业局办公室关于进一步加强林业自然保护区监督管理工作的通知
L107	2017-09-26	Party regulation	The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the “Overall Plan for Establishing a National Park System” 中共中央办公厅、国务院办公厅印发《建立国家公园体制总体方案》
L108	2017-12-15	Tertiary legislation (Departmental Rules)	Evaluation methods for the value of wild animals and their products 野生动物及其制品价值评估方法
L109	2018-01-01 (Enacted in 2017)	Tertiary legislation (Departmental Rules)	Measures for the Sheltering and Rescue of Wild Animals 野生动物收容救护管理办法
L110	2018-05-30	Secondary legislation (Documents of a Judicial Interpretation Nature)	Opinions of the Supreme People’s Court of the People’s Republic of China on Deeply Learning and Implementing Xi Jinping's Ecological Civilisation Thoughts and Providing Judicial Services and Guarantee for Ecological Environmental Protection in the New Era 最高人民法院

			关于深入学习贯彻习近平生态文明思想为新时代生态环境保护提供司法服务和保障的意见
L111	2018-10-06	Secondary legislation (Normative documents)	Notice of the State Council on Strictly Controlling the Operation and Utilisation of Rhino and Tiger and Their Products 国务院关于严格控制犀牛虎及其产品经营利用的通知
L112	2019-03-08	Tertiary legislation (Departmental working document)	Urgent Notice of the State Forestry and Grassland Administration on Strengthening the Protection and Management of Wild Animals and Combating the Illegal Hunting, Killing, Operation and Utilisation of Wild Animals 国家林业和草原局关于加强野生动物保护管理及打击非法猎杀和经营利用野生动物违法犯罪活动的紧急通知
L113	2019-05-24	Tertiary legislation (Departmental working document)	Notice of the State Administration for Market Regulation and the State Forestry and Grassland Administration on Jointly Carrying out Special Rectification Actions for Wildlife Protection 市场监管总局、国家林草局关于联合开展野生动物保护专项整治行动的通知
L114	2019-06-26	Party regulation	The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the “Guiding Opinions on Establishing a System of Nature Reserves

			with National Parks as the Main Body” 中共中央办公厅、国务院办公厅印发《关于建立以国家公园为主体的自然保护地体系的指导意见》
L115	2019-10-20	Secondary legislation (Normative documents)	Opinions of the Central Committee of the Communist Party of China and the State Council on Promoting the Inheritance and Innovative Development of Traditional Chinese Medicine 中共中央、国务院关于促进中医药传承创新发展的意见
Phase 3: After the outbreak of the COVID-19 epidemic			
L116	2020-01-21	Tertiary legislation (Departmental normative document)	Urgent notice from the State Administration for Market Regulation, the Ministry of Agriculture and Rural Affairs, and the National Forestry and Grass Administration on strengthening the supervision of the wildlife market and actively doing a good job in the prevention and control of the epidemic 国家市场监督管理总局、农业农村部、国家林草局关于加强野生动物市场监管 积极做好疫情防控工作的紧急通知
L117	2020-01-26 (Expired in June 2022)	Tertiary legislation (Departmental normative document)	Announcement of the State Administration for Market Regulation, the Ministry of Agriculture and Rural Affairs, and the State Forestry and Grass Administration on the prohibition of wildlife trading 国家市场监督管理总局、农业农村部、国家林草局关于禁止野生动物交易的公告

L118	2020-02-06	Primary legislation (Judicial interpretation)	Circular of the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security and the Ministry of Justice on Issuing the Opinions on Legally Punishing Illegal and Criminal Acts Interfering with Prevention and Control of the Novel Coronavirus Pneumonia Epidemic 最高人民法院、最高人民检察院、公安部、司法部印发《关于依法惩治妨害新型冠状病毒感染肺炎疫情防控违法犯罪的意见》的通知
L119	2020-02-06	Secondary legislation (Normative documents)	Circular of the State Administration for Market Regulation, the Ministry of Public Security, the Ministry of Agriculture and Rural Affairs, the General Administration of Customs and the National Forestry and Grassland Administration on Launching a Special Law Enforcement Program of Jointly Combating Illegal Wildlife Trade 国家市场监督管理总局、公安部、农业农村部、海关总署、国家林草局关于联合开展打击野生动物违规交易专项执法行动的通知
L120	2020-02-24	Primary legislation (Decisions on Legal Issues and Significant Issues)	Decision of the Standing Committee of the National People's Congress on Thoroughly Banning the Illegal Trading of Wildlife and Abolishing the Irrational Practice of Consuming Wildlife to Effectively Safeguard People's Life and Health 全国人民代表大会常务委员会关

