Speciesism and the Wildlife Trade: Who gets Listed, Downlisted and Uplisted in CITES?

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Abstract

Wildlife faces a number of threats due to human activity, including overexploitation from excessive and/or illegal trade. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is the main international legal instrument to address such overexploitation. However, not all species threatened by excessive trade are protected by CITES, leading to criticism that it is an instrument for the preservation of exploitation as opposed to the protection of wildlife (Goyes and Sollund 2016). This article explores whether CITES classifications can be said to perpetuate speciesist thinking. We highlight which species are more likely to receive protection by analysing which species are listed and how some species move between the CITES Appendices and comparing this to the International Union for the Conservation of Nature's (IUCN) classifications for traded wildlife. We find that a species' market value, charisma, and survival status form a complex set of characteristics that lead (or not) to the continual trade of some species, even though they are facing extinction from human consumption.

Introduction

Wildlife trading has generated great concern recently. Hundreds of millions of non-human animals and plants are legally traded each year internationally (CITES, n.d. b), not including domestic trade and consumption or illegal trade. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2019) found that the second cause of nearly one million species facing extinction is overexploitation, including trade. Further, wildlife trade has been linked to the coronavirus pandemic affecting the entire world (Kimbrough 2020). The main global instrument for regulating wildlife trade is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES (n.d. a) protects around 38,700 species of an estimated 8.7 million (+/-1.3 million) eukaryotic species (not including bacteria) (Mora et al. 2011). Many species who[1] are targeted for trade are never listed in the CITES Appendices for protection against overexploitation (Fukushima et al. 2020; Scheffers et al. 2019), and critics of CITES argue that it is a mechanism to protect the exploitation of wildlife, not wildlife themselves (Sollund 2011; Goyes and Sollund 2016; Sollund 2019).

This article explores the way species are listed or not in CITES and how a species may move from one level of protection to another by asking the following: *To what extent can CITES classifications be said to perpetuate speciesist thinking*? We attempt to answer this question using a green criminological non-speciesist theoretical framework defined in the second section. We first provide some context about CITES, including how a species becomes listed in a CITES Appendix. After describing the background and theoretical framework, we discuss our methodology and data analysis. This is followed by an exploration of CITES-listed species and which traded species are not listed. We then discuss the movement of species within CITES—first from a lower Appendix to a higher one (uplisted from Appendix III to II or II to I) and second from a higher Appendix to a lower one (downlisted from Appendix I to II or II to III). We also discuss which species have 'reservations', where a CITES party opposes the species' listing. We then examine whether such movement and opposition perpetuate speciesism and what that potentially means for the future of some species.

Background and Context

How the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Functions

The exploitation of wildlife can be categorised into *legal* and *illegal* trades. The illegal wildlife trade (IWT) includes trading *protected* non-human animals, plants (including timber), and the illegal element of illegal, unreported, and unregulated (IUU) fishing. Wildlife crime is a larger category IWT is a part of, since wildlife crime also includes illegal activity, such as badger baiting (Nurse and Wyatt 2020). CITES is an international agreement that regulates, and in some cases bans, certain wildlife trades and views wildlife as resources (Sollund 2011). In this sense, CITES is best understood not as a wildlife protection mechanism but rather as an anthropocentric regulatory mechanism for continued wildlife exploitation (Goyes and Sollund 2016).

Within this anthropocentric framework, CITES operates by categorising wildlife into one of three Appendices allegedly based on the level of risk that international commercial trade poses to the species' survival. Appendix I prohibits international commercial trade, although exceptions are made for 'personal' and 'scientific' reasons (CITES 1973). Species who might become threatened by international trade are listed in Appendix II. Here, trade *should* be closely controlled, requiring export permits and possibly trade quotas to ensure trade will not be detrimental to the species' survival. Finally, CITES parties concerned for a species not listed in the first two Appendices can highlight domestic concerns by listing them in Appendix III.

Any party can propose a species listing or amendment; there is no requirement for a range state (a country with a species population) to support the listings or amendments (CITES 2013). However, it is recommended that parties either consult with range states or submit their proposals nearly a year before

the Conference of Parties (when decisions are voted on) so that range states can respond (CITES 2013). The criteria for amending the Appendices, which includes listing species and their movement between Appendices, are outlined in Resolution Conf. 9.24 (Rev. CoP17) (CITES 2016b). Ultimately, decisions are said to be 'founded on sound and relevant scientific information, take into account socio-economic factors, and meet agreed biological and trade criteria' (CITES 2016b: 2). However, this arguably rests on an underlying speciesist logic (Sollund 2019). The criteria for an Appendix I listing assess whether a species is threatened by extinction. The criteria are biological in nature, related to population size, reproductive strategies, habitat size and fragmentation. The criteria for Appendix II are concerned with trade information and whether trade in wild populations is or could be a threat to the species' survival. Consequently, Appendix II aims to regulate trade in species so that they do not qualify for a listing in Appendix I. The underlying approach is said to be precautionary, acting in the best interest of species conservation (CITES 2016b). It is important to note that CITES Resolutions are non-binding recommendations.

Through this system of listing species, CITES defines the boundaries for international legal and illegal wildlife trade (Bowman et al. 2010). While CITES seeks to balance commercial interests and conservation concerns, this balancing act can leave some species under-protected and overexploited. For instance, listing proposals can be objected to on socioeconomic grounds when they negatively impact people's livelihoods (CITES 2011). This has been seen in both commercially exploited fish and timber species (CITES 2011). A species charisma, which is likely to depend on cultural perceptions, and the accompanying public affection for certain wildlife may also play a role in the attention given to different species. An unfortunate consequence of a speciesist bias means that research, legislative and conservation action often favours 'charismatic' species (Leader-Williams et al. 2010; Sitas et al. 2009; Veríssimo and Wan 2018), namely large, terrestrial mammals, such as lions, tigers and elephants (Albert et al. 2018). Conservation concerns do not easily filter down to less 'charismatic' species, and the exploitation of vast numbers of fish, amphibians, invertebrates, fungi, and algae does not receive the level of attention that their charismatic relatives might receive.

The disparity in the CITES listings becomes more evident when analysing the estimated number of species throughout taxonomic groups. While Mora et al. (2011) has estimated there are 8.7 million species, Fukushima et al. (2020) has estimated that around 11,262,447 species of invertebrates (arthropods, molluscs, corals, etc.), 281,113 species of vascular plants, and 70,000 vertebrate species (including freshwater and marine fish) have been described. Within CITES, the bulk of the listings are for plants (over 32,000 species listed), and other taxonomic groups are far less represented (Figure 1).

