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Plant Blindness and the Law on International Trade in Wildlife

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Abstract

While habitat destruction threatens other-than-human life across the planet, overexploitation and illegal trade are the second leading source of threats to wildlife. 'Wildlife' though predominantly is taken to mean other-than-human animals, and plants are largely overlooked or ignored even though they are critical to human societies and the health of the planet. Adopting a green criminological analysis, this article provides evidence that legislation governing wildlife use and protection is speciesist and 'plant blind'. Through a content analysis of 185 countries' wildlife trade legislation, we find that not all legislation includes plants and that in some legislation different species of plants are regarded differently. This means that there are gaps in the framework of legal protection for some plants, which can have real-world consequences. For instance, lack of protection can lead to reduced conservation for exploited plants, which in turn can increase the loss of biodiversity and further threaten ecosystem health and planetary well-being. Legislative and societal plant blindness needs to be challenged and overturned to help stop the biodiversity crisis.

Keywords: green criminology, plant blindness, speciesism, Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), environmental crime.

1 Introduction

Overexploitation and illegal trade are threatening one million species of wildlife.[1] While the illegal trade in wildlife has become a global area of concern, for the most part 'wildlife' is taken to mean other-than-human animals. Even in critical criminological and social science scholarship highlighting the speciesist nature of efforts to combat wildlife trafficking, plants are usually not the focus of attention.[2] In this article, we adopt a green criminological gaze to argue that this 'plant blindness'[3] extends to national legislation transposing international commitments supposedly designed to protect wildlife from overexploitation from trade. First, we outline the green criminological gaze by discussing what speciesism and plant blindness are; this sets the scene for why such biases are important. Then, we detail the current conservation status of plants, including the nature and scope of the threats to plants from overexploitation and illegal trade. This is followed by an overview of the global legal framework for trading plants and a discussion on the importance of plant visibility and inclusion in conservation and wildlife legislation. We then describe our methodology, which involves a content analysis of legislation implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), specifically analysing the legal definitions of wildlife. This approach establishes how definitions for wildlife (including plants) are recognised within national regulations transposing CITES, with the potential for plants to be recognised as protected wildlife on the one hand, and alternately recognised as an exploitable resource on the other. Finally, we detail our findings as to whether plants are legally defined as wildlife. We conclude with a discussion of how plant blindness can be combatted and what this would mean for criminology and wildlife law.

1.1 Green Criminology, Speciesism and Plant Blindness

Green criminology challenges many of the stances of the orthodox views of criminology and many criminal justice and legal systems, but relevant to this article is green criminology's advocacy that humans are not the only victims of environmental harm and crime.[4] Society as a whole, particularly regarding humans' use of other beings, needs to reconsider its speciesist nature that only focuses on humans and sees other-than-human animals as resources.[5] As White[6] and others note, this is

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1 IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), *IPBES Global Assessment Summary for Policymakers*, www.ipbes.net/sites/default/files/downloads/summary_for_policymakers_ipbes_global_assessment.pdf (last visited 7 May 2019).

2 J. Marguiles, L. Bullough, A. Hinsley, D. Ingram, C. Cowell, B. Goettsch, B. Klitgard, A. Lavorgna, P. Sinovas & J. Phelps, 'Illegal Wildlife Trade and the Persistence of "Plant Blindness"', 1 *Plants, People, Planet* 173, at 182 (2019); Hutchinson, A., Stephens-Griffin, N. and Wyatt, T. (2022) "Speciesism and the Wildlife Trade: Who gets Listed, Downlisted and Uplisted in CITES?", *International Journal for Crime, Justice and Social Democracy*, 11(2), pp. 191-209. doi: 10.5204/ijcjsd.1945; T. Wyatt, *Wildlife Trafficking: A Deconstruction of the Crime, Victims and Offenders. Second Edition* (2021).

3 J.H. Wandersee and E.E. Schussler, 'Preventing Plant Blindness', 61(2) *The American Biology Teacher* 82 (1999).

4 *See* R. White, *Transnational Environmental Crime: Toward an Eco-global Criminology* (2011) and A. Nurse and T. Wyatt, *Wildlife Criminology* (2020) among others.

5 *See* R. Sollund, *The Crimes of Wildlife Trafficking. Issues of Justice, Legality and Morality* (2019) among others.

6 White, above n. 4.

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critical for the sake of the planet and ecosystem health as well as to decrease the suffering of other beings. Yet, as we detail next, the green criminological efforts to expand victimisation have not gone far enough and the challenges to speciesism itself appear to be plant blind. Thus, our green criminological approach draws from both speciesism and plant blindness scholarship to analyse legislation designed to protect all species from overexploitation.

The word speciesism was introduced by Ryder,[7] who argued that if it is morally wrong to hurt innocent humans, then logically it is also morally wrong to hurt innocent individuals of other species. Singer[8] defines speciesism as: 'a prejudice or attitude of bias in favour of the interests of members of one's own species and against those of members of other species'. Species in both conceptualisations could be taken to mean other-than-human animals or plants. However, the scholarship about speciesism and many scholars employing a lens of speciesism to their research have confined it to other-than-human animals.

For instance, Waldau[9] states: 'Speciesism is the inclusion of all human animals within, and the exclusion of all other animals from, the moral circle.' Horta,[10] in his article 'What is Speciesism?' begins the article by only mentioning other-than-human animals. He proposes that speciesism might be constructed in different ways and proceeds to categorise the existing scholarship on speciesism. First, he suggests 'Speciesism 1 is the unjustified disadvantageous consideration or treatment of those who are not classified as belonging to one or more particular species.'[11] This is within the understanding that the concept of a species is somewhat problematic, and species are a construction of human scientists. 'Speciesism 2 is the unjustified disadvantageous consideration or treatment of those who are not classified as belonging to one or more particular species for reasons that do not have to do with the individual capacities they have.'[12] According to Horta, treating an individual disadvantageously because they lack certain capacities not because of their species is not speciesism. Finally, 'Speciesism 3 is the unjustified disadvantageous consideration or treatment of those that are not classified as belonging to one or more particular species on the basis of species membership alone.'[13] Here, Horta appears to be trying to be more specific as to the motivation for the poor treatment; in this case, that motivation is solely membership in a particular species. Horta's breakdown of the possible conceptualisations of speciesism raises the issue of capacities as being central to this discussion.

As Horta[14] goes on to discuss, among scholars (and humans in general) there are those who believe that only certain species can be harmed or should be helped. For some people, if the subject in question is not human, they 'lack the capacity to have any experience at all. Hence, there is no reason to take them into account'.[15] And still '[O]ther theorists accept that nonhuman animals can suffer harms, yet reject that we must regard them as morally considerable.'[16] Thus, the ability or capacity to feel pain and suffering are key concepts within speciesism, here strictly confined to other-than-human animals. More recent formulations of speciesism theorise about the hierarchical nature of regard for other-than-human species.[17] More consideration is given to species whom humans judge to be more intelligent. Linked to this is the advocacy for less or no use and consumption of those species deemed to have intelligence (i.e. great apes and whales).

As Lavorgna and Sajeva[18] note, this perspective is explicitly chosen by scholars like Sollund,[19] who focus on other-than-human animals for moral reasons and challenge societal notions that other-than-human animals are only resources for humans. Others may well focus on other-than-human animals because of an unconscious bias.[20] Heywood[21] argues that Anglo-European epistemological traditions place other-than-human animals as evolutionarily more advanced than plants. Other (green) criminological work has also excluded plants. Beirne[22] in his groundbreaking 'Towards a Non-speciesist Criminology' pushes the boundaries of the criminological and victimological gaze to other-than-human animals, but stops short of plants. Flynn and Hall,[23] too, expand the victimological circle, but only to other-than-human animal harm.

Thus, not recognising value beyond other-than-human animals (often grounded in ideas that there are no other forms of intelligence, cognition and ways of being) is in

7 R. Ryder, 'Experiments on Animals', in S. Godlovitch, R. Godlovitch & J. Harris (eds.), *Animals, Men and Morals* (1971) 41.