			于全面禁止非法野生动物交易、革除滥食野生动物陋习、切实保障人民群众生命健康安全的决定
L121	2020-02-27	Tertiary legislation (Departmental normative document)	Notice of the State Forestry and Grassland Administration on the implementation of the “Decision of the Standing Committee of the National People’s Congress on Thoroughly Banning the Illegal Trading of Wildlife and Abolishing the Irrational Practice of Consuming Wildlife to Effectively Safeguard People's Life and Health” 国家林业和草原局关于贯彻落实《全国人民代表大会常务委员会关于全面禁止非法野生动物交易、革除滥食野生动物陋习、切实保障人民群众生命健康安全的决定》的通知
L122	2020-03-14	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Transport on Further Strengthening the Management of Wildlife Transportation in accordance with the Law 交通运输部关于进一步依法加强野生动物运输管理工作的通知
L123	2020-04-08	Tertiary legislation (Departmental normative document)	Notice of the State Forestry and Grassland Administration on the follow-up work of Captive-Bred Wild Animals Banned from Consumption 国家林业和草原局关于稳妥做好禁食野生动物后续工作的通知
L124	2020-05-27	Tertiary legislation (Departmental working documents)	Letter from the State Forestry and Grassland Administration on organizing the implementation of the “Technical

			Guidelines for Properly Disposing of Wild Animals in Raising” 国家林业和草原局关于组织实施《妥善处置在养野生动物技术指南》的函
L125	2020-05-27	Tertiary legislation (Departmental normative document)	Announcement No. 303 of the Ministry of Agriculture and Rural Affairs of the People's Republic of China - National Catalogue of Livestock and Poultry Genetic Resources 中华人民共和国农业农村部公告第303号——国家畜禽遗传资源目录
L126	2020-06-03	Tertiary legislation (Departmental working documents)	Notice of the National Development and Reform Commission and the Ministry of Natural Resources on Printing and Distributing the “Overall Plan for National Important Ecosystem Protection and Restoration Major Projects (2021-2035)” 国家发展改革委、自然资源部关于印发《全国重要生态系统保护和修复重大工程总体规划(2021—2035年)》的通知
L127	2020-06-08 (Partly abolished in 2023)	Tertiary legislation (Departmental normative document)	Notice of the Ministry of Agriculture and Rural Affairs on Further Strengthening Animal Quarantine Work 农业农村部关于进一步强化动物检疫工作的通知
L128	2020-07-16	Tertiary legislation (Departmental working documents)	Technical Guidelines for Animal Disease Prevention and Control in Flood Disasters 洪涝灾害动物疫病防控技术指南

L129	2020-09-01	Tertiary legislation (Departmental Rules)	the Administration of Use of Drugs Covered by the Basic Medicinal Insurance 基本医疗保险药品使用管理
L130	2020-09-30	Tertiary legislation (Departmental normative document)	Notice of the State Forestry and Grassland Administration on Regulating the Scope of Classified Management of Captive-Bred Wild Animals Banned from Consumption 国家林业和草原局关于规范禁食野生动物分类管理范围的通知
L131	2020-12-09	Tertiary legislation (Departmental normative document)	Notice of the Office of the State Forestry and Grassland Administration on Doing a Good Job in Monitoring and Controlling Wild Animal Epidemic Diseases 国家林业和草原局办公室关于做好野生动物疫源疫病监测防控工作的通知
L132	2020-12-18	Tertiary legislation (Departmental normative document)	Circular of the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security and the Ministry of Justice on Issuing the Guiding Opinions on Punishing Crimes of Illegal Wild Animal Trade in Accordance with the Law 最高人民法院、最高人民检察院、公安部、司法部印发《关于依法惩治非法野生动物交易犯罪的指导意见》的通知
L133	2021-01-01	Primary legislation	Civil Code of the People's Republic of China 中华人民共和国民法典

