Endangered and Exported: The Impact of CITES and Conflict on US Wildlife Trade

Austin Beacham*

Early draft, please do not circulate without permission.

Abstract

When and how do international agreements regulating trade influence export and import behavior? I study this question at the intersection of conflict and wildlife trade. The wildlife trade is a known driver of species decline, with hundreds of millions of individuals being traded internationally each year. Despite long-standing international agreements regulating species trade, we know very little about their true impact. I argue that CITES, the key international agreement in the area, does influence wildlife trade through both its design and through reducing spikes in trade stemming from violent conflict. Conflict increases trade in wildlife because of increased exploitation in order to fund the conflict. However, this effect is lessened if a species is listed on CITES, due to greater international scrutiny on these species and "conflict poaching." To test my argument, I use a multi-level research design taking advantage of highly disaggregated data on US wildlife imports from 2000 to 2022, spanning over 20,000 species and 3 million records. I combine this data with spatial information on both species ranges and conflict location. I demonstrate through a difference-in-differences design that CITES listing decreases trade. Next, I show that species in conflict zones experience increased trade. Finally, I show that CITES listing eliminates spikes in trade from conflict. These findings show both the promise and the limits of international regulation of trade, and highlight an understudied aspect of environmental politics.

*Assistant Professor, Sam Nunn School of International Affairs, Georgia Institute of Technology. Email: austinbeacham@gatech.edu. Thanks to Elisa D'Amico, Christina J. Schneider, and attendees of the Political Economy of Climate and the Environment 2025 Conference and the International Political Economy Society 2025 Conference for helpful comments and feedback.

1 Introduction

Each year, millions of individuals of animals and plants are traded internationally. The legal trade alone is worth over 220 billion dollars annually, and it is estimated that illegal trafficking may be worth up to 23 billion (CITES Secretariat 2022). While much of the legal trade is for "legitimate" purposes such as research or sustainable pet trade, wildlife trade as a whole is still a significant driver of species decline and even extinction (Hughes et al. 2023; Marshall, Alamshah, et al. 2025). For this reason, like many other forms of trade, wildlife trade is regulated internationally. The primary mechanism for its regulation is the Convention on International Trade in Endangered Species of Wild Fauna and Flora, or CITES. And, like other forms of international regulation more generally, the effectiveness of CITES is hotly debated by practitioners, legal scholars, and concerned parties like NGOs (Gehring and Ruffing 2008; Goho 2001; Stoett 2002).

I argue that, despite a lack of enforcement mechanisms and reliance on signatories to enforce the agreement, CITES listing can influence trade. While CITES listing is most likely to reduce trade from states with plentiful resources and motivation to enforce its provisions, it also several features that make compliance more likely overall. Building on prior findings on the mechanisms through which international agreements can be effective, I argue that it is an agreement with high legitimacy; that it increases transaction costs for wildlife traders, dampening even permitted trade after listing; and that it provides information that civil society can use to influence governments' monitoring and compliance efforts. Further, I argue in particular that it can dampen the effect of spikes in wildlife trade that stem from instability and violent conflict. While conflict tends to reduce overall trade flows, I posit that absent CITES listing, it actually leads to increased wildlife trade as armed groups use the trade to fund themselves. However, CITES listing can prevent this spike by drawing attention to trade in particular species. Governments have incentives to avoid being seen as allowing "conflict poaching" in order to protect their reputations, maintain access to international funding, and avoid sanctions via CITES procedures and other international agreements.

To test this argument, I take advantage of newly cleaned, publicly available data on US wildlife trade, which is collected independently from CITES. Using disaggregated data on US wildlife imports from 2000 to 2022, including over 3 million records in difference-in-differences tests, I measure the effect of a species being listed on the CITES Appendices on its future trade volume into the US. This is an improvement over relying on CITES's own data, because data collection on trade in listed species only begins after listing, preventing a before/after comparison.[1] The US is a worthwhile case to examine because of its economic size, its place as the largest importer of endangered species globally (Blundell and Mascia 2005), and the fact that it is often less involved in advocating for species to be listed, which would threaten to endogenize changes in trade. I combine this data with country-level information on conflict, and further probe the mechanisms with spatially disaggregated species range and conflict data.

The findings lend support to my theoretical argument. I first show that CITES listing does appear to reduce trade volume overall. Next, I probe my specific argument by showing that while country level violent conflict is associated with marginal decreases in species trade, this is likely driven by an overall decline in trade across all sectors because of the conflict (Bayer and Rupert 2004; Schultz 2015). Using the spatially identified subset, I demonstrate that conflict *within a species' actual range* in a country is associated with an increase in its trade volume out of that country. CITES listing, however, can cancel this effect, eliminating the impact of conflict and lowering trade volume overall. I find that CITES substantially reduces the effect of conflict in both the full sample and the spatially disaggregated subsample. Further mechanism tests suggest that more "charismatic" and popular species see the biggest declines because of CITES listing, lending credence to the idea that CITES brings increased scrutiny on trade that can ameliorate the influence of conflict. Initial results also suggest, however, that some of the decrease in trade results from trade shifting to the illegal market.

[1] This is a long-identified problem with evaluating the effectiveness of international agreements (Mitchell 2003, p. 446).

These findings make several contributions. First, they speak to debates on the effectiveness of international agreements and institutions more broadly (Chayes and Chayes 1993; Downs, Rocke, and Barsoom 1996; König and Mäder 2014; Mitchell 1994), and environmental agreements specifically (Helm and Sprinz 2000; Mitchell et al. 2020; Young 2011). This paper provides new, robust evidence that CITES does impact trade volume, a relatively positive finding given the lack of stringent enforcement mechanisms at the international level. The preliminary results showing that CITES listing may increase illegal trade, however, are in line with other work that explores negative spillovers from international regulation (Chapman et al. 2021; Crippa, Malesky, and Picci 2025; Jensen and Malesky 2018; Konisky and Woods 2010). It also speaks to other work on the importance of state capacity in international agreement compliance (Berge and Berger 2021; Gray 2013). In contrast to this work, stretched capacity through conflict does not reduce the effectiveness of CITES, and in fact appears to strengthen its influence through shining a spotlight on conflict trade. The mechanisms also echo work that emphasizes the importance of attention and pressure in international organization (Dai 2007; Hafner-Burton, LeVeck, and Victor 2016; Keck and Sikkink 1998; Shibaike 2022; Simmons 2009).

Second, the findings add to our understanding of the international regulation of trade. Previous work has found that domestic factors do indeed shape trade behavior and compliance with agreements (Allee and Peinhardt 2011; Elkins, Guzman, and Simmons 2006; Simmons 2014; Wellhausen 2019), but many of the agreements in question are bilateral or relatively small in membership. CITES, in contrast, is a near universal treaty akin to the WTO, but one that lacks the formal enforcement and dispute resolution mechanisms that are often studied in the context of that agreement (Busch 2007; Carnegie 2014; Peritz 2020; Rosendorff and Milner 2001). The findings add nuance to our understanding of the mechanisms that may operate across these types of agreements when institutionalized "retaliation" is difficult. They also highlight that trade in wildlife, in contrast to many other forms of trade (Bayer and Rupert 2004; Schultz 2015), may actually increase in the face of violent conflict (Haass 2020). This makes wildlife more in line with "conflict minerals" and other potentially violence-fueling commodities.