Additionally, the International Union for the Conservation of Nature (IUCN) Red List, a database of species categorised by population status (critically endangered, endangered, vulnerable, near threatened, least concern and data deficient), also does not reflect the estimated number of species found globally, appearing biased towards vertebrate species. According to Scheffers et al. (2019), there are 10,278 species of birds, 9,563 reptiles, 6,484 amphibians and 5,420 mammals on the IUCN Red List (n. 31,745). Of these, 24% are nationally and internationally traded. Despite their comparatively greater number, only a small percentage of invertebrates (n. 21,653) have been assessed. Of these, 13% are known to be traded (Fukushima et al. 2020).

This bias in assessments could mask the true scale of trade in species not represented to the same degree (e.g., fungi and algae). A potential focus on charismatic (vertebrate) species means that species without these popular traits might receive less conservation attention (Nuwer 2018). Even though fungi are widely traded and potentially overexploited, none of the more than 30,000 known species is CITES listed (Fukushima et al. 2020). In addition, the IUCN reports trade in 490 species of insects, with around 20% threatened by trade (Fukushima et al. 2020). Despite this, only four insect species (and two subspecies) are listed in CITES Appendix I. These belong to the *Papilionidae* family of attractive, highly sought-after butterflies. Similarly, over 15,000 fish species are known to be traded, with around 20% threatened by trade (Fukushima et al. 2020). However, only 16 fish species are in CITES Appendix I. Our theoretical framework helps investigate these trends.
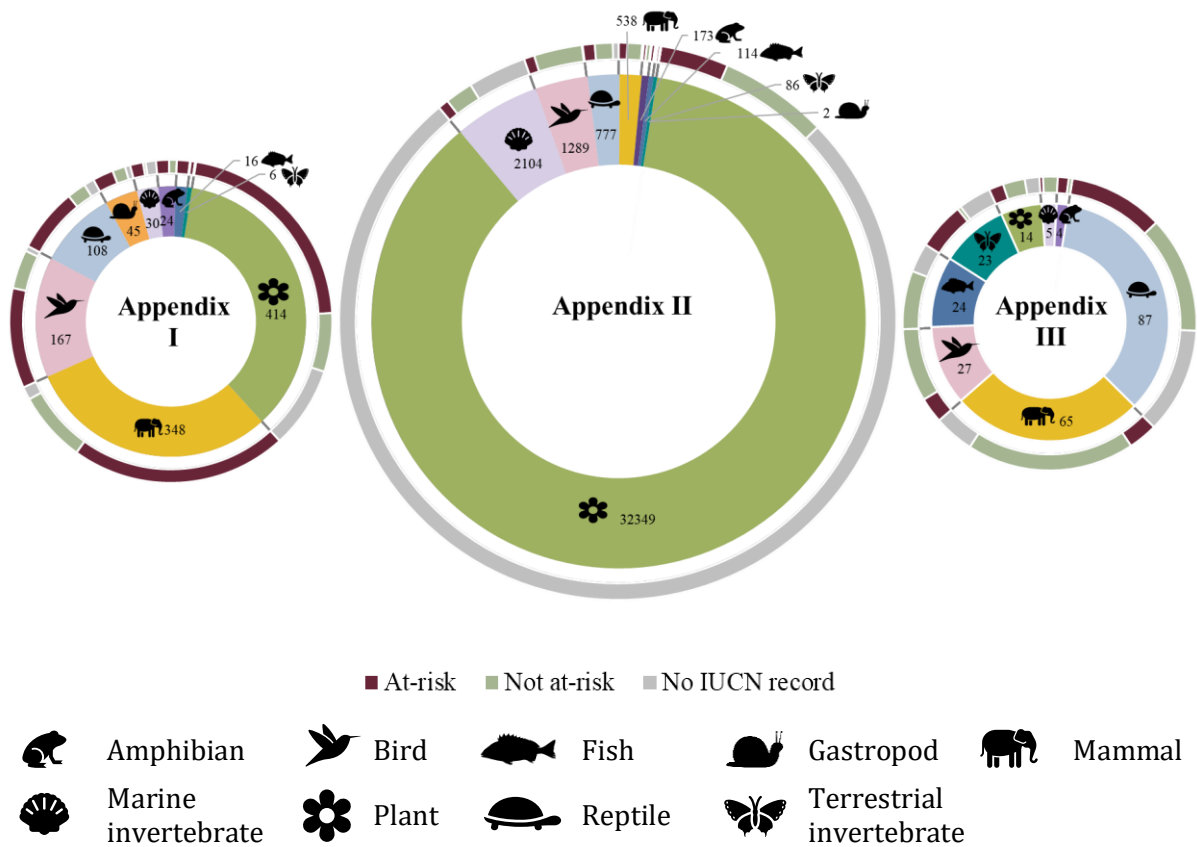
Figure 1: Breakdown of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listings by Appendix

Notes: Compiled using data from CITES 'Full Species List' (downloaded in 2020). Totals include listings under species, sub-species, sub-family, and variety. Where a species is split-listed (populations are listed on multiple Appendixes), these have been added to each Appendix total. Here, approximately 96% of all species listed in CITES are in Appendix II, around 3% are in Appendix I, and just 1% are in Appendix III. The outer rings show the proportion of species also listed on the International Union for the Conservation of Nature's (IUCN) Red List, where red indicates 'at-risk' (critically endangered, endangered and vulnerable), green indicates 'not at-risk' (all other IUCN categories), and grey indicates 'no IUCN record'.

Theoretical Framework

This article is situated within the framework of green criminology, examining CITES through a non-speciesist lens. Sollund (2011) has suggested that wildlife exploitation is culturally learnt, reflecting socialised speciesist attitudes that non-human animals are inferior to humans. These attitudes influence public perceptions and scientific and governmental attention (Clark and May 2002; Troudet et al. 2017), permeating domestic and international law (Ash 2005). We seek to unpack whether speciesist dynamics are apparent in CITES listings.

Speciesism

Ryder (1971: 81) coined the term 'speciesism' and wrote, '[i]f it is accepted as morally wrong to deliberately inflict suffering upon innocent human creatures, then it is only logical to also regard it as wrong to inflict suffering on innocent individuals of other species'. Singer (2015/1975: 35) has defined 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'. These conceptions of speciesism focus on identifying disparities in the treatment of non-human animals by humans but place less emphasis on humans' differential treatment of different species of non-human animals addressed in later work (i.e., Herzog 2010; Wyatt 2013). Speciesism rests on an implicit critique of positioning human needs and interests

above those of other species (anthropocentrism). Therefore, it can be understood as a harmful hegemonic ideological assumption underpinning human violence and the exploitation of animals. Peggs (2013) has argued that speciesism is useful in helping explain the relative invisibility of animals in the social sciences. The issue of harm to animals tends to be seen as inevitable, beyond consideration and not a concern for most social scientists (Cudworth 2015).