8 P. Singer, *Animal Liberation: The Definitive Classic of the Animal Movement [Fortieth Anniversary Edition]* (2015/1975), at 35.

9 P. Waldau, *The Specter of Speciesism: Buddhist and Christian Views of Animals* (2001), at 38.

10 O. Horta, 'What is Speciesism?', 23(3) *The Journal of Agricultural and Environmental Ethics* 243 (2010).

11 *Ibid.*, at 245.

12 *Ibid.*

13 *Ibid.*

14 *Ibid.*

15 *Ibid.*, at 257.

16 *Ibid.*

17 J. Dunayer, 'The Rights of Sentient Beings Moving Beyond Old and New Speciesism', in R. Corbey & A. Lanjouw (eds.), *The Politics of Species: Reshaping Our Relationships with Other Animals* 27 (2013).

18 A. Lavorgna and M. Sajeva, 'Studying Illegal Online Trade in Plants: Market Characteristics, Organisational and Behavioural Aspects, and Policing Challenges', 27 *European Journal on Criminal Policy and Research* 451 (2020).

19 Sollund, above n. 5; R. Sollund, 'Expressions of Speciesism: The Effects of Keeping Companion Animals on Animal Abuse, Animal Trafficking and Species Decline', 55(5) *Crime, Law and Social Change* 437 (2011); R. Sollund, 'Speciesism as Doxic Practice, or Valuing Plurality and Difference', in R. Ellefsen, R. Sollund & G. Larsen (eds.), *Eco-global Crimes. Contemporary Problems and Future Challenges* R. 91 (2012).

20 V.H. Heywood, 'Plant Conservation in the Anthropocene – Challenges and Future Prospects', 39(6) *Plant Diversity* 314 (2017).

21 *Ibid.*

22 P. Beirne, 'Towards a Non-Speciesist Criminology', 37(1) *Criminology* 117 (1999).

23 M. Flynn and M. Hall, 'The Case for a Victimology of Nonhuman Animal Harms', 20(3) *Contemporary Justice Review* 299 (2017).

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itself a form of speciesism. As Nurse and Wyatt[24] note, there is a significant amount of scientific information supporting the idea that plants are not the inanimate objects humans have viewed them as. For instance, Grant[25] has found that trees are communal and that they form interspecies alliances. Wohlleben[26] describes the vast fungal networks that make this communication and sharing of water possible between trees. 'Mother' trees distribute resources underground to saplings when the saplings are struggling to survive, and trees being eaten by deer send out chemicals through the air to warn neighbouring trees of the danger.[27] The neighbouring trees then start producing a toxin that prevents the deer from eating them. Scientists have also recently discovered the emission and detection of sounds occurring between trees.[28] Noteworthy is the focus on trees, which as highlighted below, seem to be held in higher regard than other plant life. Overall though, the point is there is much more to learn about all life on Earth and assuming human capacities are the standard for judging consideration and value has contributed to the ongoing biodiversity crisis. This is because human lack of recognition of the value of other forms of life has led to concrete ways in which other species' protection is disregarded.

Lavorgna and Sajeva[29] state that official definitions of 'wildlife' include both other-than-human animals and plants. Yet, they point out that in reality more limited conceptualisations of wildlife are often employed. Wyatt et al.[30] similarly found that while the text of CITES specifies both fauna and flora are to be protected, in practice parties to CITES have varying definitions of wildlife in their transposed national legislation. Their study found that in the case of fish more than 10 per cent of parties' legislation specifically exclude fish from wildlife legislation. Furthermore, nearly one-third of party legislation provides no definition of wildlife leaving a potential loophole.[31]

In the context of plants, others have found a similar pattern for plants being excluded, which has been specifically labelled as plant blindness. For example, Marguiles et al[32] point out that in the United States (US) the much-touted Lacey Act that protects endangered species only added timber species decades after the act came into force. Even if plants are included in legal definitions, they receive much less research and conservation funding. For instance, the United Kingdom's (UK) Illegal Wildlife Trade Challenge Fund only accepted projects designed to protect plants since 2021, even though the fund started in 2013. Another example is that Havens et al[33] found that 57 per cent of wildlife on the US Endangered Species Act are plants, but they only have received 4 per cent of the federal funding for protection. It is not as if plants that are threatened are somehow less endangered than other-than-human animals. Three of the top five most threatened taxonomic groups that have been most thoroughly assessed by the International Union for the Conservation of Nature (IUCN) for the Red List are plants – cycads, cacti, and conifers,[34] but these species are not at the forefront of conservation initiatives or public awareness campaigns about biodiversity. Further plant blindness is seen when non-compliance with plant protections is uncovered. In cases involving plants, they are not handled in the same way as for terrestrial other-than-human animals.[35] However, Phelps and Webb[36] note that timber is treated similarly to terrestrial other-than-human animals. As mentioned, timber seems to be given more consideration.

Thus, our green criminological approach to an analysis of wildlife legislation adopts a non-speciesist stance and expands that to include a challenge to plant blindness. Such an approach using plant blindness and speciesism as critical lenses can shine a light on the exploitation and victimisation of both some favoured plant species (e.g. commercially exploitable timber species) and those plant species judged to be less desirable, aesthetically pleasing or useful (to humans) (e.g. weeds). This fits, as mentioned above, Dunayer's[37] concept of 'new-speciesism' which recognises that advocacy for other-than-human animals is often hierarchical (e.g. in recognising complex and 'intelligent' species over others). It also illustrates Wyatt's[38] hierarchy of victimhood where commercially or aesthetically pleasing other-than-human animals (e.g. cute pandas rather than tarantulas) are prioritised over other species. She proposes the same is true for plants, where beauty and utility (e.g. orchids and trees) are prioritised over other aspects, including being a key species in ecosystems (e.g. peatmoss).

As highlighted above, plants have rarely qualified in discussions on speciesism which has focussed on expanding the rights of, or moral circle towards, other-than-human animals (whether in totality or based on a hierarchy of concern based on intelligence or other capabilities). Challenging the plant blindness of speciesism and expanding the concept of speciesism to include plants more specifically moves towards a fuller appreciation for the ecological connectedness of species and

24 Nurse and Wyatt, above n. 4.
25 R. Grant, 'Do Trees Talk to Each Other?' *Smithsonian Magazine* (March 2018).
26 P. Wohlleben, *The Hidden Life of Trees: What They Feel, How They Communicate – Discoveries from a Secret World* (2016).
27 *Ibid.*; Heywood, above n. 21.
28 Heywood, above n. 21.
29 Lavorgna and Sajeva, above n. 18.
30 T. Wyatt, K. Friedman & A. Hutchinson, 'Are Fish Wild?' 42 *Liverpool Law Review* 485 (2021).
31 *Ibid.*
32 Marguiles et al., above n. 2.
33 K. Havens, A.T. Kramer & E.O. Guerrant Jr., 'Getting Plant Conservation Right (or Not): The Case of the United States', 175(1) *International Journal of Plant Sciences* 3 (2013).
34 B. Goettsch, C. Hilton-Taylor, G. Cruz-Piñón, J.P. Duffy, A. Frances, H.M. Hernández, … K.J. Gaston, 'High Proportion of Cactus Species Threatened with Extinction', 1(10) *Nature Plants* 15142 (2015); Grant, above n. 25.
35 J. Phelps and E.L. Webb, '"Invisible" Wildlife Trades: Southeast Asia's Undocumented Illegal Trade in Wild Ornamental Plants', 186 *Biological Conservation* 296 (2015).
36 *Ibid.*
37 Dunayer, above n. 17.
38 Wyatt (2021), above n. 2.