Third, this work highlights an understudied aspect of environmental politics. While there is a growing literature on the international political economy of climate change and the renewable energy transition (Breetz, Mildenberger, and Stokes 2018; Colgan, Green, and Hale 2021; McLean, Hur, and Whang 2021; Ratan 2024), there has been much less attention on the international political economy of species conservation and biodiversity. These are critical issues in their own right that also affect (and are affected by) climate change. Recent work has focused on the political economy of conservation, but usually from an area-based conservation lens (Alger 2023; Beacham 2023; Mangonnet, Kopas, and Urpelainen 2022). This paper highlights another aspect of environmental politics that is worth exploring in more detail: its relationship with both trade and conflict (Daskin and Pringle 2018; Gaynor et al. 2016).

2 The International Wildlife Trade and CITES

International trade in wildlife has a long history, and is a massive global business today. It was the subject of some of the earliest international environmental agreements, beginning with the 1911 North Pacific Fur Seal Convention between the US, UK (Canada), Russia, and Japan. That agreement regulated open sea exploitation of the fur seal, which was hunted for export nearly to extinction before the successful implementation of the agreement. International regulation was generally regional and patchwork until CITES was agreed in 1973, and entered into force in 1975. The original draft of the agreement came as an initiative of the International Union for the Conservation of Nature (IUCN), but had 80 state signatories initially. The goal of the agreement is "to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species" (CITES Secretariat 2025b), and it was designed to be both a "conservation *and* trade instrument."[2] There are currently 185 parties to the agreement; its wide membership

[2] Quoted in Sand (1997, p. 34)

has been used as evidence that there is a "general interest in protecting biodiversity and reducing the negative effects of trade-induced overexploitation of wild flora and fauna" among states (Gehring and Ruffing 2008). 146 of the 185 parties ratified CITES prior to the study period beginning in 2000, including almost all major wildlife exporters.[3]

Species trade is regulated via the listing of a species on one of three Appendices. Appendix I is intended for species that are directly threatened with extinction; listing in this Appendix generally prohibits trade entirely. An example of an Appendix I species is the Asian Elephant, which has been listed since 1975. Appendix II includes species that are not necessarily immediately threatened with extinction, but that may become so unless trade is regulated. Trade in these species is generally permitted, but is controlled. Control involves the "grant of export permit subject to a non-detriment finding by a Scientific Authority in the exporting state," meaning that an authority has certified that export will not harm the continued survival of the species (Reeve 2006, p. 881). Many species of reef-building corals are Appendix II species. Appendix III is reserved for cases when a party state independently regulates the trade of a species within its jurisdiction, and seeks the cooperation of other party states to control international trade. For example, in 2023 the European Union regulated the trade of the Antilles pinktoe tarantula and submitted it as an Appendix III species. The vast majority of listing are in Appendix II (97%) with Appendix I making up the majority of the remainder (CITES Secretariat 2025a).

Reforms to the listing procedure in the 1980s and early 2000s have led scholars to argue that this process results in decisions that are remarkably evidence-based and non-politicized, at least compared to past procedures and other international agreements (Gehring and Ruffing 2008; Goho 2001). The procedure for adding a species to a CITES Appendix is relatively stringent. Typically, a member state or the CITES Secretariat itself will bring a listing proposal, which is then evaluated in a scientific assessment stage by a committee of international scientific experts. That panel will than make a recommendation to the Secretariat. The proposal is then voted on by the Conference of Parties, requiring a

[3] Those whose ratification status changed are dealt with empirically through country-year fixed effects in robustness checks.

two-thirds majority of members. If approved, restrictions automatically come into force after 90 days, unless a state has filed an exception to the decision (Gehring and Ruffing 2008).[4]

Beyond agreeing to abide by trade restrictions, member states have other obligations. They are required to submit annual trade reports to the CITES Secretariat; the data from these reports are used to create the CITES Trade Database, the most comprehensive global database on international wildlife trade. The data, however, rely on self-reporting, and there are known issues with undercounting and discrepancies with other, more localized trade data like that used in this paper (Blundell and Mascia 2005; Symes et al. 2018). The CITES Secretariat has limited capacity to directly enforce trade restrictions, and relies primarily on "technical assistance, workshops, and ad hoc Secretariat missions" (Reeve 2006, p. 885). However, it can recommend trade suspensions to the CITES Standing Committee (delegated representatives of member states and regions), which are generally followed. Trade suspensions are a form of sanction in which CITES members are asked not to trade in certain species (or at all) with a certain member state because of lack of compliance with CITES's provisions (Sand 1997). These rarely fully go into effect but almost always spur action on the party of the offending state (Reeve 2006).

There are two key takeaways from this discussion of CITES's structure and functioning. First, the procedure to list species is highly technical, scientific, and thought to be relatively free of parochial interests and biases. While this means that species are being added that "should" be, from a mission-oriented perspective, it does mean that species that are CITES-listed are likely systematically different from species that are non-CITES-listed. This may mean that listed species are different on average from non-listed species–in other words, assignment to treatment is not random. Second, CITES itself has relatively little enforcement capacity beyond recommending trade sanctions. This means that implementation of the agreement depends on member states being willing and able to take on monitoring and enforcement functions, and that incentives to decrease trade may stem

[4] Exceptions are relatively rare and generally do not mean that a state can still trade freely in a species, since the vast majority of other states have agreed to restrict its trade.

from external attention and pressure. This leads me to focus on the interaction between listing and experience of violent conflict as factors that influence CITES compliance in the next section.

3 Theory

I begin by discussing why CITES listing in isolation should decrease trade, before moving to discuss the specific mechanism of my theory that revolve around the interaction of CITES and violent conflict. In this section I will refer to CITES listing in general, but the theoretical mechanisms mostly rely on Appendix II listing since it makes up 97% of listings.

3.1 CITES Effectiveness 1: Legitimacy

There are several reasons to expect that CITES listing might genuinely affect trade behavior. This discussion mostly applies existing arguments from the literature on international agreement effectiveness, highlighting how CITES has many of the features that lead to behavior change in the aggregate before introducing my own argument relating to conflict. First, as discussed in the preceding section, listing decisions are usually made by consensus and through the integration of a robust scientific process. Because parochial interests are less common and bigger states do not dominate the decisions-making process, decisions have high legitimacy.[5] This increases the chances that they are actually followed (Buchanan and Keohane 2006; Tallberg and Zürn 2019). For example, several states recommended that the Humphead Wrasse, a reef fish of the Indo-Pacific, be added to CITES Appendix II before the 13th Conference of Parties in 2004 (WWF 2004). Several countries opposed its listing on various grounds including Indonesia, whose delegates claimed that the Wrasse was not endangered in its waters. However, after consulting the available data from other countries, Indonesia withdrew its opposition and actually supported the listing of the

[5]This is not the case in institutions like the World Bank (Clark and Dolan 2021) and the IMF (Dreher, Sturm, and Vreeland 2009; Dreher, Sturm, and Vreeland 2015; Stone 2004; Stone 2008)

species, "apparently, bec[oming] truly convinced of the endangered status of the fish" (Gehring and Ruffing 2008, p. 141).