Green Criminology and Critical Animal Studies

Green criminology has sought to redress the invisibility of harm to non-human animals in mainstream criminology (Nurse and Wyatt 2020). Scholars have further developed the concept of speciesism in relation to crime and harm specifically. Globally, non-human animals are largely legally reduced to property and not recognised as victims (Nurse and Wyatt 2020). Beirne (1999; 2018) has highlighted the importance of rejecting speciesism within criminology, given that the goal of criminology is to uncover and challenge injury, suffering and victimisation. Flynn and Hall (2017: 299) have argued that victimology has been 'almost exclusively anthropocentric in its outlook', suggesting that if victimology takes the victim as its focus, this should include non-human animal victims. This non-speciesist victimological tradition is further developed in Sollund's (2019) work on wildlife trafficking (including legal trade since this causes harm and is exploitative), which utilises a critical victimology perspective recognising non-human animals as the direct victims of wildlife trafficking. Wyatt (2013) has identified an anthropocentric 'hierarchy of victimisation' in wildlife trafficking, with humans at the top, followed by the state, animals, plants and the environment. Within the sub-category of non-human animals, charismatic megafauna is at the top of the hierarchy, followed by mammals, birds, reptiles and insects. In a non-speciesist criminological approach, animals deserve rights to their own lives independent of what humans think their lives should be (Ash 2005; Sollund 2013). This approach enables an empirical analysis of speciesist thought underpinning wildlife policy and the potential impact of species charisma on exploitability.

Expanding on similar ideas, critical animal studies (CAS) rests on the rejection of speciesist and anthropocentric thinking, seeking to make visible the intrinsic connections between different systems of oppression (Taylor and Fitzgerald 2018), such as capitalism, colonialism, patriarchy, speciesism and ecocide (i.e., Adams 1990; Nibert 2017; Pellow 2014). CAS explicitly works towards rejecting these systems and eschewing 'single-issue' activism, instead advocating a 'total liberation' approach inclusive of the interests of humans, non-human animals and ecosystems (Pellow 2014). CAS provides a scholarly counter-narrative in defence of non-human animals, highlighting how harm to non-human animals connects to structures of exploitation within human societies (Nocella et al. 2014).

CITES may be criticised as a form of capitalist 'neo-colonialism' or 'eco-colonialism' due to its underlying acceptance of neoliberal market hegemony, as well as power imbalances between members, with richer Global North actors seen as imposing values to the detriment of the economically poorer Global South (McBride 1999; Babie 2010; Wyatt 2021). Belcourt (2015) has argued that the hierarchical value dualisms and violent and exploitative modes of thinking inherent in capitalism and colonialism are closely connected to speciesism, with anthropocentrism anchoring all three. Therefore, the dimensions of contemporary wildlife trade should be understood within the historical and present-day context of capitalist and colonial market exploitation. CAS provides a useful lens through which the complex relationships between speciesism and global trade can be untangled in CITES. Having established the non-speciesist theoretical framework synthesised from green criminology and CAS, we turn to the methodology used to answer to what extent can CITES classifications be said to perpetuate speciesist thinking.

Methodology

We undertook a species-based analysis of CITES Appendix listings (Figure 1) and the movement between Appendices to explore the perpetuation of speciesist thinking within CITES. We then compared the species within CITES to the other main source of wildlife trade data captured at the species level, the IUCN Red List. This approach was adopted for two reasons. First, the CITES listings are highly visible and accessible public data. The listings are the agreed-upon outcomes of the 183 CITES parties, so they reflect the

convention's norms for the most part. Second, the comparison to the IUCN data documenting species who are traded enables an investigation of the species not CITES listed but potentially threatened by extinction. This facilitates speculation as to the logic underpinning those species exclusion from CITES, such as speciesism. Admittedly, this approach has limitations. CITES is a complex convention with hundreds of stakeholders contributing to the proposed listings and movement in lists of traded species. Certainly, there are factors taking place behind the scenes that are featured in a species listing. Further research to uncover additional information would involve interviews and/or observations of the negotiations at the Conference of the Parties leading to the updated Appendices. Still, we employed the following methods from the available data.

How We Collected and Organised the Data

We assessed two datasets for CITES listings, the 'Full species list' and the 'History of listings', each available on the 'Checklist of CITES Species' website (UNEP-WCMC 2020; https://checklist.cites.org). The 'Full species list' contains the current CITES listings broken down into the standard I, II, and III Appendix lists and sub-categories for split listings (when populations are split between I/II, I/II/III, I/III). Here, we focused only on species, subspecies, and varieties records. Entries with no Appendix details (blank) or labelled 'NC' (non-CITES) were excluded.

The 'History of listings' dataset contains the details for all amendments made to CITES listings since 1975. It includes records of past changes in Appendixes (uplisting, downlisting, deletion) and records of reservations (active or previous). At the time of our download, the dataset contained details of 8,053 amendments for 1,867 individual species, subspecies and varieties. Species with duplicate entries within the dataset were understood to have been subject to multiple revisions. We categorised our analysis by amendment type (uplisting, downlisting, deletion, reservation) to further assess which species have been affected.

Addition of IUCN Data

We supplemented our analysis with data from the IUCN Red List database (IUCN 2021 https://www.iucnredlist.org), including records for population status (e.g., extinct to non-evaluated) and information on international trade and trade type. The IUCN and CITES datasets do not perfectly align due to differences in the taxonomic name, spelling and synonyms used. We crosschecked records against synonym lists from both datasets to account for potential mismatches. This check revealed 1,581 species either listed under CITES as a synonym of an IUCN listed species or vice versa.

Although we employed a similar methodology to Scheffers et al. (2019) and Fukushima et al. (2020), our focus is on internationally traded species exclusively, whereas the above studies also included national and local trade data. We compiled international trade information from the IUCN 'Assessments', 'Threats', and 'Use Trade' files, excluding records solely identified as nationally traded or where trade was described as local or subsistence only. We classified records that discussed probable international trade (e.g., fishery-related and pet, aquarium, ornamental or collectors' trades) without specifying if these occurred on an international scale as 'Potentially' internationally traded. When comparing IUCN records with the CITES 'Full species list', we used both the IUCN 'Yes/True' assessment of international trade and our 'Potentially' assessment as indicators of international trade. Therefore, this inclusion of the 'Potentially' category contains an underlying level of uncertainty.