L134	2021-02-01	Tertiary legislation (Departmental normative document)	Announcement No. 3 of 2021 of the State Forestry and Grassland Administration and the Ministry of Agriculture and Rural Affairs-Announcement on Announcement of the “List of National Key Protected Wild Animals” 国家林业和草原局、农业农村部公告 2021 年第 3 号——国家重点保护野生动物名录
L135	2021-03-01 (Enacted in 2020)	Primary legislation (Laws)	Amendment XI to the Criminal Law of the People’s Republic of China 中华人民共和国刑法修正案（十一）
L136	2021-03-01	Primary legislation (Judicial interpretation)	Supplementary Provisions VII of the Supreme People’s Court and the Supreme People’s Procuratorate on the Determination of Criminal Offenses in the Enforcement of the Criminal Law of the People’s Republic of China 最高人民法院、最高人民检察院关于执行《中华人民共和国刑法》确定罪名的补充规定（七）
L137	2021-04-15 (Enacted in 2020)	Primary legislation (Laws)	Biosecurity Law of the People’s Republic of China 中华人民共和国生物安全法
L138	2021-08-31	Tertiary legislation (Departmental normative document)	Notice of the Office of the State Forestry and Grassland Administration on Printing and Distributing the “Implementation Plan of the State Forestry and Grassland Administration to Deepen the Reform of ‘Separation of Licenses’” 国家林业和草原局办公室关于印发《国家林业和草

			原局深化“证照分离”改革实施方案》的通知
L139	2021-10-19	Party regulation	Opinions on Further Strengthening Biodiversity Protection 关于进一步加强生物多样性保护的意見
L140	2021-12-25	Tertiary legislation (Departmental normative document)	Notice of the State Forestry and Grassland Administration on Printing and Distributing the Revised “Regulations on the Types of Forestry and Grassland Administrative Cases” 国家林业和草原局关于印发修订后的《林业和草原行政案件类型规定》的通知
L141	2022-04-09	Primary legislation (Judicial interpretation)	Interpretation of the Supreme People’s Court and the Supreme People’s Procuratorate on Several Issues Concerning the Application of Law in Handling Criminal Cases on Destruction of Wildlife Resources 最高人民法院、最高人民检察院关于办理破坏野生动物资源刑事案件适用法律若干问题的解释
L142	2022-05-12	Primary legislation (Working Documents of the Supreme People's Court and the Supreme People's Procuratorate)	The Supreme People’s Court Issuing the Judicial Protection of Biodiversity in China 最高人民法院发布《中国生物多样性司法保护》
L143	2022-05-30	Tertiary legislation (Departmental normative document)	Announcement of the State Administration for Market Regulation, the Ministry of Agriculture and Rural Affairs,

			and the National Forestry and Grassland Administration on Ceasing the Implementation of the Announcement on Prohibiting Trade in Wild Animals 国家市场监督管理总局、农业农村部、国家林草局关于停止执行《关于禁止野生动物交易的公告》的公告
L144	2022-06-01	Tertiary legislation (Departmental normative document)	Notice of the Forestry and Grassland Bureau on Printing and Distributing the “Interim Measures for the Management of National Parks” 林草局关于印发《国家公园管理暂行办法》的通知
L145	2023-05-01	Tertiary legislation (Departmental normative document)	Measures for Quarantine of Wild Animals 野生动物检疫办法
L146	2023-05-09	Tertiary legislation (Departmental working documents)	Announcement No. 2, 2023, of the Office of Import and Export Administration of Endangered Species of the People’s Republic of China—Announcement on the Publication of the List of Wild Animals or Their Products that Trade is Prohibited or Restricted by International Conventions Concluded or Participated by the People’s Republic of China 中华人民共和国濒危物种进出口管理办公室公告 2023 年第 2 号——关于公布《中华人民共和国缔结或者参加的国际公约禁止或者限制贸易的野生动物或者其制品名录》的公告

L147	2023-06-26	Tertiary legislation (Departmental working documents)	Announcement No. 17 of 2023 of the State Forestry and Grassland Administration—Announcement on the Release of the Adjusted “Sanyou Animals” Lists 国家林业和草原局公告 2023 年第 17 号—关于发布调整后三有名录的公告
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Appendix C: Supplementary materials for Chapter 5

Table A. Changes in how legislation defines the severity of offences that endanger precious and endangered wildlife (Comparison of Judicial Interpretation from 2000¹ versus 2022), with 5 illustrative species examples.