New scientific evidence also appears to affect decisions. When a 2022 study showed that sharks involved in the international fin trade are far more likely to be threatened with extinction (**card**), the subsequent CITES meeting heavily referenced the research when deliberating (and eventually voting in favor of) adding the guitarfish and requiem shark families to Appendix II (Scales 2024). This sort of deliberative consensus-making increases the chances that decisions by CITES are perceived as legitimate and worthy of adherence.

3.2 CITES Effectiveness 2: Transaction costs

This legitimacy combined with the official (though unenforced) legal obligation of member parties means that states with both resources and genuine desire to control will likely do so. In other words, CITES listing causes action on the part of "genuine compliers" within their country (Chayes and Chayes 1993): they go through the process of issuing of export permits, conducting robust non-detriment assessments, and generally doing their best to reduce trade when needed in order to preserve the species. This exerts downward pressure on total trade volume. Similarly, listing provides incentives for importing states to do their best to ensure that CITES procedures have been followed at the point of origin. While this is generally quite difficult, it does provide another layer of scrutiny that in the aggregate is likely to reduce trade volume. Additionally, the increased paperwork involved with CITES species, whether or not it is fully properly adhered to, adds bureaucratic hurdles that may discourage exporters from trading in listed species because of increased transaction costs on the part of the firms.

3.3 CITES Effectiveness 3: Information provision

A final channel by which we may expect CITES to influence trade behavior is through publicizing particular species and providing information to civil society. There is evidence that particular species receive more media and scholarly attention (Prokop et al. 2022), and that the combination of media attention, information, and civil society pressure can change state behavior more generally at least at the margins (Creamer and Simmons 2019; Dai 2007). Two examples serve to illustrate this point. First, concern over the trafficking of pangolins, a scaly anteater, led to their being upgraded to Appendix I in 2016. Part of this concern stemmed from the known role of armed groups in this trafficking (Tata 2023), speaking to the conflict mechanisms below. After the listing, several large NGOs began pangolin-specific programs, including independent trade monitoring efforts, and media attention spiked significantly (Shibaike 2022). Second, the vicuña, a rare Andean lama, was initially listed on Appendix I in 1973 because of declining populations. When it was proposed to be changed to Appendix II, this was met with significant outcry by some groups in the range countries and by NGOs (Sand 1997).

Another piece of evidence that this attention matters is that states almost always quickly respond and change their behavior in response to CITES trade suspensions, suggesting that they try their best to avoid the scrutiny that comes from extreme CITES violations (Reeve 2006). Indeed, "frequent news reports about CITES infringements (as well as the prosecutions, confiscations and fines ensuing) turned out to be the most effective way of raising public awareness and acceptance of the treaty, thus strengthening the legitimacy of the regime" (Sand 1997, p. 49). The preceding discussion leads to my first hypothesis:

Hypothesis 1: *Listing a species on the CITES Appendices will reduce trade in that species, all else equal.*

3.4 Conflict and the wildlife trade

While I expect CITES to decrease trade overall, very little in the preceding discussion precludes the vast majority of the decrease in trade coming from highly motivated, well-resourced states that can willingly and (relatively) easily enforce the provisions of the agreement. I go a step beyond this by arguing that CITES can also decrease trade in situations where we might expect it to increase otherwise, and where we may think an international agreement is unlikely to have an effect. I focus on CITES's ability to reduce heightened wildlife trade in the face of violent conflict, by which I mean the use of armed force between two organized armed groups.[6] Before doing that, I briefly discuss why I expect violent conflict to fuel wildlife trade.

In brief, wildlife functions like many other forms of commodity trade, in that it is relatively "lootable" (Collier 2000), and can provide quick funding to armed groups (both the government and non-government armed groups like insurgents, civil war combatants, and militias). There is robust evidence that wildlife trade coincides with violent conflict (Barron 2015; Douglas and Alie 2014; Haass 2020; Lopes 2014), and can help to prolong it. Conflict decreases the presence of other types of government administration beyond military, like anti-poaching workers and wildlife monitors, allowing more illegal poaching to potentially take place before being passed off as legitimate wildlife trade at the point of export. Conflict also stretches limited government capacity, potentially diverting resources away from things like enforcing an international environmental agreement. Governments can make quite credible arguments that they are focusing on saving human rather than animal or plant life (although the two are, of course, linked, even in the case of conflict). As a general expectation, therefore, we might expect experience of conflict within a country to increase trade of an average species out of that country, due to the increased instability and stretched government capacity/monitoring ability. I articulate this with the following hypothesis:

Hypothesis 2: *Increased conflict in a country will increase trade of species out of that country, all else equal.*

However, I mostly strongly expect increased trade of species who inhabit areas that are directly experiencing conflict. These places are where all of the above mechanisms would operate the most strongly, including, crucially, the armed groups having access to the species in order to capture and subsequently trade them. Therefore, I put forward a more granular hypothesis:

[6] Definition adapted from Yilmaz et al. (2024).

Hypothesis 3: *Increased conflict in a species' range will increase trade in that species, all else equal.*

3.5 CITES and violent conflict

I expect that CITES listing can reduce and even eliminate the increase in wildlife trade that stems from violent conflict. The above mechanisms of legitimacy, increased transaction costs, and information provision can all serve to reduce conflict's effect. The scientific process that leads to CITES listing means that states have agreed that the species in question is worth being monitored because it is potentially at risk of extinction. This means that an increase from trade due to conflict could potentially be seen as especially harmful by the global community, making accepting an export from a potential conflict zone less likely. It is also possible that CITES listing occurred in the first place *because of* pressure on the species' viability due to the conflict. For example, during the 1980s there was intense debate on moving the African elephant from Appendix II to Appendix I, primarily because both parties in several different civil wars were using ivory to purchase weapons (Sand 1997, p. 44). More recently, eight countries were asked to submit national action plans for combating ivory trade for similar reasons (CITES 2013).

The increased bureaucracy and transaction costs that I predicted would contribute to reduced trade from CITES listing may also serve to dampen the effect of conflict. While we may expect a government's resources to be stretched thin during a conflict, they may devote some of their resources toward wildlife trade monitoring and enforcement precisely *because* they are involved in a violent conflict: it allows them to block some of the armed groups' funding, potentially make arrests at the point of exit, and, in more extreme cases, attempt to reassert territorial control through bureaucratic presence.

The increased scrutiny and information available to civil society that comes from CITES listing can also serve to combat the increase from violent conflict. A global, securitized community has formed around the need to combat the illegal wildlife trade and wildlife poaching. A growing literature in the field of political ecology (and elsewhere) has discussed how private security firms, national militaries, and the broader global architecture of "national security" have firmly entrenched themselves in the arena of conservation in the name of combating illegal wildlife trade (Duffy 2022a; Duffy 2022b; Gaynor et al. 2016; Haass 2020; Massé and Margulies 2020). These security-focused actors argue that wildlife trade can fund gangs, terrorists, rebels, insurgents, and other armed groups, and is interlinked with other forms of crime like human and drug trafficking (Barron 2015). While the degree to which arming park rangers and "fighting fire with fire" will actually improve poaching and conservation outcomes is debated (Duffy 2022a), there is no doubt that NGOs and states invoke security as a means to secure funding and support from wealthy international donors, including states (Duffy 2022a; Massé and Margulies 2020).