Data Analysis

We first referred to the composition of listings within the 'Full species list' and compared the IUCN status with the level of CITES protection (Appendix listing) to identify whether a speciesist pattern of thinking emerges within CITES. We then used the 'History of listings' dataset to assess which species have received increased attention or debate. We identified species who had received multiple revisions and species who have been uplisted (potential increase in concern), downlisted (decrease in concern) or deleted from the CITES Appendices completely (when they are no longer threatened or due to some other factor). We then focused on comparing the IUCN's trade use type information (e.g., food, medicinal, timber) and population

status with the level of CITES protection given to understand which species groups (or trade types) receive greater attention within CITES.

Findings

Composition of CITES Listings

Of the 38,000+ species in CITES Appendices, 84.6% are plants, 9.5% are terrestrial species, and 5.9% are marine species (see Figure 1). Appendix II holds the bulk of CITES listings, most of which are plants, namely orchids. The second-largest group in Appendix II are marine invertebrates, mainly sea anemones and corals (1,818) but also hydrozoa (258), bivalves (16), cephalopods (7), sea cucumbers (3) and leeches (2). Aside from the small number of marine invertebrates traded as food, most (more than birds, mammals or reptiles) are traded live, contributing to aquarium and pet trades (derived from trade and use information from the IUCN and CITES trade databases). Of the 2,130 marine invertebrates listed in CITES, only 30 receive the highest level of protection in Appendix I, and most (98%) are in Appendix II. Similarly, 87% of birds and 80% of reptile listings are in Appendix II, and over 75% are traded 'live' in both groups, highlighting their popularity within pet and collectors' trades.

An Appendix I listing imposes stronger regulations as international commercial trade is essentially prohibited. After plants, a significant portion of this Appendix is made up of mammals, birds and reptiles, particularly primates and parrots. Mammals are the only group with a somewhat even distribution (37%, 57%, and 7% in Appendix I, II and III, respectively). Excluding gastropods, which primarily appear in Appendix I (96%), all other species groups have over 80% of their listings in Appendix II. Appendix I gastropods include just two genera of terrestrial snails: *Achatinella* sp. and *Polymita* sp. However, no trade has been documented in *Achatinella* since 1995 (UNEP-WCMC 2021). Various *Polymita* species have recently entered legal international trade (since 2019) as part of a collector's market for shells. This raises the question of why certain species are considered for protection from (over)exploitation and how this is decided.

When looking more closely at the corresponding IUCN assessments for CITES species, gaps and inconsistencies are of interest (see the outer rings in Figure 1). For example, 66% of Appendix I species are at-risk; however, 21% are seemingly not at-risk, and 13% have not been assessed by the IUCN (see Figure 1). While IUCN assessments may not be up to date, a CITES listing indicates the species is potentially at-risk. This bias towards listing seemingly non-threatened (according to the IUCN) plants, mammals, birds and, to an extent, reptile species in Appendix I is noteworthy considering the scale of trade in invertebrates found by Fukushima et al. (2020) far outnumbers that of vertebrate species.

Listed or Not?

A listing on CITES does not in itself ensure species protection. In our comparison with IUCN data, CITES currently lists 34 species classified as extinct and nine classified as extinct in the wild. Within Appendix I, 25 species are classed as extinct, including 15 gastropods (slugs and snails), three reptiles (snake, turtle and lizard), two bivalves (freshwater mussels), two mammals (flying-fox and seal), two birds (grebe and parrot) and one amphibian (toad). In addition, again in Appendix I, four cycad species (bird, frog, turtle and antelope) have been classified as extinct in the wild by the IUCN. Thus, while invertebrates are only around 7% of the CITES Appendix I listings, they make up nearly three-quarters of Appendix I's extinctions. What may be more telling regarding speciesism are the traded endangered species who are not listed in CITES. Gauging this is a monumental task considering the undetermined number of species and the limited number of IUCN assessments. Further complications arise when matching the CITES and IUCN databases where records are missing or do not correspond. Thus, we provide our best estimate concerning the number and taxonomic groups of species categorised as at-risk by the IUCN and traded internationally but not listed within CITES with that caveat (see Figure 2).

Despite the large number of plants listed on CITES, at-risk and internationally traded plants are least represented within the Appendices. While CITES lists some 32,771 plant species, around 87% of these do

not have a corresponding IUCN assessment (see the outer rings in Figure 1). Of those assessed by the IUCN, only 767 are categorised as both at-risk and internationally traded. The IUCN currently identifies 528 plant species as at-risk and internationally traded that are missing from CITES (Figure 2). Fish are also significantly under-represented, with only 61 at-risk and internationally traded species listed on CITES compared to the 460 species identified by the IUCN. Gastropods are also under-represented; none of the 47 CITES species listed (the terrestrial snail species mentioned earlier) are recorded as at-risk and internationally traded by the IUCN, while 105 traded species are not recognised by CITES. Further, terrestrial invertebrates feature the least, with very few at-risk and internationally traded species recognised by CITES and the IUCN. Notice also the absence of fungi in CITES. However, it is important to recognise that IUCN assessments themselves are orientated towards mammal and plant groups, and so they might underrepresent invertebrate taxa (see Fukushima et al. 2020).
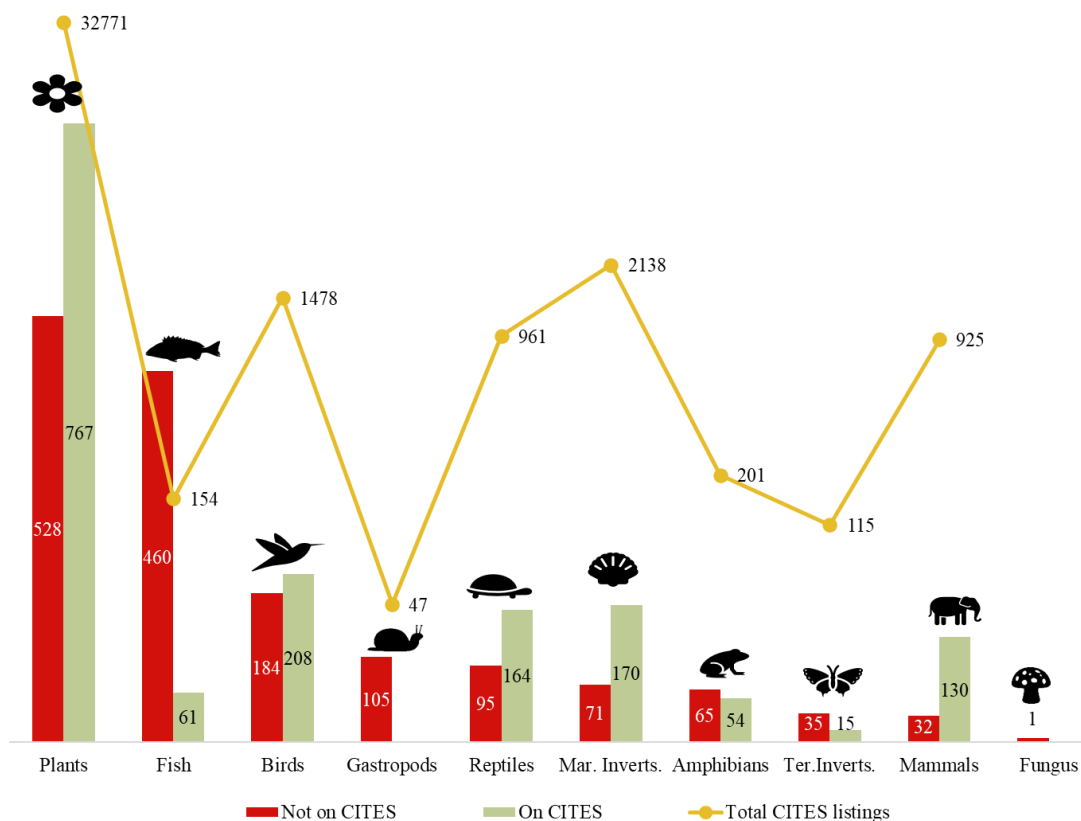