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the need to recognise the poor treatment and victimisation of all other-than-human species. As with the animal rights discourse, we recognise that expanding consideration to plants will be complex in the light of the multitude of ways in which plants are used and their centrality to meeting many human needs (discussed in the following section). A detailed discussion on provisions for the rights or welfare of plants or how to contend with the conflict between rights of species are beyond the scope of this article; however, highlighting the plant blindness evident in constructs of speciesism is a first step in expanding moral consideration towards them. This has implications for individual plants, whole species, ecosystems and the planet. We now discuss the commercial and aesthetic uses of plants.

1.2 The Use and Conservation of Plants

Perhaps more than humans are aware, plants are integral and common in our daily lives. Our article focuses on plant trade, but it is important to give a brief overview of plant protection in general. To protect and govern their continued use, there are several international legal frameworks. Most far reaching perhaps is the Convention on Biological Diversity (CBD) which oversees the 'Global Strategy for Plant Conservation' and focusses on jointly achieving conservation and sustainable use of wild plants, crops and genetic resources, but does not focus specifically on trade regulations. Focussing more fully on crop plants, the Food and Agriculture Organization's (FAO) 'International Treaty on Plant Genetic Resources for Food and Agriculture' aids the implementation of the CBD's Nagoya protocol (on access and benefit sharing of genetic resources) by enabling the treaty's 149 ratifying parties to access sixty-four species of crops for research, breeding and agricultural training purposes. Furthermore, and with a focus firmly on international wildlife trade, CITES regulates trade in listed plant species. Together these conventions and treaties provide a legal framework for the exploitation and protection of plants. While the CBD and FAO have had a concerted focus on plant diversity and their sustainable and equitable use, CITES listings for plants have lent towards species traded by botany collectors and horticulturalists.[39] This highlights how conservation initiatives for plants have a tendency to focus on security for human food provisioning, whereas trade initiatives for plants have focussed on select groups of favoured plants. As our focus in this article is on trade and trafficking and the speciesism and plant blindness in that regard, we do not integrate the CBD or other governance structures into our discussion about the use and conservation of plants here. It is worth noting there are also other relevant schemes or organisations, such as the Forest Stewardship Council (a voluntary monitoring programme of actors in the market to provide certification that timber is coming from ecologically and socially sustainable sources) and the International Tropical Timber Organisation (ITTO) (a capacity-building initiative that supports sustainable management practices, particularly in implementation of CITES, but it does not regulate trade). And while these may contribute to improved sustainable forest management by some companies who are monitored or by countries which are party to the ITTO, as they are not focussed specifically on trade regulation, we do not integrate them into our discussion. CITES, as *the* international legislative framework for protecting plants in trade, and because of its structure and remit, is our primary focus for exploring plant blindness and speciesism.

According to the FAO,[40] fossil records indicate that humans have been using plants for more than 60,000 years. Plants may have played a central role in some patterns of colonialisation, such as the Dutch and English trade routes from Indonesia for the nutmeg trade in the 15th century;[41] this may be the case for other spices, ingredients and dyes as well (i.e. vanilla and sugar cane). Plants obviously are used extensively in agriculture that produces food, but they also are the bulk of the ingredients for spices and drinks. The horticulture industry (i.e. landscaping and decorative plants) is ubiquitous. Plants are also the foundation for many homewares and textiles. Furthermore, plants are essential to the medicinal and pharmaceutical industries as well as the cosmetic industry and the growing wellness industry (i.e. aromatics and homeopathy). Perhaps most visible is the use of timber, and this visibility likely stems from its status as a multi-billion-dollar transnational industry.[42] Timber is used in building and furniture construction, as well as contributing to the above trades in medicine, fuel and food among other things. It is estimated that 880 million people spend part of their time looking for wood or making charcoal.[43] In addition, many millions of people rely on timber as their source of heat and fuel for cooking. It is important to distinguish that the timber industry consists of extraction of native and natural forests, as well as land conversions for fast-growing managed timber plantations. We focus on the former – the extraction of 'wild' trees. We do recognise that the use of 'wild' simplifies a complicated legal regime and conceptual debate about native versus non-native species, artificial propagation and managed cultivation. This focus on wild has been done as a way to explore the trade and trafficking of timber that is not growing in plantations.

We suggest though that both aspects of the industry (wild-sourcing and cultivation) are rarely if ever characterised as 'wildlife' industries or 'wildlife' economies, even though, as mentioned, plants taken from the wild will often be supplying them. Most likely and presumably due to the economic value already mentioned, most

39 For a more complete discussion of the speciesist nature of CITES listings, *see* A. Hutchinson, N. Stephens-Griffin and T. Wyatt, 'Speciesism and CITES: What Uplistings and Downlistings Say about Views of Wildlife', 11(2) *International Journal of Crime, Law and Social Democracy* 191-209 (2022). https://doi.org/10.5204/ijcjsd.1945.

40 FAO (Food and Agriculture Organization), 'State of Forests', www.fao.org/state-of-forests/en/ (last visited 29 March 2022) (2020).

41 *Ibid.*

42 Hutchinson et al., 2022; Lavorgna and Sajeva, above n. 18.

43 FAO, above n. 40.

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is known about the timber trade – the largest of the plant trades valued at over USD 200 billion annually.[44] Despite their significance in trade, gaps and uncertainties remain surrounding the conservation status of plants (and trees) and the impact of exploitation on both plant species and wider ecosystems. There are approximately 60,000 tree species. Of these, nearly 30 per cent are threatened (critically endangered, endangered or vulnerable) on the IUCN Red List.[45] If data-deficient categories are included and assumed to be threatened, then 51.3 per cent of trees are threatened.[46] Although the number of IUCN Red List assessments for tree species have increased dramatically over recent years (thanks to the combined efforts of the Botanic Gardens Conservation International (BGCI), and the IUCN Global Tree Specialist Group, among others), only around half of the world's tree species have Red List assessments and many commercially exploited timber species have outdated or no conservation assessments.[47] Less is known about other plants, with Red List assessments only covering around 4 per cent of recognised plant species, with an estimated two in every five plant species believed to be threatened with extinction.[48]

Beyond timber, the wild plant trade 'largely goes unmentioned, unrecognised and under-researched'.[49] For instance, Jenkins et al[50] note that of the approximately 30,000 medicinal and aromatic species documented, 60 to 90 per cent of these are collected in the wild. A particular concern raised by Jenkins and colleagues is that for medicinal and aromatic plants 93 per cent have not had their conservation status assessed. Leaman and Schipmann[51] note of the 7 per cent of these plants that have been assessed, 20 per cent are threatened with extinction in the wild. According to Royal Botanic Gardens at Kew,[52] some 723 medicinal plant species and 234 edible plant species are known to be threatened with extinction. This demonstrates not only the oversight towards medicinal and aromatic plants in conservation assessments, but also the prevalence of threats towards those who have been assessed. Similarly, for cacti, Goettsch and colleagues[53] found that upwards of 31 per cent of all cactus species are threatened with extinction, and 47 per cent of these species are impacted by collection for horticultural and ornamental trade purposes, much of which is illegal, which we discuss in more depth below. Not all of these species will be directly threatened by trade and exploitation (one of the leading threats to plants is agriculture and aquaculture),[54] so the threat levels in IUCN lists and the correlation to plants listed in the appendices of CITES are worth further exploration.[55] However, in their latest report on the state of the world's plants, the Royal Botanic Gardens at Kew[56] highlight the looming threat of an existing 'extinction debt' – wherein the rate of plant extinctions (from known habitat loss) is generationally delayed or postponed as ecosystems can no longer support the variety of species they once did. The unknown impact and challenges in predicting delayed extinctions will undoubtedly destabilise plant trade dynamics which, as noted above, are already resting on uncertain or absent conservation assessments.

1.3 Legal Plant Trade and CITES

The bulk of CITES listings are for plant species. According to the CITES[57] website, for flora, there are 395 species plus 4 subspecies in Appendix I; 32,364 species, including 109 populations in Appendix II; and 9 species plus 1 variety in Appendix III. While their numbers far outweigh animal groups, there is no further detail given on this summary webpage for flora, whereas for fauna there is a breakdown by species class. This perhaps appears speciesist since animals are listed in this order: mammals, birds, reptiles, amphibians, fish and invertebrates. This does not reflect the number of species listed in each order and is not in alphabetical order. Interestingly, the numbers given for flora do not match the actual species listed in the appendices.