One way of seeming worthy of support is by staying in good standing with the principal agreement governing the international wildlife trade in CITES. By doing its best to apply CITES's standards even in the face of violent conflict, a state can make a credible signal that it is worthy of increased support both from the security-focused donors and from conservation NGOs, thereby gaining access to more funding than the monitoring efforts that decrease trade likely cost. Overall, the intersection of wildlife trade's securitization with actual violent conflict combines with CITES's inherent features to actually reduce wildlife trade. Based on this logic, I propose my final hypothesis:

Hypothesis 4: *CITES listing significantly reduces the effect of violent conflict on increasing trade in a species.*

4 Research Design

To test the empirical implications of my theoretical argument, I examine wildlife imports into the United States. While focusing on the US does pose questions about the generalizability of my findings, data availability from other countries is quite limited. Additionally, one of the main ways in which the US case may not be generalizable is that as an importer, it is quite high capacity and relatively pro-conservation, at least of wildlife. However, most "consumer" states of wildlife imports have historically been rich countries with relatively high capacity (Sand 1997, p. 46), meaning that there is perhaps less variation along at least some of these dimensions among true wildlife importers than one might imagine. In summary, the US is a reasonable place to test whether or not CITES listing influences trade, and there are good reasons to believe the findings would generalize to other importer countries.

I draw on publicly available data from the US Law Enforcement Management Information System (LEMIS), managed by the US Fish and Wildlife Service for internal law enforcement. The data used in this project was further standardized, cleaned, and formatted by Marshall et al. (2025). These data detail wildlife imports into the United States from 2000 to 2022, including over eight million individual entries, over 21,000 species, and 2.85 billion individuals. Descriptively, the primary purpose of trade was commercial (75.85%), followed by hunting trophies (16.23%), personal use (3.51%), scientific purposes (2.68%). Other categories (educational, zoos, etc.) made up less than one percent of the total entries. Information is not available about the specific importing parties.

I then match the genus and/or species import record with the CITES listing (depending on the taxonomic level at which it was listed in the CITES Appendices).[7] Finally, I aggregate individual import records to the species-country-year level, summarizing how many of each individual species was imported from which country in each year from 2000 to 2022. The full sample includes 3.25 million observations.

I further probe the theory by taking advantage of spatially disaggregated data on species ranges and violent conflict. I collect spatial information on the species ranges of around 17,000 species of mammals and reptiles, two of the most commonly traded types of animals (IUCN 2025). I then count, over time, how many geolocated instances of violent conflict occurred with the range of each of these species, using the Uppsala Conflict Data Program's (UCDP) Georeferenced Event Dataset (GED) (Sundberg and Melander 2013). The design only compares species with geolocated range data available, so it is a more

[7]For example, the entire genus of lizard *Abronia* was listed in 2015, but some species within that genus were listed earlier. Data on the specific year of CITES Appendices changes is from UNEP-WCMC (2025).

limited sample of species than the full LEMIS trade data.[8] This analysis aims to test whether or not a species having more conflicts in its range makes it more likely to be exported to the US than species with fewer (or no) conflicts.

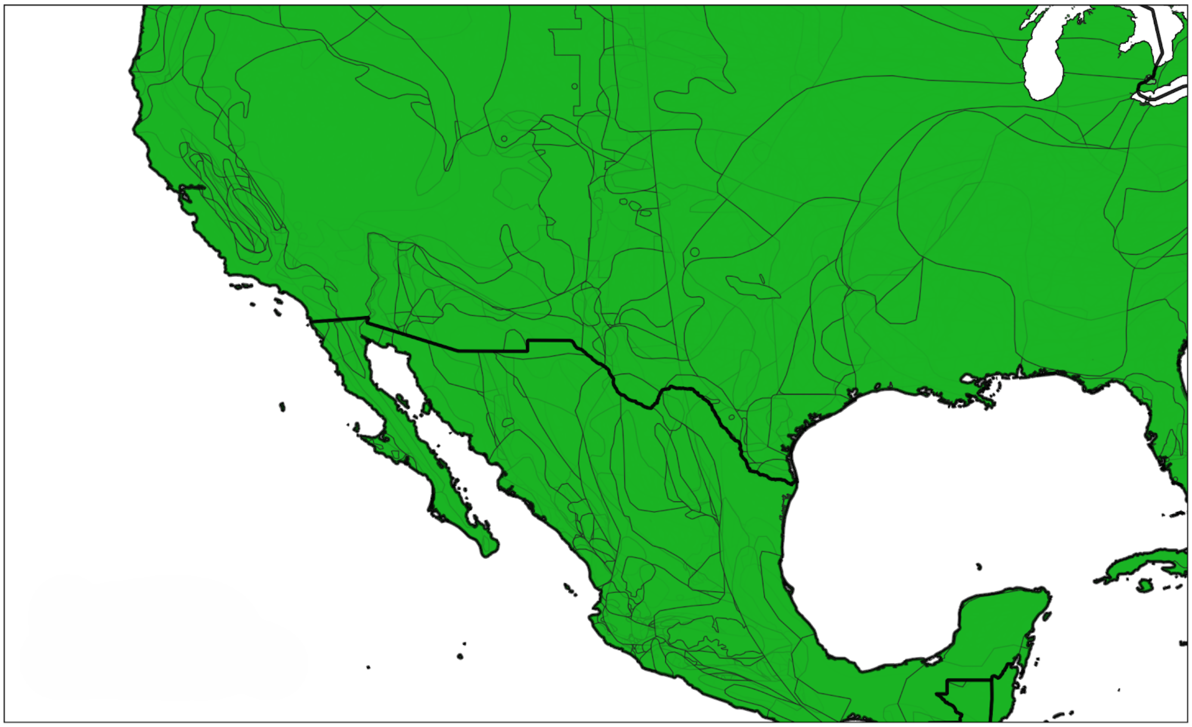

Figure 1: Overlapping species range example on border of US and Mexico. Data from IUCN Red List.

For this sample, I draw on the IUCN Red List of Threatened Species. This data includes the known ranges of 6,025 mammal species and 10,316 reptiles that the organization has identified on their Red List, meaning that they have undergone an extinction risk assessment. Not all species in this list are necessarily under immediate risk of extinction, as their status varies based on the assessment. All are included in this analysis, as an animal being common or of "least concern" does not mean that it is not subject to wildlife trade. The data have been collected over the last two decades, and so do not represent a particular snapshot in time.[9]

[8]It would be inappropriate to include species without spatial range information in this test, because there is no way to systematically measure whether or not conflict occurred within their range. Assuming that there are no conflicts is not valid, because these observations are unobserved.

[9]This could raise an issue where a species extent is no longer accurate due to habitat loss or potentially

I break these ranges into country ranges, so that, for example, the range of a a grey wolf in Canada will be separate from the range of a grey wolf in Norway. The advantage of splitting species by country is that if the species lives in two countries, but only one of those country ranges experiences conflict, the less conflict prone range can still serve as a "control" in the empirical setup. An example of the overlapping species ranges can be seen in Figure 1. Because I then measure annual conflict and trade for each of the country-species, the unit of analysis is country-species-year.