Figure 2: Comparison of the International Union for the Conservation of Nature (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listings for internationally traded and at-risk species

Notes: The proportion of 'at-risk' and internationally traded IUCN assessments not in CITES (red) and in CITES (green). The total CITES listings for each group are shown as plot-points, not displayed against the y-axis.

Others have attempted similar estimates. For terrestrial vertebrates, Scheffers et al. (2019: 75) 'found that IUCN indicates 4545 traded species omitted by CITES, whereas CITES indicates an additional 723 traded species omitted by the IUCN'.[2] Terrestrial (vertebrate) animals are those we most likely know the most about (Fukushima et al. 2020); their conservation is highly publicised and/or garners greater attention for research and listing proposals. In contrast, terrestrial invertebrates and fish (who only have six and 16 Appendix I listings) are a tiny fraction of those deemed both internationally traded and threatened. Fukushima et al.'s (2020) study attempted to gauge the trade of some plant groups and invertebrates. They also compared IUCN and CITES data and found inconsistencies in the listings. Notably, of the estimated 9,795 *Cnidaria* (coral and related) species, only 884 have been assessed by the IUCN, 75% of which are categorised as at-risk and threatened by trade. However, only 2,081 species are CITES listed (Fukushima et al. 2020). Similarly, there are an estimated 7,003 species of *Echinodermata* (sea-urchins/cucumbers, and starfish) prominent in commercial fishing and aquarium trades (Fukushima et al. 2020). The IUCN lists 372 echinoderms and estimates, and approximately 85% of those at-risk are also traded (Fukushima et al. 2020); however, CITES lists only four echinoderms.

Overview of Listings

While the above shows that CITES and IUCN records are not always in agreement, potentially to the detriment of less charismatic species, we are also interested in the CITES species who do not appear (through IUCN assessments) threatened by international trade. Although differences between the records may indicate the outdated nature of some IUCN assessments, disagreements between these records could potentially indicate a bias towards focusing attention on some species over others. The distribution of at-risk v. not at-risk species combined with assessments of whether they are internationally traded or not is given in Table 1. Noticeably, CITES lists many species the IUCN would classify as not at-risk and not internationally traded, including 1,669 plants, 333 mammals, 295 birds and 200 marine invertebrates (Table 1.d). Similarly, numerous species in CITES, although recognised as internationally traded, are classified as not at-risk by the IUCN. While birds (2,388) and plants (756) dominate, reptiles (443) and marine invertebrates (404) are also highly represented (Table 1b). At-risk and internationally traded species have been discussed above (see Figure 2); however, it is clear from the comparison (Table 1a) that a greater proportion of these is CITES listed.

As mentioned previously, terrestrial invertebrates have minimal representation within both CITES and the IUCN, and the same can be seen for amphibians and gastropods (none of the IUCN recognised at-risk and internationally traded gastropods are CITES listed). CITES also lists many plants (964), marine invertebrates (870) and mammals (771), which are not classified as internationally traded by the IUCN despite being at-risk (Table 1c). Both plants and fish are better represented within IUCN assessments (those including use and trade information), with just under 29,000 and around 17,000 assessments, respectively. Although a high uptake in CITES listings can be seen for at-risk and internationally traded plants (767), this is selective and largely comprises orchids. Fish species appear to be under-represented, while birds, mammals and, to a lesser extent, reptiles and marine invertebrates appear listed in greater numbers in CITES despite either not being at-risk or internationally traded (according to the IUCN). The comparatively small number of at-risk and internationally traded fish listed in CITES (compared to those listed in the IUCN) likely relates to longstanding uncertainty over the role of CITES for commercially exploited marine species (Vincent et al. 2014). Guggisberg (2016: 222) has suggested that this narrow focus on charismatic megafauna has 'never been put forward for animals such as fishes, which are consequently at risk of remaining unprotected'.

Table 1: Proportion of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listings within the International Union for the Conservation of Nature's (IUCN) Red List assessments, by the level of international trade and risk

CITES listed, no IUCN match		Internationally traded				Not internationally traded			
		At-risk (A)		Not at-risk (B)		At-risk (C)		Not at-risk (D)	
🌼	28615	767	528	756	1438	964	11386	1669	11292
🐚	1290	170	71	404	248	74	870	200	3898
🐢	168	164	95	279	443	195	886	155	5050
🐘	53	130	32	102	89	307	771	333	4085
🌿	24	15	35	43	176	21	1769	12	6609
🐦	22	208	184	810	2388	143	959	295	6160
🐸	21	54	65	56	200	32	1979	38	4344
🐟	9	61	460	29	3401	28	1796	27	11463
🐌	7		105	1	354	24	1949	15	4991
Total	30209	3144		11,217		24,153		60,636	

Notes: The proportions are divided between CITES listings (green, left-hand columns) and IUCN-only listings (red, right-hand columns).

Figure 2 and these previous studies show clear trends whereby endangered species traded are *not* listed in the CITES Appendices (see Table 1a, IUCN groups), namely plants, invertebrates and fish. We next explore the movement between Appendices.