44 FAO (Food and Agriculture Organization), 'Global Production and Trade of Forest Products in 2016', www.fao.org/forestry/statistics/80938/en/ on (last visited 5 June 2018).

45 BGCI (Botanic Gardens Conservation International), 'State of the World's Trees'. BGCI, Richmond, UK, www.bgci.org/wp/wp-content/uploads/2021/08/FINAL-GTAReportMedRes-1.pdf (last visited 5 July 2022) (2021).

46 *Ibid*.

47 *Ibid*.; J. Mark, A.C. Newton, S. Oldfield & M. Rivers, 'The International Timber Trade: A Working List of Commercial Tree Species', https://globaltrees.org/wp-content/uploads/2014/11/TimberWorkingList-v2DImage.pdf (last visited 5 July 2022) (2014).

48 Royal Botanic Gardens, 'State of the World's Plants and Fungi', www.kew.org/sites/default/files/2020-10/State%20of%20the%20Worlds%20Plants%20and%20Fungi%202020.pdf (last visited 5 July 2022) (2020); S. Sharrock, 'A Guide to the GSPC. Richmond, UK: Botanic Gardens Conservation International', www.bgci.org/wp/wp-content/uploads/2019/04/Guide_to_GSPC_english.pdf (last visited 5 July 2022) (2012).

49 M. Jenkins, A. Timoshyna & M. Cornthwaite, *Wild at Home: Exploring the Global Harvest, Trade and Use of Wild Plant Ingredients*, www.traffic.org/site/assets/files/7339/wild-at-home.pdf (last visited 14 October 2021), at iv (2018).

50 *Ibid*.

51 D.J. Leaman and U. Schippmann, 'Personal Communication with the IUCN SSC Medicinal Plant Specialist Group IUCN 2006'. *Conserving Medicinal Species. Securing a Healthy Future* U. (2018).

52 Royal Botanic Gardens at Kew, above n. 48.

53 Goettsch et al., above n. 34.

54 Mark et al., above n. 47.

55 CITES has three appendices where wildlife are listed depending on the threat to survival from international trade. Appendix I species are the most endangered and protected; both import and export permits are required for trade in these species, and trade may only take place if it is 1. not detrimental to the species' survival (determined by the Scientific Authority of the state of export), 2. in contravention of any national laws, or 3. causing injury or damage to living 'specimens'. Appendix II species are those that could become endangered if trade is unsustainable; the above measures also apply; however, only export permits are required. Species listed on this appendix may also be subject to further regulations or trade limits to prevent the species qualifying for an Appendix I listing. Finally, Appendix III is a national level listing, where a party to CITES is concerned about their population of a species, so requires export permits and a certificate of origin to be issued confirming the legality of trade as well as overseeing that any trade in live specimens (animals/plants) does not involve their injury or cruel treatment. Lack of any of the required permits is a violation of CITES and the convention requires that parties penalise such violations. How the party penalises is left up to the party.

56 Royal Botanic Gardens at Kew, above n. 48, at 17.

57 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 'The CITES Species', https://cites.org/eng/disc/species.php (last visited 4 April 2022) (no date).

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Table 1 CITES flora species listed alphabetically by order and broken down by appendix

Order	App I	App II	App III	Order	App I	App II	App III
Apiales	0	2	0	*Magnoliales*	0	0	1
Arecales	1	8	1	*Malvales*	0	1	0
Asparagales	0	11	0	*Myrtales*	0	73	0
Asterales	1	0	0	*Nepenthales*	5	136	0
Bromeliales	0	3	0	*Orchidales*	176	27,746	0
Caryophyllales	74	1,471	0	*Papaverales*	0	0	1
Cyatheales	0	653	0	*Pinales*	5	7	3
Cycadales	97	243	0	*Primulales*	0	27	0
Dicksoniales	0	5	0	*Ranunculales*	0	3	0
Dipsacales	0	1	0	*Rhamnales*	0	3	0
Ebenales	0	85	0	*Rosales*	0	1	0
Euphoriales	17	698	0	*Rubiales*	1	0	0
Fabales	1	300	1	*Santanales*	0	1	0
Fagales	0	0	1	*Sapindales*	0	29	0
Gentianales	4	32	0	*Scrophulariales*	0	4	0
Juglandales	0	1	0	*Theales*	0	1	0
Lamiales	0	0	1	*Trochodendrales*	0	0	1
Laurales	0	1	0	*Violales*	2	6	0
Liliales	27	495	0	*Zingiberales*	0	2	0
				Total	**411**	**32,049**	**10**

Through the Species+ website[58] run by the United Nations Environment Programme-Wildlife Conservation Monitoring Centre (UNEP-WCMC), anyone can freely download a comma-separated file of all listed species. Having done this on 1 April 2022, we have compiled Table 1 of CITES-listed flora species.

The plants who are most frequently listed are orchids by more than twenty times compared to the next order of plants – *Caryophyllales* – cacti. Both orders are predominantly in demand by collectors,[59] but also for food and psychotropic drugs.[60] Other orders with notable numbers are *Euphorbiales*, a plant made into wax for food and lubricants,[61] *Fabales* (legumes, peas and beans) and *Cycadales* (cycads).

1.4 Overexploitation and the Illegal Trade in Plants

CITES provides a mechanism to monitor international trade and requires confiscation of any 'specimen' violating CITES provisions for listed species (no permit/documentation, quota has been exceeded, there is a prohibition of trade). A violation of CITES does not have to be made a criminal act, so, as mentioned, there is variation in how violations are dealt with.[62] Timoshyna et al.[63] argue that since plant confiscations and seizures contain many CITES Appendix II-listed species, this indicates poor compliance with CITES regulations (missing documentation, reporting, etc.) rather than intentional violations (smuggling or purposefully violating the convention). We suggest that there is not enough information to assume this would be the case; it could well be incidents of corporate crime, where businesses engage

58 www.speciesplus.net/.

59 A. Hinsley, H.J. de Boer, M.F. Fay, S.W. Gale, L.M. Gardiner, R.S. Gunasekara, P. Kumar, S. Masters, D. Metusala, D. Roberts, S. Veldman, S. Wong & J. Phelps, 'A Review of the Trade in Orchids and Its Implications for Conservation', 186(4) *Botanical Journal of the Linnean Society* 435, at 455 (2017); Marguiles et al., above n. 2.

60 A. Lavorgna and G. Rekha, 'From Horticulture to Psychonautics: An Analysis of Online Communities Discussing and Trading Plants with Psychotropic Properties', 25 *Trends in Organised Crime* 192, at 204 (2020).

61 I. Arroyo-Quiroz and T. Wyatt, 'Wildlife Trafficking between the European Union and Mexico', 8(3) *International Journal for Crime, Justice and Social Democracy* 23, at 37 (2019); Royal Botanic Gardens at Kew, above n. 48.

62 T. Wyatt, *Is CITES Protecting Wildlife? Assessing Implementation and Compliance* (2021).

63 A. Timoshyna, Z. Ke, Y. Yang, X. Ling & D. Leaman, *The Invisible Trade: Wild Plants and You in the Times of COVID-19 and the Essential Journey Towards Sustainability*, www.traffic.org/site/assets/files/12955/covid-wild-at-home-final.pdf (last visited 14 October 2021).