4.1 Dependent Variable

The dependent variable of interest is the logged total imports of each species in each year. The LEMIS data is measured in either individuals or in weight if the species in question does not constitute clear individual entities (for example, moss). Because the LEMIS data does not include records of species that were not imported in a year, I impute zeroes for species that were imported at some point in the sample but not in that particular year. This creates a panel dataset for each species across the sample period. Not doing this would prevent detecting an effect of CITES listing if, for example, a species experienced steady high import level that then dropped to no imports after listing.

4.2 Independent Variables

To test the effect of CITES listing (Hypothesis 1), three independent variables are used. The first and primary specification is an indicator variable, at the species-year level, of whether or not a species is listed in any of the CITES Appendices in that year. It can take the value of 0 or 1. If a species was not already on the CITES Appendices but is then added by approval of the CITES membership, it takes a 1 in the year of approval and all subsequent years. The second two species-year varying independent variables are more granular versions of this variable, indicating if the species was listed in Appendix I, the

expanding ranges because of changing weather patterns. While this is a limitation, there is no alternative dataset that would not have this issue.

most stringent form of listing, or Appendices II or III. Results using these are reported in the supplementary information.[10]

To test the effects of origin country experience of violent conflict (Hypothesis 2), I use the UCDP Country-Year Dataset on Organized Violence within Country Borders (Yilmaz 2024). Following the literature, I use the log of the total number of cumulative deaths in organized violence at the country-year level to capture the intensity of violent conflict that a country experiences. I also include V-Dem's polyarchy measure as a control variable (Coppedge et al. 2021). These measures vary at the country-year level.

To test the effect of violent conflict within a particular species' range on its exports (Hypothesis 3), I measure the total number of conflicts in each country-species range by intersecting the GED data with the country-species ranges described above. UCDP defines a conflict as "an incident where armed force was used by an organized actor against another organized actor, or against civilians, resulting in at least 1 direct death at a specific location and a specific date." Note that this is a relatively stringent definition of conflict because it requires a death to take place. I use this dataset because of its global coverage and as a more conservative test of the theory than other datasets that do not require death to occur. Because the GED data include the year of the conflict, I summarize how many conflicts each species range experienced in each country and in each year.[11]

Similar to the LEMIS data, I assume that GED includes the a valid sample of violent conflicts globally, so if a country-species is not recorded as experiencing a conflict event in a certain year, I impute a zero for that observation. To account for temporal dynamics in conflict leading to increased wildlife trade, the main specifications use the total number of conflicts in the past three years. For example, an armed group may still be active in an area for some time after the last recorded episode of violent conflict, and recent experience of conflict episodes is likely to affect stability, monitoring, enforcement, and service provision in ways that influence wildlife trade for longer than just the year in which

[10]SI is in development and available upon request.

[11]The conflict events are geolocated as points, so this procedure is akin to counting how many points fall within each country-species range in each year.

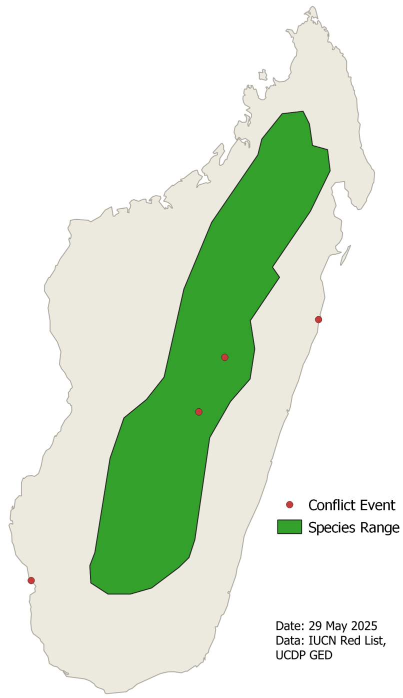

Figure 2: Example of country-species-year observation. The range of the Madagascaran flying fox is shown, with conflict events from 2009. Two conflicts occurred in this species' range in 2009.

they occur. Because the data is highly skewed, I take the log of all operationalizations of the conflict variables. Figure 2 shows an example of one country-species-year observation with conflict events overlaid.

To evaluate Hypothesis 4 on CITES reducing the effect of conflict, I interact both the country-level and species range-level conflict independent variables with the CITES listing indicator variable.

4.3 Model Specification

I estimate a difference-in-differences (DiD) model with multiple fixed effects to assess the impact of CITES listing in country-species-level import volumes. The model to test the effects CITES listing can be expressed as:

$$\log(\text{Imports}_{ito}) = \beta_1\,\text{Listed}_{it} + \beta_2\,\text{Democracy}_{to} + \alpha_i + \gamma_t + \delta_o + \varepsilon_{ito} \quad (1)$$

Where Listed_{it} is an indicator equal to 1 if species i is listed in year t, 0 otherwise; Democracy_{to} is a time-varying democracy control measure for year t and origin country o; α_i is species fixed effects; γ_t is year fixed effects; δ_o is origin country fixed effects; and ε_{ito} is the remaining error term. These fixed effects account for time-invariant species characteristics, common time shocks, and time-invariant origin-country specific factors, respectively. Standard errors are clustered at the species level to account for within-species correlation over time.

To test the interactive effect of CITES listing with conflict in a country or species range,[12] I introduce conflict and an interaction term in an otherwise equivalent model:

$$\begin{aligned}\log(\text{Imports}_{ito}) = \beta_1 \,\text{Listed}_{it} + \beta_2 \,\text{Conflict}_{ito} + \beta_3 \,(\text{Listed}_{it} \times \text{Conflict}_{ito}) \\ + \beta_4 \,\text{Democracy}_{to} + \alpha_i + \gamma_t + \delta_o + \varepsilon_{ito}\end{aligned} \quad (2)$$

5 Findings

Table 1 shows the main results. Model 1 tests the influence of CITES by itself (Hypothesis 1), Model 2 tests the influence of conflict on wildlife trade country-wide (Hypothesis 2), and Model 3 tests for the influence of CITES in reducing the influence of country level conflict (Hypothesis 4). Models 4 and 5 use the subsample with species range data available, testing Hypothesis 3 on the influence of localized conflict and again testing Hypothesis 4 with more fine-grain data.

[12] Note that the second equation includes species, country, and year notion for the conflict variable, but the country-level specifications would not actually include the species-level variation.