Changes in Listings

To date, 1,347 species have had their CITES listing modified in some way, and, for many of these species, multiple modifications have occurred. For example, the Nile crocodile and Siberian weasel have each had 44 CITES amendments. While the Nile crocodile is classified as the least concern by the IUCN, the species is split-listed in CITES in Appendix I and II on a country-by-country basis. Subsequently, many of their listing changes were a result of this split management process. The Siberian weasel amendments were all reservations (or reservation withdrawals) against the Appendix III listing (24 reservations by European countries). This species is predominantly hunted for their fur and meat, and their tail hairs are also used in paintbrushes (Abramov et al. 2016).

Table 2: Movements within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendices

Changes	No. of species	Species grouping		Major trade types (IUCN and CITES data)
Uplisted 2-1	262	Plants	105	Horticultural (81), Ex-situ production (15)
		Mammals	77	Food (21), Specimens (13), Live (10)
		Birds	46	Live (25), Food (10)
		Reptiles	29	Live (11)
		Fish	4	Specimens (2), Food (1), Live (1)
		Insects	1	Body parts (1)
Uplisted 3-2	220	Plants	98	Timber and construction (90)
		Birds	72	Live (59), Trophies (6)
		Mammals	28	Food (12), Live (5)
		Reptiles	18	Live (11), Research (3)
		Fish	4	Food (2), Research (1), Body parts (1)
Uplisted 3-2-1	15	Mammals	10	Medicine (3), Food (2)
		Birds	5	Live (4)
Downlisted 1-2	40	Plants	18	Horticultural (12)
		Mammals	11	Body parts (3), Live (2)
		Birds	7	Live (4)
		Reptiles	2	Food (1)
		Amphibian	1	Live (1)
		Fish	1	Food (1)
		Insects	1	Body parts (1)

While major trade types are given, species are traded for multiple purposes (e.g., food, medicine, body parts).

Uplisted

Table 2 shows which species have moved from lower to higher levels of protection. In both cases (Appendix III to II and Appendix II to I), plants species have been uplisted the most, likely reflecting the volume of plants species listed. Plants uplisted to Appendix I have largely been horticultural, whereas uplistings to Appendix II are mostly utilised in timber and construction trades. This finding potentially indicates that while trade management via Appendix II is amenable for timber species, trade bans via Appendix I are less easily adopted. Proportionally, mammals are uplisted to Appendix I more than other taxonomic (animal) groups, despite a greater number of bird, reptile, marine invertebrate and fish species being equally if not more threatened by trade (Table 1a). The trade type is predominantly for pets (live) and meat (food), of which mammals, birds and reptiles are all targets. Fish are also traded in high quantities for pets and meat but are barely featured in the uplistings (eight total). When looking at the IUCN status of uplisted species (Figure 3), there is a disproportionate focus towards not at-risk birds, plants, and mammals. Notably, 62% of the uplisted bird species are not categorised as at-risk by the IUCN. Although they have received fewer uplistings, 76% of reptile species uplisted are categorised as at-risk. Proportionally, very few reptiles, fish and terrestrial invertebrates have been uplisted, and no amphibians or marine invertebrates have ever been uplisted.
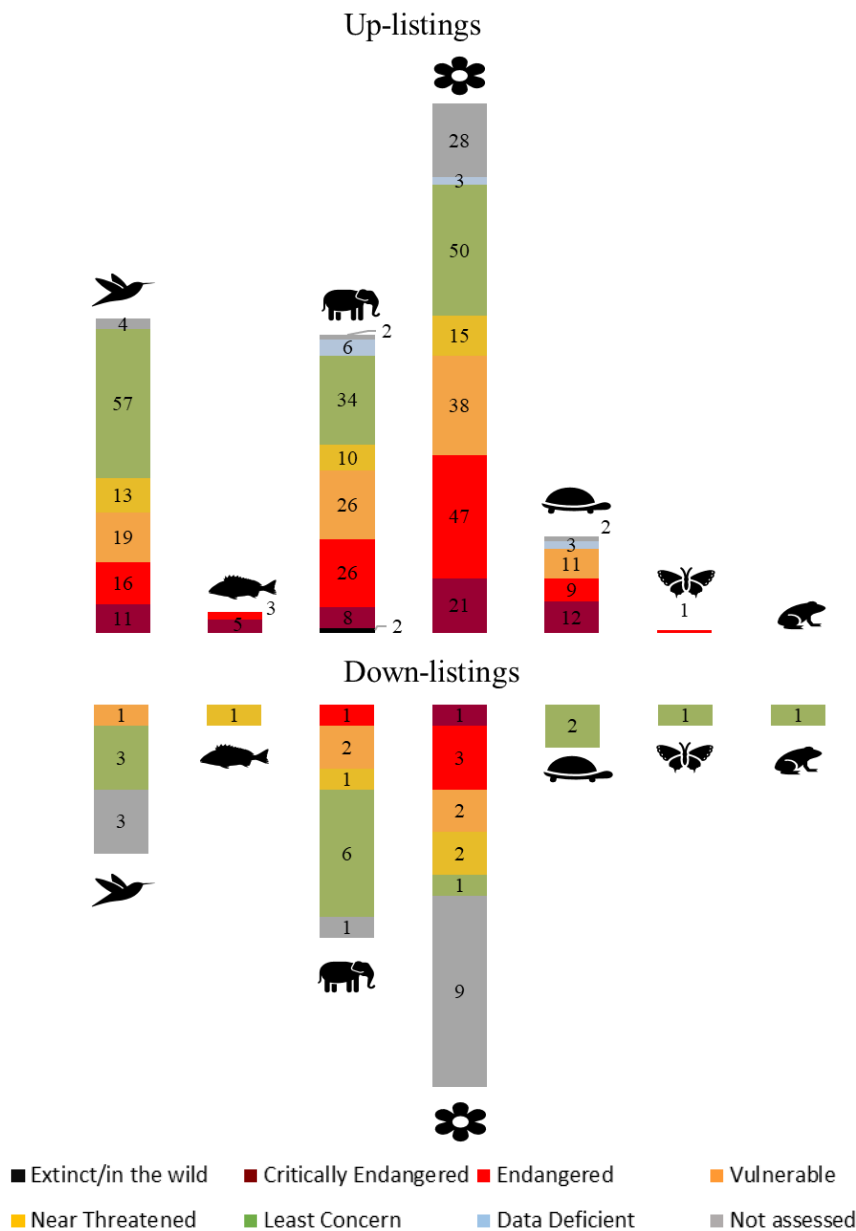
Figure 3: Changes of Appendix within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Notes: Species groups who have had their listing either uplisted or downlisted with their corresponding IUCN Red List assessment.