Table A

Severity of crime and corresponding punishment	Minor offence Offence will not be prosecuted or will be exempted from criminal punishment. When the offence is obviously minor and the harm is not serious, the offence will not be treated as a crime		Minimum threshold for criminal offence with sanctions Shall be sentenced to fixed-term imprisonment of not more than five years and concurrently be imposed a fine		Serious criminal offence Shall be sentenced to fixed-term imprisonment of not less than five years but not more than ten years, and concurrently be imposed a fine		Particularly serious criminal offence Shall be sentenced to fixed-term imprisonment of not less than ten years, and shall be concurrently sentenced to confiscation	
	2000	2022	2000	2022	2000 ¹	2022	2000 ¹	2022
Judicial Interpretation								
Thresholds for defining severity CNY = threshold based on monetary value ² N = threshold based on number of affected individual animals	-	CNY20,000-200,000 ³ (approx.USD 2, 754 - 27, 544)	No specific stipulation, but in practice assumed to be 1	Normal: CNY20,000-200,000 (approx.USD 2, 754 - 27, 544) Or Special reduced circumstance: CNY200,000-2M ³ (approx.USD 27, 544 - 275, 440)	Follow the prescribed species-specific numeric threshold ⁴	Normal: CNY200,000-2M (approx.USD 27, 544 - 275, 440) Or Special reduced circumstance: ≥CNY2M ³ (approx.USD 275, 440)	Follow the prescribed species-specific numeric threshold ⁴	≥CNY2 M (approx. USD 275, 440)
Species examples of how severity would be defined (legally-defined CNY/individual)	Number of individual animals, or proportion of an animal that would need to be harmed in order to trigger that level of severity (see methods)							
Giant panda <i>Ailuropoda melanoleuca</i> (CNY5M; approx.USD 688, 601)	-	NA	NA	NA	NA	NA	NA	N=1
Tibetan antelope <i>Pantholops</i> spp. (CNY500,000; approx.USD 68, 860)	-	NA	N=1	Normal: NA; Special: N=1-4	N=2	Normal: N=1-4; Special: ≥4	N=3	N≥4
Pangolin <i>Pholidota</i> (CNY80,000; approx.USD 11, 018)	-	Special: N=1-2	N=1	Normal: N=1-2; Special: N=3-25	N=8	Normal: N=3-25; Special: N≥25	N=16	N≥25
Red panda <i>Ailuurus fulgens</i> (CNY40,000; approx. USD 5, 509)	-	Special: N=1-5	N=1	Normal: N=1-5; Special: N=5-50	N=3	Normal: N=5-50; Special: ≥50	N=5	N≥50

Table A (continued)

Severity of crime and corresponding punishment	Minor offence		Minimum threshold for criminal offence with sanctions		Serious criminal offence		Particularly serious criminal offence	
	2000	2022	2000	2022	2000 ¹	2022	2000 ¹	2022
<p>Thresholds for defining severity</p> <p>CNY = threshold based on monetary value²</p> <p>N = threshold based on number of affected individual animals</p>	–	CNY20,000-200,000 ³ (approx.USD 2, 754 - 27, 544)	No specific stipulation, but in practice assumed to be 1	Normal: CNY20,000-200,000 (approx.USD 2, 754 - 27, 544) Or Special reduced circumstance: CNY200,000-2M ³ (approx.USD 27, 544 - 275, 440)	Follow the prescribed species-specific numeric threshold ⁴	Normal: CNY200,000-2M (approx.USD 27, 544 - 275, 440) Or Special reduced circumstance: ≥CNY2M ³ (approx.USD 275, 440)	Follow the prescribed species-specific numeric threshold ⁴	≥CNY2M (approx. USD 275, 440)
<p>Species examples of how severity would be defined (legally-defined CNY/individual)</p> <p>Black great squirrel <i>Ratufa bicolor</i> (CNY1,500; approx.USD 207)</p>	–	Special: N=14-134	1	Normal: N=14-134; Special: N=134-1334	N=6	Normal: N=134-1334 Special: ≥ 1334	N=10	≥ 1334
<p>¹ In 2017 the “basic standard price”, the legally defined base-rate for each species, was established, and those are the values referred to here.</p> <p>² Threshold monetary values are defined in the Judicial Interpretations of Criminal Law. Values of wildlife in species cases are calculated using formulas that consider a base rate per species, the weighting factor depending on species conservation status and the affected body part (Supplementary Table 1). If the actual sale price of the affected goods (animals, products) is higher than the legal threshold monetary value, then the severity shall be defined by the actual price.</p> <p>³ Special circumstance that allows for the lesser severity, if the act did not cause the death of animals or their ability to recover animals, or if the affected products can be recovered, and the offender returns any illegal proceeds and pays compensation, showing true repentance.</p> <p>⁴ For individuals of same species: N = prescribed species-specific numeric threshold; Where multiple species are involved, the threshold is where ≥ half of the prescribed numeric threshold is met for ≥ two of the species involved.</p>								

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