Table 1: Main Regression Results

Dependent Variable:	Total Imports (Logged)				
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
CITES Listing (Any)	-0.1272*		-0.0649		-0.0539
	(0.0629)		(0.0602)		(0.0486)
Democracy	-0.2901***	-0.3189***	-0.3200***	0.0117	0.0119
	(0.0292)	(0.0301)	(0.0301)	(0.0078)	(0.0078)
Country Conflict Deaths		-0.0046***	-0.0019†		
		(0.0009)	(0.0010)		
CITES Listing (Any) × Country Conflict Deaths			-0.0265***		
			(0.0035)		
Species Conflict Count				0.0052***	0.0070***
				(0.0013)	(0.0014)
Species Conflict Count × CITES Listing (Any)					-0.0115*
					(0.0045)
Fixed-effects					
Species	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Origin Country	Yes	Yes	Yes	Yes	Yes
Fit statistics					
Observations	2,842,360	2,800,667	2,800,667	1,357,723	1,357,723
R^2	0.13652	0.13713	0.13727	0.29570	0.29578
Within R^2	0.00012	0.00013	0.00029	9.37×10^{-5}	0.00021

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*

Several interesting patterns emerge. First, CITES listing does seem to influence trade in wildlife. CITES listing by itself has a negative and statistically significant relationship with trade, accounting for species, year, and origin country fixed effects. This means that trade in the same species from the same country decreases after CITES listing, even accounting for global year-to-year shifts in wildlife trade. This is a positive finding for the effectiveness of this international agreement, considering that enforcement capacity is quite low and mostly relies on domestic implementation. It appears that scientific consensus, increased transaction costs, and the spotlight placed on listed species does influence trade.

Second, the results strongly suggest that conflict has an important influence on wildlife trade. Interestingly, Model 2 shows that country-wide conflict seems to have a dampening effect, which runs counter to Hypothesis 2. However, localized conflict within the range of the species actually being exported has a positive and statistically significant association with increased trade, shown in Model 4. The magnitude of this effect is higher than the negative effect of country-wide conflict. One interpretation of this result is that overall

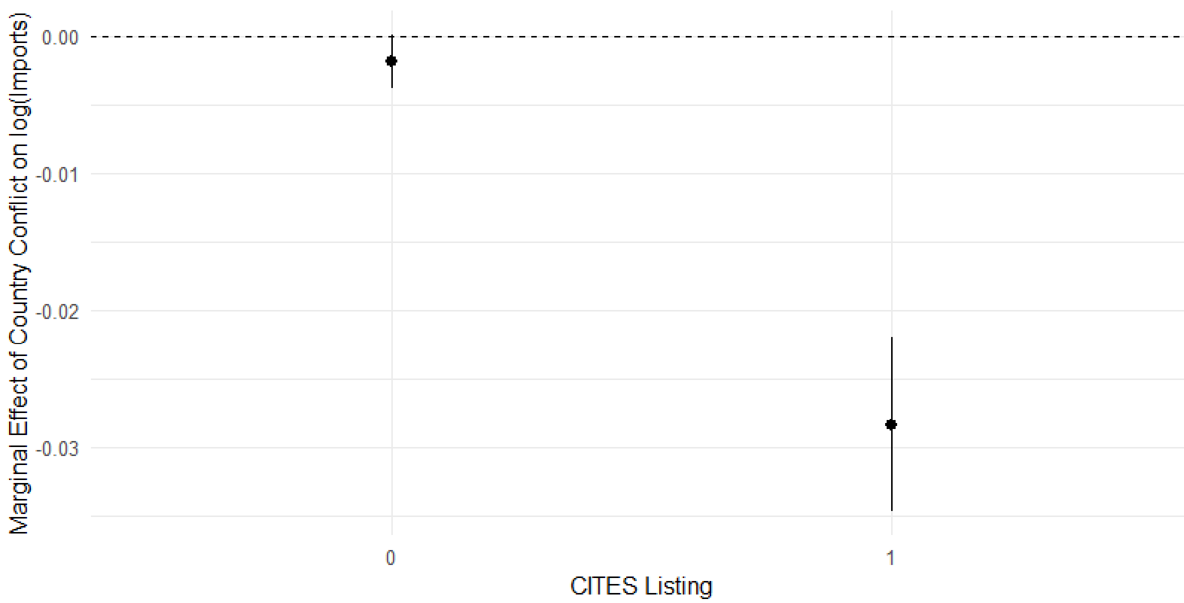

Figure 3: Interaction plot showing the effect of country-wide conflict on wildlife exports to the US, conditional on CITES listing of the species.

conflict decreases trade in wildlife just as it decreases trade across the board in most cases (Bayer and Rupert 2004; Schultz 2015), but local conflict does indeed provide opportunities for armed groups to capture wildlife and trade it internationally, potentially in order to fund the conflict. This is in line with the literature that argues that wildlife trade can fund "bad actors," which some use to justify a securitized approach to conservation.

Lastly, I find strong support for my argument that CITES listing can counteract the influence of conflict. In both the full sample and the localized species range sample, the interaction term between CITES listing and conflict is negative and statistically significant. This shows that when high conflict incidence coincides with CITES listing, trade decreases even more than conflict on its own (Model 3) or the positive effective of conflict is substantially reduced (Model 5). To further explore this, Figures 3 and 4 show interaction plots from these two models.

Figure 3 shows that CITES listing causes country-level conflict be associated with decreases in trade, while there is marginally no effect from conflict for non-listed species. In the finer-grain geospatial sample (Figure 4), conflict is associated with *increased* trade for unlisted species, but CITES listing erases this bump. Both of these results are in line

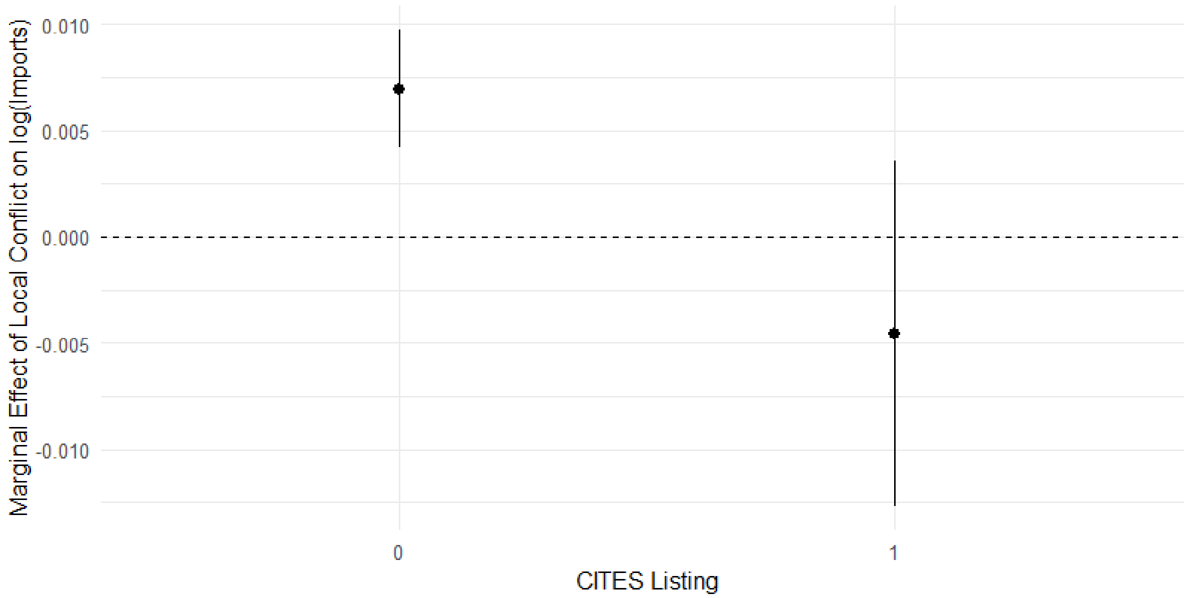

Figure 4: Interaction plot showing the effect of localized conflict in a species range on wildlife exports to the US, conditional on CITES listing of the species.

with my theoretical expectations, in particular Hypothesis 4.