Downlisted

Plants are the most downlisted species, which explains why the type of trade most represented is horticultural (Table 2). Mammals are the next largest group of species moved from Appendix I to Appendix II (11), followed by birds (7) and reptiles (2). While uplisted mammals included species traded for food or alive, downlisted mammals appear more typically traded for their skins, furs and body parts (potentially indicating that the live trade of mammals is seen as more severe than the trade of their body parts). IUCN assessments for downlisted species show that most of the downlistings are in the not at-risk category, with

only six plants and three mammals downlisted while they were deemed at-risk. However, 13 species have been downlisted without an IUCN assessment. The reasons for this are unclear.

Reservations

Table 3: Species with more than five current reservations within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendixes

Species	Common name	Current Appendix	Count of reservations	IUCN status	Major trade type
Vulpes vulpes griffithi	Afghan fox	3	25	Not assessed	Body parts
Vulpes vulpes pusilla	White-footed fox	3	25	Not assessed	Body parts
Mustela kathiah	Yellow-bellied weasel	3	24	Least concern	Trophies
Mustela erminea ferghanae	Short-tailed weasel	3	24	Not assessed	Body parts
Mustela sibirica	Siberian weasel	3	24	Least concern	Body parts
Mustela altaica	Mountain weasel	3	24	Near threatened	Garments
Vulpes vulpes montana	Hill fox, Montana	3	24	Not assessed	Garments
Rhincodon typus	Whale shark	2	5	Endangered	Food, specimens
Hippocampus denise	Denise's pygmy seahorse	2	5	Data deficient	Live/pets
Balaenoptera acutorostrata	Minke whale	1/2	5	Least concern	Food
Cetorhinus maximus	Basking shark	2	5	Endangered	Body parts, food
Hippocampus kuda	Coloured seahorse	2	5	Vulnerable	Live/pets

Reservations act as a tool for countries to dispute a CITES listing while continuing to trade the species legally. The seven species with the most current reservations are mammals used in the fur industry (see Table 3). While fur-bearing mammals may indeed be considered charismatic, none of these species (foxes and weasels) would be the megafauna typically prioritised in conservation. Five further species—the whale shark, minke whale, basking shark, and two seahorses—all have five reservations each. These are all either consumed or made into medicine.

Deletions

Twenty-six species have been deleted from CITES (see Table 4), including 11 plants (one of which is classified as critically endangered and another endangered), 10 mammal species (one critically endangered), two birds, and one reptile, amphibian, and fish species (each categorised as a least concern by the IUCN). Since plants and mammals appear disproportionately throughout this analysis, it is no surprise that they are heavily represented in the small number of deletions. Fortunately, none of these deletions appears to be the result of extinctions (extinct species have remained in the Appendices, as discussed earlier). However, four deleted species are at-risk (IUCN), and eight have not been assessed, including seven species of plants and one mammal (the wood bison), which does not appear to be part of any trade.

Table 4: Species deleted from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Group	CITES deletions	Common name	IUCN assessment
Plant	*Alocasia sanderiana*	Sander's alocasia	Critically endangered
	Batocarpus costaricensis	-	Least concern
	Cynometra hemitomophylla	-	Not assessed
	Dudleya stolonifera	-	Not assessed
	Dudleya traskiae	-	Not assessed
	Euphorbia misera	-	Not assessed
	Frerea indica	-	Not assessed
	Orothamnus zeyheri	-	Not assessed
	Protea odorata	-	Not assessed
	Tachigali versicolor	Alazán	Endangered
	Vantanea barbourii	-	Least concern
Mammals	*Antechinomys laniger*	Kultarr	Least concern
	Bison bison athabascae	Wood bison	Not assessed
	Burramys parvus	Mountain pygmy possum	Critically endangered
	Hyaena brunnea	Brown hyena	Near threatened
	Macropus parma	Parma Wallaby	Near threatened
	Mirounga angustirostris	Northern elephant seal	Least concern
	Notomys aquilo	Northern hopping mouse	Endangered
	Planigale tenuirostris	Narrow-nosed planigale	Least concern
	Pseudomys shortridgei	Heath mouse	Near threatened
	Wyulda squamicaudata	Scaly-tailed possum	Near threatened
Birds	*Anas aucklandica*	Auckland teal	Vulnerable
	Psophodes nigrogularis	Western whipbird	Least concern
Reptiles	*Cnemidophorus hyperythrus*	Orange-throated whiptale	Least concern
Amphibian	*Hyla arborea*	European tree frog	Least concern
Fish	*Sander vitreus glaucus*	Blue walleye	Least concern

Discussion and Conclusion

Our findings suggest that CITES listings perpetuate speciesist thinking and are not solely a reflection on the risk of extinction or threat to the species (evidenced by the presence of not at-risk and not internationally traded species in the Appendices). We suggest that speciesism within CITES listings also perpetuates a complex combination of three core criteria: market value, charisma and risk (survival status). These criteria are connected; for example, a species' perceived charisma influences the value ascribed to them by humans, and human demand will influence how at-risk they are. Nevertheless, our findings indicate that value appears to be the dominant criteria evident in listings. This can be seen within

the reservations, where non-charismatic fur-bearers are listed in such a way that allows them to continue to be exploited due to the market interests of parties (the same is true for timber and fish species). However, risk also potentially stands in tension with value, where species at higher risk have higher market value, presenting a challenge for CITES in terms of pressure to uplist or downlist.