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in illegal behaviour as a cost-saving measure and to increase their profits.[64] Such concerns have been noted surrounding the transparency of labelling plants within ingredients lists (e.g. accuracy and provenance), with misleading labelling potentially being used to skirt customs regulations.[65] The fact that much of the plant trade is legal provides additional cover for illegal activity[66] and another reason why there is a gap in knowledge as to the nature and scale of the illegal trade. Furthermore, as Marguiles et al[67] propose, scholarship shows that while there is some understanding of the legal trade in CITES-listed species, it is not enough and does not include all the non-CITES-listed species. Even less is understood about the nature, scope and mechanisms of plant trafficking, so this, too, requires further research.[68]

As indicated, the nature and scale of the illegal plant trade is not fully known. Perhaps more than other illegal markets, wildlife trafficking is thought to have a large dark figure of crime, meaning the amount of illegal activity that is taking place is unknown.[69] This dark figure of crime in part stems from wildlife trafficking happening in remote places, being viewed as a victimless crime, and not being a police priority.[70] Lavorgna and Rekha[71] suggest that there are varying levels of illegality in the illegal plant trade and that these have different levels of seriousness. At one end of the spectrum, there are administrative violations where a permit is missing or contains errors (the poor compliance issue raised by Timoshyna et al).[72] At the other end, there is the targeted collection from the wild of highly endangered species, as well as concerted efforts to obtain newly described species, whose novelty and rarity make them desirable for personal or commercial collections.[73] Both ends of the spectrum can have negative ecological impacts and negative implications for the survival of species. Presumably, even less is known about overexploitation and overharvest as these are taking place within legal frameworks and are not subject to regulation or seizures.

One useful source of information on illegal wildlife trade comes from the United Nations Office on Drugs and Crime (UNODC) *World Wildlife Crime Report*.[74] Their most recent report found that of the global wildlife seizures between 1999 and 2018, 14.3 per cent were of plants (see Figure 1).

Again, as with the CITES summary of plant species listed, the level of detail for plants is not to the same taxonomic level as for other-than-human animals. The UNODC[75] report also contains a case study of the illegal rosewood timber trade, highlighting that when plants are the focus of further scrutiny, this also tends to be of a timber species. This supports Lavorgna and Rekha's[76] assertion towards the varying seriousness for plant-related crimes, as timber trade is valued highest (economically) of all plant trades. In actuality though, CITES seizure data from 2018 (relating to European Union data) shows that 23 per cent of wildlife confiscations were of medicinal products (not timber species), making them the largest category of all seizures.[77] Medicinal and aromatic plants made up 260,562 items, 6,685 kilograms and 23 litres of these seized products.[78] In addition to the illegal timber and medicinal trades, there is further evidence to support that cacti[79] and orchids[80] for the horticultural and ornamental trades are subject to illegal trade and some of these studies have provided statistics regarding illegal trade based on CITES trade records, indicating a small fraction of the overall trade is illegal. Most recently, media reports have documented the illegal trade in *Dudleya farinosa*,[81] a succulent plant known as 'bluff lettuce'. Like cacti and orchids, Marguiles[82] found the illegal trade in bluff lettuce is not originating from mainstream plant consumers, but is driven by more specialist collectors. In addition, Arroyo and Wyatt[83] and the Royal Botanic Gardens at Kew[84] have documented some amount of illegal trade in *Euphorbiales*.

64 A. Lavorgna, 'Wildlife Trafficking in the Internet Age', 3(5) *Crime Science* 1, at 12 (2014); T. Wyatt, D. Van Uhm and A. Nurse. 'Differentiating criminal networks in the illegal wildlife trade: organized, corporate and disorganized crime' 23 Trends in Organised Crime, 350 – 366 (2020). https://doi.org/10.1007/s12117-020-09385-9. .

65 A. Lavorgna, S.E. Middleton, D. Whitehead, C. Cowell & M. Payne, 'FloraGuard: Tackling the Illegal Trade in Endangered Plants', www.kew.org/sites/default/files/2020-10/FloraGuard%20Tackling%20the%20illegal%20trade%20in%20endangered%20plants.pdf (last visited 5 July 2022) (2020).

66 Lavorgna, above n. 64; Lavorgna et al. above n. 65..

67 Marguiles et al., above n. 2.

68 *Ibid.*

69 Wyatt (2021), above n. 2.

70 Lavorgna and Sajeva, above n. 18; Wyatt (2021), above n. 2.

71 Lavorgna and Rekha, above n. 60.

72 Timoshyna et al., above n. 63.

73 Lavorgna and Rekha, above n. 60; Lavorgna and Sajeva, above n. 18; Marguiles et al., above n. 2.

74 UNODC (United Nations Office on Drugs and Crime), *World Wildlife Crime Report* (2020).

75 *Ibid.*, at 10.

76 Lavorgna and Rekha, above n. 60.

77 TRAFFIC, 'Overview of Seizures of CITES-Listed Wildlife in the European Union – January to December 2018', www.traffic.org/publications/reports/an-overview-of-seizures-of-cites-listed-wildlife-in-the-european-union/ (last visited 5 April 2022) (2020).

78 *Ibid.*

79 Goettsch et al., above n. 34; Arroyo-Quiroz and Wyatt, above n. 61.

80 Hinsley et al., above n. 59.

81 J. Marguiles, 'Korean 'Housewives' and 'Hipsters' Are Not Driving a New Illicit Plant Trade: Complicating Consumer Motivations Behind an Emergent Wildlife Trade in *Dudleya farinosa*', 8 *Frontiers in Ecology and Evolution* 1, at 2 (2020).

82 *Ibid.*

83 Arroyo-Quiroz and Wyatt, above n. 61.

84 Royal Botanic Gardens at Kew, above n. 48.

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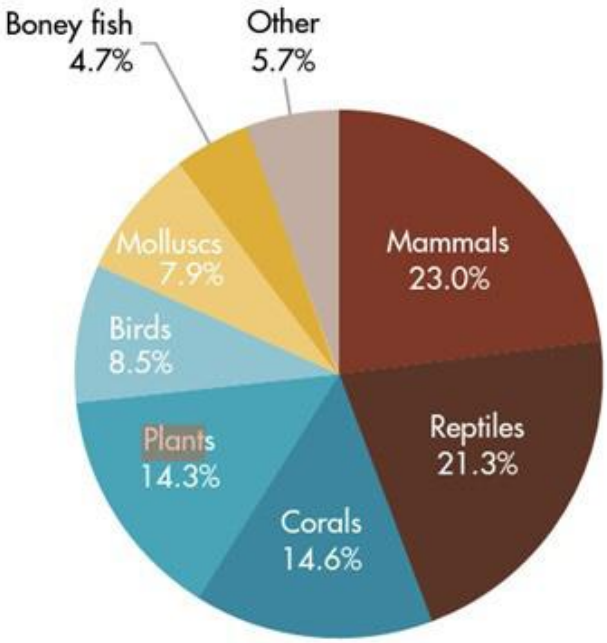
Figure 1 Share of seizure incidents in World WISE by taxonomic category (1999-2018)



Source: UNODC World WISE Database.

Other factors that contribute to the lack of knowledge about overexploitation and illegal plant trade stem from the large amount of informal collection of wild plants. There is a large amount of undocumented use of wild plants, and it is not always clear or recorded when a plant is wild or when it is cultivated.[85] As alluded to above, the very definitions of 'wild', 'natural', 'cultivated', etc. can prove problematic when trying to determine the origin of traded plants. The fact that some plants are extracted from the wild and are also cultivated adds additional challenges for regulating international trade as it adds a layer of complexity to prove origin and provides a means of laundering wild-sourced plants as having been cultivated. Further complexities arise in that many companies specifically market plant products as 'wild' and 'natural' as a desirable feature that many consumers may prefer to purchase. However, companies often have not verified that the plants have been harvested in ecologically sustainable ways.[86] Although a vast majority – 99 per cent – of trade in cacti, orchids and snowdrops are believed to be from cultivated plants, Jenkins et al[87] note that 'Where plants are wild-collected, adherence to CITES regulations is in itself a reliable indicator of sustainability.' This sentiment, however, overlooks the evidence that the non-detriment findings required to ensure trade in CITES species is sustainable are frequently not based on scientific evidence and can be subject to political and/or industry pressure.[88] Thus, CITES permits should indicate sustainability and legality, but there are exceptions to this.