Overall, the main results strongly support my expectations: localized conflict increases trade, while CITES listing decreases trade both on average and in particular dampens the effect of conflict. The one finding not in line with initial expectations, where country-wide conflict dampens wildlife trade, is well-explained by existing work on the relationship between conflict and trade, and was not my primary theoretical emphasis.

6 Robustness

I undertake several steps to build confidence in the results. First, I test if the main results are robust to focusing on CITES Appendix I listing and CITES Appendix II and III listing separately (Table A.1). I find that all results are robust to Appendix II/III, but Appendix I is only significant at the 10% level alone, and does not seem to reduce conflict trade in the species range subsample. This is likely because there are very few Appendix I listings in total, and the majority of them entered the Appendices before the trade data's sample period, limiting valid difference-in-differences comparisons. Second, I use alternative specifications for both the country-wide and localized conflict, including single year and five year windows, event counts rather than total deaths at the national level, and deaths at the local level. I find that results are relatively robust to these different operationalizations (*table in production*). Third, I replicate the results from the full sample using country-wide conflict in the subsample with species ranges. Results are similar in magnitude and direction, and the interaction effect between CITES listing and country-wide conflict is still significant (Table A.2).

I also probe robustness by adding even more stringent fixed effects. For the geolocated subsample and for the test of CITES alone in the full sample, I add country-year fixed effects (as opposed to country and year separately). While I cannot do this in the models that include variables at the country-year level (country-wide conflict), I can for those that are not testing the country-wide conflict hypothesis. This fixed effect should absorb all governance, institutions, conflict, or other country-level, time-varying factors, reducing concerns about country-specific policy shocks or trends over time. I still find that CITES alone decreases trade volume, that conflict in a species' range increases trade volume, and that CITES can eliminate this spike (Table A.3).

I also test if the results are driven by a mechanical decline in species population in their natural habitats. If this is the cases, the finding that CITES decreases trade and reduces spikes from conflict may be driven by the fact that there are fewer individuals of the species in existence to capture and trade. To rule out this alternative explanation, I limit the sample for all species that are eventually listed on CITES to the two years before and after CITES listing. The idea is that species populations may change in the wild during that time, but are less likely to do so in a way that fundamentally shifts trade volume. The results for Hypothesis 1 on the overall effect of CITES are robust to this change, suggesting that mechanical decline does not explain my results (Table A.4). Implementing country-year fixed effects in this limited window sample yields similar results, although they become marginally less significant ($p = 0.0539$).

7 Empirical Extensions

7.1 Trends

I also probe the theoretical mechanisms of my argument in a couple of ways. First, I analyze trends in trade behavior prior to and after CITES listing. Note that, because CITES listing is a lengthy, public, international process involving consultation with member states, affected industries, and scientists, I do not necessarily expect completely parallel trends in trade behavior prior to listing. CITES listing does not come as an unexpected shock to wildlife traders (both legal and illegal). And, indeed, this is not what we see when looking at an event study. Figure 5 shows that there is actually a statistically significant increase in trade prior to listing.

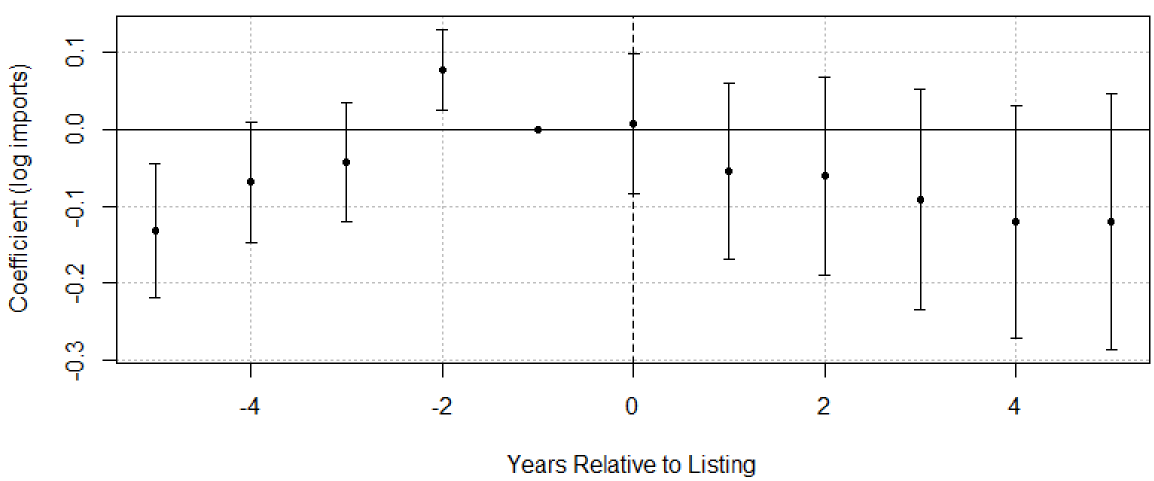

Figure 5: Event study on the effect of CITES listing on wildlife trade.

There are two plausible interpretations of this finding. First, it could demonstrate that anticipatory effects are indeed occurring, where traders increase trade in anticipation of restrictions coming into place later. This actually bolsters my argument that CITES is effective: it shows that actors involved in the wildlife trade expect it to become more difficult after listing. It may be showing that the CITES process is actually taken seriously, to the point that it is resulting in significant behavior change prior to the listing even becoming official. Second, it could be showing that CITES listing is happening *in response to* the increase in trade that we see in preceding periods. CITES listing is, after all, supposed to come about when evidence mounts that continued unrestricted trade in a species may threaten it with extinction. An increase in trade may cause alarm among environmental scientists that such a scenario is coming about, resulting in listing. At this time I am unable to adjudicate between these interpretations, but at minimum they bolster prior arguments that the CITES process is indeed evidence-based, and at maximum potentially demonstrate that actors expect CITES to be so effective at restricting trade that they change behavior in anticipation of potential listing. Future versions of this paper will aim to address these pre-trends empirically via the inclusion of more control variables or alternative model specifications.

7.2 Attention Mechanism

I further examine the mechanisms by splitting the species range sample between reptiles and mammals. If I am correct that publicizing wildlife trade and securitization are important channels through which CITES is effective, we might expect the CITES listing of mammals to be more effective than the CITES listing of reptiles. This is because there is a well-established bias in humans toward "charismatic" species that we find relatable and appealing, and the majority of these come within the mammal class of animals. Media attention, conservation funding, and political priority are often given to mammals, so I expect CITES listing to be especially effective in reducing trade in these animals. For example, NGOs like Save the Elephants are organized around a particular species, and organizations like the World Wildlife Fund (WWF) use animals like the panda as their logo. This reflects a bias in where donors would prefer to give money (Colléony et al. 2017) and in which protected areas tourists would like to visit (Hausmann et al. 2017). Most of the grey literature and promotional material surrounding securitized wildlife monitoring also focuses on mammals (Duffy 2022b), further bolstering this idea.