Conceptions of charisma tend to be rooted in a speciesist logic around victimisation. Discussing the 'hierarchy of victimisation', Wyatt (2013: 59) has argued that 'the "ideal" wildlife crime victim, is the critically endangered charismatic megafauna, like the tiger, whereas other less appealing animals, such as the pangolin, are less "worthy" victims or in the case of plants and invertebrates, invisible altogether'. Our analysis supports this assertion to an extent; for example, as illustrated in Table 1a, despite more bird, reptile and marine invertebrate species threatened from trade, mammals are more likely to be uplisted to Appendix I (Table 2). However, charisma alone cannot explain these changes. For instance, many plants in the 'Least Concern' category have also been uplisted (Figure 3). These species tend to sit outside of conventional notions of an 'ideal' wildlife crime victim to some extent.
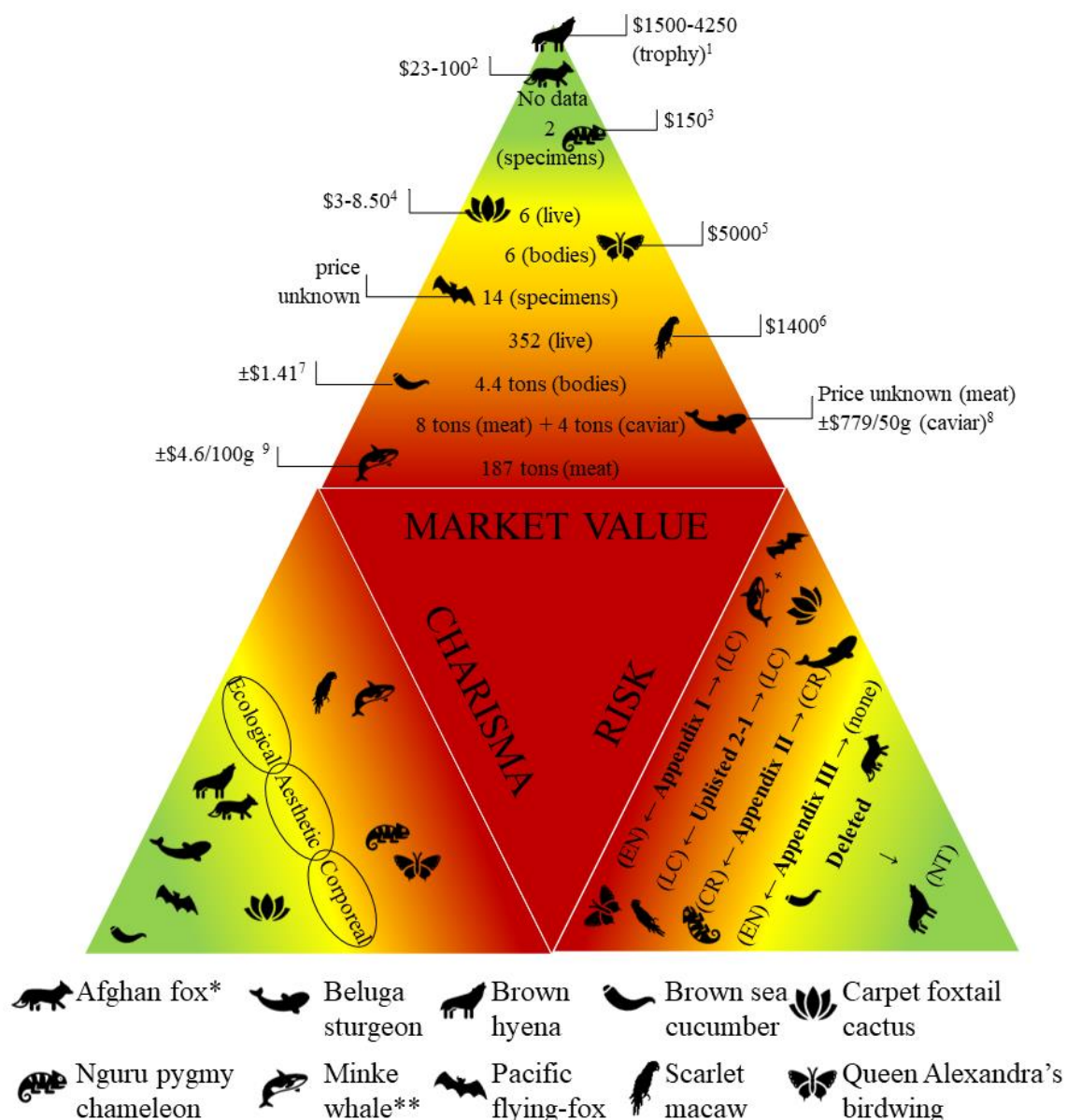

Figure 4: Value-Risk-Charisma Pyramid

Therefore, speciesism within CITES is linked to three interconnected criteria (see Figure 4). While charismatic megafauna may sit near the top of the hierarchy of victimisation, in the context of CITES, there is potential for this hierarchy to be disrupted by market value and risk. A lower charisma species (e.g., insects, plants) may potentially attain a higher level of protection in CITES, depending on the balance of their perceived risk and market value. Conversely, higher charisma species may slip down in CITES Appendices depending on a combination of these factors. This suggests that the speciesism perpetuated by CITES, while linked to broader conceptions of speciesism, is instrumental in nature and bound by the dynamics of the convention. Our findings challenge the notion that the underlying approach of CITES is precautionary and acts in the best interest of species conservation. Instead, downlisting has been observed even where species are at-risk, and uplisting has occurred where they are not (see Figure 3). As the 'Value-Charisma-Risk Pyramid' (Figure 4) illustrates, market value and perceived charisma are significantly tied to the downlisting/uplisting/deletion process in ways that reinforce and perpetuate speciesist logic of non-human value. Market dynamics are key to understanding this, presenting further evidence that human–animal relations can be understood within the context of global capitalism (Taylor and Fitzgerald 2018; Nibert 2017).

As Nibert (2017: xiv) has argued, '[i]n truth, capitalism … simply represents a more sophisticated form of social relations in which the accumulation of wealth continues to result from exploitation, predation, and violence'. By considering socioeconomic factors during listing proposals, CITES allows for market value and charisma (more indirectly) to become a core feature of decision-making. This is problematic and underlines the speciesist logic that underpins CITES (Goyes and Sollund 2016).

CITES purports to protect traded endangered species at a time where overexploitation due to wildlife trade is contributing to species endangerment. The fact CITES allows market considerations to influence the decision-making process illustrates the ways in which contemporary wildlife trade can be understood within a broader historical and present-day context of capitalist market exploitation. This, in turn, perpetuates speciesist thinking in debates and discussions of the wildlife trade; the notion that animals exist to be exploited remains unchallenged. Within its own anthropocentric framework, CITES should reassess its listing criteria to ensure non-speciesist protection is at the core of their decision-making to protect species threatened by excessive trade. Further, larger discussions need to be had about the continued commodification of wildlife and whether sentient beings should be subjected to market logic. Further research should explore the role of CITES within an international law context as a form of regulatory law as opposed to protection law more directly, particularly within the context of contemporary ecological justice and environmental law discourse. Further, as mentioned, future research might examine the Conference of the Parties' discussions as a form of data to determine the extent to which decisions made by CITES are explicitly motivated by speciesist logic as opposed to classifications perpetuating speciesism.

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[1] Note that we use the term 'who' when referring to species throughout the paper to avoid objectifying non-human animals and perpetuating speciesist language.

[2] The discrepancies between our figures (given in the first column of Table 1) and theirs can be accounted for by the synonym check we undertook, which found 463 synonyms on the CITES list and 1,581 overall.

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