Another aspect contributing to the lack of knowledge about the illegal plant trade is the central role played by the Internet for selling plants. Internet-facilitated plant (and other-than-human animal) trafficking has resulted in layers of organisation being removed and relationships between suppliers, intermediaries and buyers changing.[89] These fluid criminal networks of professional offenders, who are connected as gardeners or other occupations to the legal plant trade, organise their lives around this criminal activity.[90] Lavorgna and Sajeva[91] found that these networks could be categorised into two groups – the live specimen trade and derivative products. The low-risk high profit of the illegal plant trade and the status and passion that goes along with collecting were the main motivations behind the online illegal trade.[92] The low-risk element stems from the sheer scale of trying to police advertisements of plants online when technology companies and the police have nearly no knowledge of what species are illegal and from trying to prove criminal intent from receiving a postal package. Illegal plant traders can additionally operate openly on easily accessible parts of the Internet.[93] The complex taxonomy of identifying plants and the further complication of verifying whether the plant is wild-collected or cultivated means that investigations into illegal activity are challenging.[94]

Whereas the trafficking of other-than-human animals has recently gained more attention because of the likely link to the corona virus pandemic with a bat and perhaps a secondary other-than-human animal passing the

85 Jenkins et al., above n. 49.
86 *Ibid.*
87 *Ibid.*, at 29.
88 Wyatt (2021), above n. 62.
89 Lavorgna, above n. 64.
90 *Ibid.*
91 Lavorgna and Sajeva, above n. 18.
92 *Ibid.*
93 Royal Botanic Gardens at Kew, above n. 48.
94 *Ibid.*

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virus on to a human,[95] less attention is given to the fact that plants too can pose public and environmental health risks when they fail to be screened through the proper phytosanitary channels.[96] Thus, the illegal plant trade poses public and environmental health risks. Ash disease in the UK, for instance, was brought to the island through a legal nursery shipment, highlighting that even with scrutiny disease transmission is possible and could potentially be worse if the plants are smuggled and not undergoing checks.[97] Despite the anatomical differences between plants and animals, plant pathogens have been known to infect animal hosts.[98] Consuming contaminated foods, ingesting herbal medicines and smoking all potentially expose humans to plant viruses.[99] However, considering the ubiquitous nature of plant trade, further research is needed to understand the extent and propensity for cross-kingdom infections, as much of the literature surrounding the crossover of plant-animal diseases has focussed on individual cases (e.g. infections arising post-operatively and agricultural crossovers).[100] Apart from the risk of spreading disease, the illegal plant trade threatens numerous species as well as destroying natural resources for many people.[101] For local populations of plants, overharvest, which may be legal, is the biggest threat as it may lead to depletions or extirpations.[102] Plant extinctions can have far-reaching implications for the health of environments and ecosystems as well as other-than-human animals and humans reliant on plants for food and shelter.

Thus, much more information needs to be gathered to improve understanding of the nature and scope of legal and illegal plant trade as well as overexploitation. The reason that we do not know more is likely connected to humans' ongoing speciesism, including plant blindness, which impacts upon research and conservation agendas, and, as we will focus on shortly, which wildlife are granted protection under trade legislation in the first place.

95 E. Sallard, J. Halloy, D. Casane, et al., 'Tracing the Origins of SARS-COV-2 in Coronavirus Phylogenies: A Review', 19 *Environmental Chemistry Letters* 769 (2021).

96 Phelps and Webb, above n. 35.

97 Wyatt (2021), above n. 2.

98 J.S. Kim, S.J. Yoon, Y.J. Park, S.Y. Kim & C.M. Ryu, 'Crossing the Kingdom Border: Human Diseases Caused by Plant Pathogens', 22(7) *Environmental Microbiology* 2485, at 2495 (2020).

99 F. Balique, H. Lecoq, D. Raoult & P. Colson, 'Can Plant Viruses Cross the Kingdom Border and be Pathogenic to Humans?', 7 *Viruses* 2074, at 2098 (2015).

100 *Ibid.*; H. Habsah, M. Zeehaida, H. Van Rostenberghe, R. Noraida, W.I. Wan Pauzi, I. Fatimah, et al., 'An Outbreak of Pantoea spp. in a Neonatal Intensive Care Unit Secondary to Contaminated Parenteral Nutrition', 61 *Journal of Hospital Infection* 213, at 218 (2005); B.M. Hause, E. Nelson & J. Christopher-Hennings, 'Identification of a Novel Statovirus in a Faecal Sample from a Calf with Enteric Disease', 102(9) *Journal of General Virology* 001655 (2021);

101 Phelps and Webb, above n. 35.

102 Jenkins et al., above n. 49.

2 Methodology

As part of a UK Arts and Humanities Research Council (AHRC) Leadership Fellowship 'Lessons Learned from the Implementation of and Compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)', a content analysis of 183 CITES parties' wildlife trade-related legislation and two non-parties was conducted (Haiti and South Sudan). Part of this analysis entailed examining whether and how countries define 'wildlife'. As we note in our findings, some parties do not specifically use or define the word 'wildlife' but utilise 'fauna' and 'flora' and/or 'specimen'. We took these to refer to wildlife and included these usages in the appropriate categories described below. Our analysis included examining how 'anima/faunal' and 'plant/flora' are defined.

It is important to note that these data do have limitations. These stem from language and legislative complexity. For 112 parties, we located online English versions of the legislation that transposes CITES. Primarily, the legislation was found in the ECOLEX and FAOLEX databases. Google translate was relied on for legislation in languages other than Spanish and Russian. Clearly, this may have implications for exact definitions. However, CITES is ultimately a trade-related treaty whose sole focus is the regulation of international trade in listed species,[103] so it may not be surprising that such trade legislation does not address broader debates around wildlife definitions. Yet, we maintain that this can have negative consequences for plant conservation and thus biodiversity. Negative consequences stem from the fact that specific exclusion from or a lack of clarity around inclusion in CITES legislation may create loopholes through which species in need of protection from exploitative trade are not afforded this because of wildlife definitions in the legislation. Furthermore, which plants are specifically protected in cases where they are included in the legislation requires more research. When reading in more depth the lists of species in some legislation, it became apparent that while not explicitly stated as being excluded, often no timber species were listed.

Having copied each wildlife definition or taken notes from the parties' CITES legislation into a Microsoft Excel spreadsheet, we then conducted a content analysis. We looked for whether the words 'plant' or 'flora' specifically appeared. We then examined whether specific plant and/or flora appeared (e.g. trees). CITES does distinguish artificially propagated plants from wild-sourced plants by providing a separate code for artificial propagation for categorising plants when traded. This distinction, however, does not seem to affect the inclusion or use of the words animal/fauna and plant/flora in the Convention text. That is not to say a plant's origin was not mentioned in some parties' legislation as we discuss shortly. In some cases, the definition of wildlife meant plants were included in the legislation transpos-

103 Sollund, above n. 5; Wyatt (2021), above n. 62.

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ing CITES; in other cases, this meant plants were excluded from the legislation transposing CITES. There were also instances where only some plants – native or naturally growing (as opposed to artificially propagated) – were included, which we categorised as 'partially included' as not all CITES-listed species would be covered by limiting to native/naturally growing ones. In some pieces of legislation, it was not explicitly clear whether plants were wildlife; we erred on the side of inclusion, so we coded this as 'implied included'. Legislation which also specifically mentioned other legislation that dealt with plants (such as forestry legislation) was coded as 'separate'. Many pieces of legislation did not define wildlife at all. Thus, we employed six codes during our content analysis – included, excluded, partially included, implied included, separate and no definition (a breakdown of each of these is given in Table 2).

Table 2 Codes for the inclusion of plants within CITES legislation

Codes	Number of pieces of legislation
Included	71
Partially included	3
Implied included	2
Separate	18
Excluded	10
No definition/unspecified	81
Total	**185**

3 Findings

Here we provide an overview of the legislation within each of our six categories as well as provide some more detailed illustrative examples from each of the categories. Our analysis of CITES-specific legislation found that plants are included in wildlife definitions in seventy-one pieces of legislation (a full breakdown of these definitions is given in Table 2). It is worth noting that inclusion in the legislation may or may not lead to operationalised protection in the country. Enforcement of these legislation by the appropriate agency or regulator is beyond the scope of our analysis, but is a key piece of further research to fully understand whether and how plants are protected. In terms of the intention of the legislation, India's Wild Life (Protection) Act 1972,[104] for instance, has an entire chapter – IIIA Protection of Specified Plants – which details proper picking, uprooting, cultivating, dealing, possessing, and purchasing of listed plants and the licenses required to do so. However, upon looking at the specified plants, no trees are included; trees are covered under separate forestry legislation. So, whereas plants are included as wildlife, trees appear to not always be treated under the law the same as other plants. In contrast, the Environmental Protection Law of Mongolia (1995)[105] extends protection to land and soil, underground resources and mineral wealth, water, plants, animals and air. Plants are specifically defined as: 'natural and planted forests, trees, and all types of higher and lower plants that grow within the territory of Mongolia' (Environmental Protection Law 1995).[106] The law seeks to protect resources from adverse effects to prevent ecological imbalance. Canada's legislation – the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA) – begins with the definition of terms used in the legislation.[107] A plant 'means any specimen, whether living or dead, of any species of plant that is listed as "flora" in an appendix to the Convention, and includes any seed, spore, pollen or tissue culture of any such plant'.[108] As is evident from the title of the law, Canada regulates international trade and also trade domestically between its provinces.

Plants are specifically excluded in ten cases. In Russia, the Federal Law of the Russian Federation on Wildlife (No. 52-FZ of 1995)[109] only includes 'wild animals' and genetic resources of 'animal origin'. Interestingly, in the case of Sierra Leone, their 1972 The Wild Life Conservation Act[110] explicitly only covers activities involving animals. However, their 2010 Conservation and Wildlife Policy[111] includes plants: 'Wildlife refers to all species of

104 *Wild Life (Protection) Act 1972*, https://legislative.gov.in › sites › default › files (last visited 10 April 2022) (1972).

105 *Environmental Protection Law of Mongolia*, https://resourcegovernance.org/sites/default/files/Environmental%20Protection%20Law.pdf (last visited 10 April 2022) (1995).

106 *Ibid.*

107 *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)*, https://laws-lois.justice.gc.ca/eng/acts/W-8.5/FullText.html (last visited 15 November 2022) (1992).

108 *Ibid.*

109 *Federal Law of the Russian Federation on Wildlife* (No. 52-FZ of 1995), www.ecolex.org/details/legislation/federal-law-of-the-russian-federation-on-wildlife-no-52-fz-of-1995-lex-faoc022375/ (last visited 10 April 2022) (1995).

110 *The Wild Life Conservation Act 1972*, http://extwprlegs1.fao.org/docs/pdf/sie41659.pdf (last visited 10 April 2022) (1972).

111 *Conservation and Wildlife Policy*, http://extwprlegs1.fao.org/docs/pdf/sie149515.pdf (last visited 10 April 2022) (2010).

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indigenous terrestrial and aquatic flora and fauna (including micro-organisms) and their natural habitats.' It is acknowledged within this policy that the 1972 Act, which is still in effect, is out of date. Interestingly though, the policy only protects indigenous species, which brings us to our next category.

There are three examples of plants partly being included in definitions of wildlife. For instance, the Decree of the President of the Republic of Belarus dated 15 July 2019 No. 269 'On the State Inspectorate for the Protection of Fauna and Flora under the President of the Republic of Belarus' refers to wild land and vegetation.[112] This appears to only include plants in the 'wild'. Digging further into Belarussian legislation, there is a separate law 'Law of the Republic of Belarus "On Flora"'[113] that outlines activities that are allowed for not only wild plants, but also cultivated plants. Again, forestry regulations are given in a separate piece of legislation.

Legislation from Bulgaria and Cabo Verde was categorised as 'implied included' as definitions referred to biodiversity rather than plants specifically. For eighteen pieces of legislation, there was obvious reference to separate (probably forestry) legislation. In Burkina Faso, for instance, there is a clear distinction between the fishery, forestry and wildlife legislation. For eighty-one countries, legislation transposing CITES contained no definition for wildlife.

From this legislative analysis, one piece of legislation that stood out is that of Bhutan. The Forest and Nature Conservation Act of Bhutan 1995 explicitly defines timber. '"Timber" means trees, whether standing or fallen, whether converted or not, and includes logs, branches, stumps, roots, firewood, lops and tops.'[114] Furthermore, this legislation defines plants as part of 'forest produce'.

> g. 'Forest Produce' includes the following, whether or not found in the Forests:
>
> i. trees and parts or product of trees including timber, firewood, charcoal, bark, wood-oil, resin, latex or natural varnish, katha/kutch, etc.;
>
> ii. wild plants and parts or products of wild plants including flowers, seeds, bulbs, roots, fruits, leaves, grasses, creepers, reeds, orchids, bamboo, cane, fungi, moss, medicinal plants, herbs, leaf mould or other vegetative growth, whether alive or dead;
>
> iii. wild animals including fish, and parts or products of wild animals including skin, hides, feathers, fur, horn/antlers, tusks, bones, bile, musk, honey, wax, lac; and
>
> iv. boulders, stone, sand, gravel, rocks, peat, surface soil.[115]

While the above examples illustrate how plants are incorporated into legislation, the reasons for this inclusion seem to tend to revolve around trade and instrumental use rather than aesthetic or other reasons. Thus, not surprisingly specific protected plants are frequently those used extensively in trade. For example, in a related piece of legislation to the transposing of CITES, Peru's 'Resolution No. 021 of 2018'[116] establishes guidelines for implementing forest and wildlife legislation. In addition to detailing logging offences, the legislation also prohibits unlawful extraction of cacti, succulents, orchids and bromeliads (likely linked to the recognition of those species within CITES). Another example is Guatemala's 'Decree No. 99/96'[117] which establishes laws surrounding the marketing and use of chewing gum derived from the sapodilla tree. Fruits from this tree are also key ingredients in jams and drinks, as well as being used in traditional medicines.[118] Yet, Guatemala also provides perhaps the only example of protections for plant species that go beyond mere trade interests. Its 'Decree No. 13'[119] recognises the long-entwined relationship between the spirituality and customs of Mayan people and corn (*Zea mays* L) and declares that the many varieties of corn are a 'natural and cultural product' with 'intangible cultural heritage' that must be protected. However, clearly the species is still consumed, with the same decree also highlighting how corn contributes to the food security of Guatemala. The two decrees demonstrate humans' complex relationship with nature and with plants and provide a glimpse into how legislation might reflect more than plants' instrumental value to people.

As a further exploration of speciesism in legislation, as a side note beyond plants, we identified legislation in ten[120] countries that extended protection provisions against the unlawful collection of mushrooms (or fungi

112 Decree of the President of the Republic of Belarus dated July 15, 2019 No. 269, 'On the State Inspectorate for the Protection of Fauna and Flora under the President of the Republic of Belarus', http://gosinspekciya.gov.by/en/legal-provisions/regulations/ (last visited 10 April 2022) (2019).

113 *Law of the Republic of Belarus*, 'On Flora', http://gosinspekciya.gov.by/actual/lesopolzovanie-i-zashchita-lesa/353/ (last visited 10 April 2022) (2003).

114 *Forest and Nature Conservation Act of Bhutan 1995*, http://extwprlegs1.fao.org/docs/pdf/bhu7101.pdf (last visited 10 April 2022) (1995).

115 *Ibid.*, at 1-2.

116 *Resolution No. 021 – OSINFOR – Methodology for calculating the amount of fines to be imposed by the Forest Resources and Wildlife Supervision Agency (OSINFOR) for infractions of Forest and Wildlife Legislation (2018)*, www.ecolex.org/details/legislation/resolucion-no-021-2018-osinfor-metodologia-de-calculo-del-monto-de-las-multas-a-imponer-por-el-organismo-de-supervision-de-los-recursos-forestales-y-de-fauna-silvestre-osinfor-por-infraccion-a-la-legislacion-forestal-y-de-fauna-silvestre-lex-faoc177708/?q=Peru+021&type=legislation&xsubjects=Forestry&xcountry=Peru&xdate_min=2018&xdate_max=2018 (last visited 31 July 2022).

117 Decree No. 99/96 – Law for the use and marketing of chewing gum (1996). www.ecolex.org/details/legislation/decreto-no-9996-ley-para-el-aprovechamiento-y-comercializacion-del-chicle-lex-faoc060559/?q=Guatemala+99&type=legislation&xsubjects=Wild+species+%26+ecosystems&xcountry=Guatemala&xdate_min=&xdate_max= (last visited 31 July 2022).

118 S.P. Bangar, N. Sharma, H. Kaur, K.S. Sandhu, S. Maqsood & F. Ozogul, 'A Review of Sapodilla (Manilkara Zapota) in Human Nutrition, Health, and Industrial Applications'. Pre-proof *Trends in Food Science & Technology* (2022).

119 *Decree No. 13*: Law that declares corn (*Zea mays* L.) as intangible cultural heritage of the Nation, www.ecolex.org/details/legislation/decreto-no-13-2014-ley-que-declara-al-maiz-zea-mays-l-como-patrimonio-cultural-intangible-de-la-nacion-lex-faoc140262/?q=Guatemala+13&type=legislation&xdate_min=&xdate_max= (last visited 31 July 2022).

120 Fungi included: Kuwait, Latvia, Lithuania, Norway, Portugal, Republic of North Macedonia, Saudi Arabia, Serbia, Slovenia, Tajikistan.

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generally). Only two cases (Croatia and Latvia) were found to have additional provisions for the protection of lichens ('Ordinance on the collection of native wild species', 2017,[121] and 'Species and habitat protection law', 2000[122] – respectively). We now turn to a discussion of these findings that links back to our green criminological approach combining speciesism and plant blindness.

4 Discussion and Conclusion

Legislation defining and protecting wildlife is complex and our content analysis, while robust, undoubtedly oversimplifies and misses certain aspects. This is perhaps particularly the case for plants, where their use and protection sit across trade, conservation, forestry and likely other legislative frameworks. In the case of trade legislation, CITES is the international framework for overseeing sustainable plant trade for those species who are listed. But for more than half of the parties to CITES, plants are not explicitly named as being protected within the legislation. This seems to indicate an inherent plant blindness. Furthermore, the heavy weighting of orchids and cacti within CITES, in contrast to the other many hundreds if not thousands of exploited and threatened plant species not listed within CITES (medicinal, food, timber), perhaps speaks to the underpinning trade interests within CITES. This, we suggest, speaks to the speciesism of legislation as when plants are included only those deemed valuable by human standards are those protected. This is evident in that the plants who are protected in CITES are those traded by horticulturalists and collectors, whereas plants who tend not to be protected under CITES are key resources for industry and manufacturing groups. The fact that there is often an entire separate forestry legislation reveals trees may be the focus of greater management, but again for commercial exploitation.

Further research and content analysis would likely yield a more detailed picture as to definitions of plants and wildlife. That said, it is clear that in ten cases plants are not included in CITES-specific legislation (Table 2). Within 'plants', there is more variation, and it is more likely that trees are not defined as wildlife. Others have noted trees are treated differently to other plants because of their economic value and our findings somewhat support this in that the management of trees and forests is very often completely separate to other wildlife.[123] Perhaps this division between wildlife and forestry legislation has created a vacuum in which plant blindness can exist; where the recognition of plants (generally) is overlooked as neither form of legislation consistently includes plants in their definitions.

Overall, then in terms of wildlife, plants are not given the same attention – be research funding or consideration when drafting legislation. This highlights how speciesism itself can be plant blind. This has real-world consequences for conservation, biodiversity loss and crime. As mentioned, plants are critical to ecosystem health and if their conservation is lacking, then this could threaten species and ecosystem survival as well as human and other-than-human food systems. Such biodiversity loss is an environmental crisis. The legislative analysis related to plants reveals that efforts to conserve plants and curb biodiversity loss take on a variety of forms, including, but not often, making exploitation of plants a crime. For instance, timber, the largest wildlife trade, rests on the legal exploitation of the planet's forest. Yet, as we have demonstrated, measures for their protection overwhelmingly lie in forestry legislation established to manage forestry exploitation, separate from wider conservation provisions for plants and the environment. This is despite forests providing crucial habitats for plants and animals alike, as well as contributing to carbon storage, critical in the face of climate change. Furthermore, as noted previously, plants (other than timber species) are often under-researched and under-prioritised, with 96 per cent of recognised plant species yet to be assessed by the IUCN, despite their numerous benefits to both humans and within the wider web of biodiversity – a clear example of speciesism and plant blindness. Recognising this plant blindness within legislative systems, non-timber plants species, too, fall between the various legislative arms of wildlife and forestry – with protections largely established for specifically listed protected species (CITES, national Red Lists), irrespective of the interconnected relationships between species. And overexploitation of plants from trade and trafficking is just one of the mounting human threats to biodiversity. Plant and other species' biodiversity loss are also stemming from climate change, genetic modification and monoculture crops, often maintained by powerful structural corporate interests.[124] Not legally recognising (some) plants as wildlife is plant blind and speciesist and just one element of the overall speciesism in many societies that is contributing to the destruction to ecosystems and the planet.

Marguiles et al.[125] point out that plant blindness is a global phenomenon. Our content analysis supports this as the examples of where plants are excluded are from around the world. Yet, the disregard for plant life is not generalisable to all human societies,[126] and broader legislation focussing on the stability of ecosystems and the environment gives scope to include all plant species, irrespective of their use and importance to humans (for trade). Plant blindness seems to be an Anglo-Western approach to nature, which is not the case in many indigenous and other communities that have a closer, even

121 *Ordinance on the collection of native wild species* (2017), www.fao.org/faolex/results/details/en/c/LEX-FAOC184696 (last visited 30 July 2022).

122 *Species and habitat protection law* (2000), www.varam.gov.lv/en/protection-species-and-habitats?utm_source=https%3A%2F%2Fwww.google.com%2F, (last visited 30 July 2022).

123 Hutchinson et al., 2022; Lavorgna and Sajeva, above n. 18.

124 R. Walters, *Eco-crime and Genetically Modified Food* (2011); White, above n. 4.

125 Marguiles et al., above n. 2.

126 *Ibid.*

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empathetic, relationship with plants.[127] Lessons for improving legislation to make it more inclusive of all wildlife can be found in legislation underpinned by the Rights of Nature approach and/or Earth Jurisprudence that recognise the value of all life and disrupt the anthropocentric, unquestioned commodification and consumption of wildlife and nature.[128] The lessons are not just applicable to legislation; adopting an Earth-centric approach can also further green criminological scholarship by expanding its enquiry to more fully include plants and all other-than-human species. Such scholarship has the potential to contribute to positive change by highlighting biases. To reverse the biodiversity crisis and slow the sixth mass extinction, it is essential to challenge plant blindness and speciesism in all aspects of society, including in the legislative frameworks that underpin the protection of life on the planet.

127 M. Balding and K.J. Williams, 'Plant Blindness and the Implications for Plant Conservation', 30(6) *Conservation Biology* 1192, at 1199 (2016).

128 C. Cullinan, 'A History of Wild Law', in P. Burdon (ed.), Exploring Wild Law: The Philosophy of Earth Jurisprudence (2011) 12 - 23; J. Koons, 'What is Earth Jurisprudence? Key Principles to Transform Law for the Health of the Planet', 18(1) *Penn State Environmental Law Review* 47 (2009).

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