Indeed, it appears that there may be bias in scientific research and perhaps even the likelihood of CITES listing itself between mammals and other species.[13] Research has found, for example, that lizards are less likely to be studied and assessed scientifically than other types of vertebrae (Meiri and Chapple 2016), that CITES listing may exhibit "speciesism" (Hutchinson, Stephens-Griffin, and Wyatt 2022), and that reptile species are "under-regulated" (Marshall, Strine, and Hughes 2020). Using the CITES listing data described above, I see some suggestive evidence of this: there are 784 individual listings of reptiles in the CITES Appendices (of approximately 11,690 known species of reptile; 6.7% of the total), compared to 941 listings of mammals (of approximately 6,600 known species of mammal; 14.3% of the total). I do not present these figures as dispositive evidence of bias in CITES listing, which is beyond the scope of this paper, but they do align with the evidence from other work.[14]

Building on these intuitions, I split the full geolocated sample to a mammal-only sample and a reptile-only sample; I expect the results to be stronger for the mammal-only sample than the reptile-only. I present the results of equivalent models to the main results below in Figure 6, with green representing the results for mammals and orange representing the results for reptiles. While localized conflict is associated with increased trade in both families of animal (circle model)–further bolstering Hypothesis 3–CITES only appears to decrease trade both by itself (triangle model) and in the interaction with conflict (square model) in the mammal subsample. This lends support to the idea that awareness and attention due to CITES listing are important, even though they are biased toward certain species of animal.

[13]Note that I have not argued that which species are proposed for CITES protection is completely free of bias. Rather, I argued that it is not driven by *political* bias toward particular species, and that the final listing decision itself is scientifically driven. There could be bias in which species are researched and found to be in need of CITES listing in the first place. Empirically, species fixed effects should account for differing characteristics that affected likelihood of listing.

[14]It is possible, for example, that the same factors that lead to a bias in research on mammals would also lead them to experience greater trade pressures, resulting in more listings.

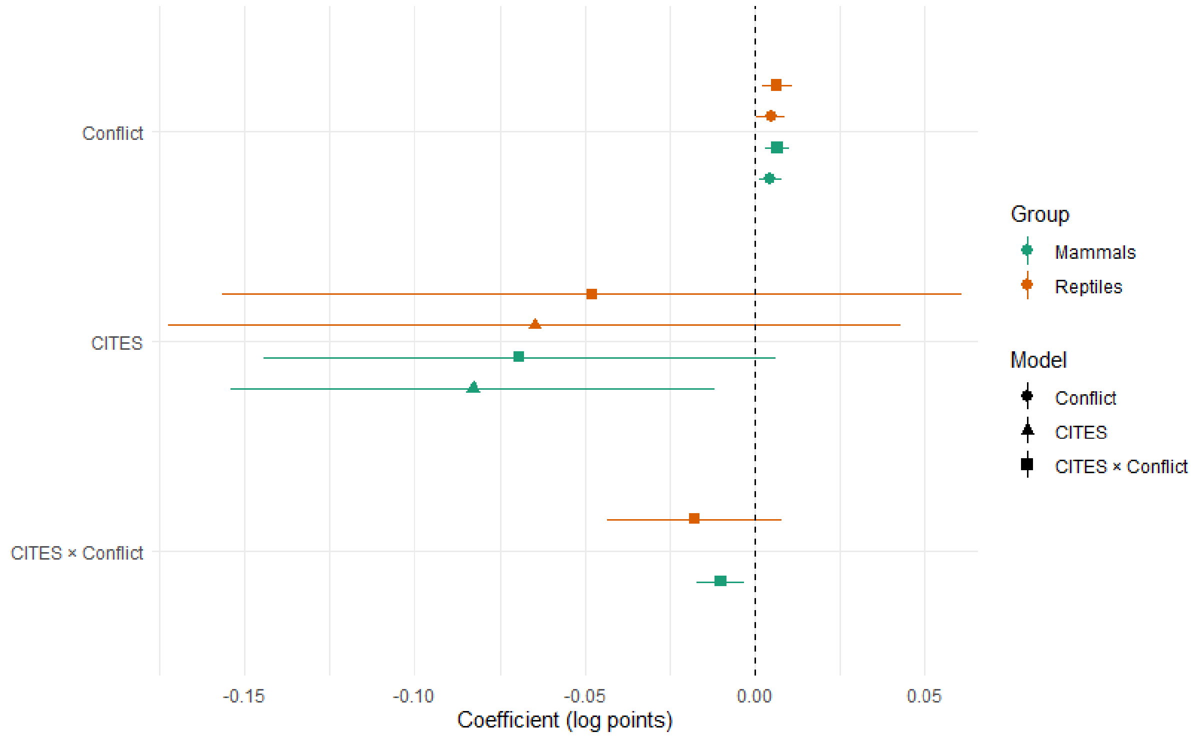

Figure 6: Coefficient plots of split sample models by species class.

7.3 Illegal Trade Spillovers

Finally, I analyze whether or not CITES listing shifts some trade to the illegal market. Given the nature of illegal trade, data availability is limited. In order to maintain comparability, I rely on the same LEMIS dataset as the main analysis, identifying illegal trade through the data attribute "disposition" that identifies whether or not an import was accepted. Following previous studies, I identify illegal trade as all wildlife imports that were "seized" at inspection (Petrossian, Pires, and Uhm 2016). It is unlikely that seizure data is a representative sample of all illegal wildlife trade, but this appears to be the best and most comprehensive data on illegal wildlife trade available (Eskew et al. 2020; Olsen et al. 2021; Petrossian, Pires, and Uhm 2016).

Using this identifier, I create a new dependent variable, logged seized imports, and test my main hypotheses again using this new variable. The empirical setup is otherwise equivalent to the main models. Table 2 shows the results. It appears that CITES listing by itself is associated with an *increase* in illegal wildlife seizures, although the magnitude is smaller (about half) than the decrease in overall trade found above. Similar to the main results, local conflict is also associated with an increase in seizures, although country wide conflict is now also associated with an increase. Looking at the interactions, CITES listing does not reduce the effect of conflict, and indeed seems to increase it in the country-wide conflict models (Model 3). I caution strong interpretation of these results due to the data limitations discussed above, as well as the fact that enforcement in the form of seizures may be increasing after CITES listing as opposed to illegal trade itself. Future versions of this paper will continue to explore this potential negative spillover.

Table 2: Wildlife Seizure Regression Results

Dependent Variable:	Total Seized Imports (Logged)				
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
CITES Listing (Any)	0.0661***		0.0610***		0.0065
	(0.0177)		(0.0172)		(0.0052)
Democracy	0.0011	0.0018	0.0022	-5.79×10^{-5}	-4.89×10^{-5}
	(0.0030)	(0.0030)	(0.0030)	(0.0015)	(0.0015)
Country Conflict Deaths		0.0003*	6.17×10^{-5}		
		(0.0001)	(0.0002)		
CITES Listing (Any) × Country Conflict Deaths			0.0025**		
			(0.0009)		
Conflicts, 3-year (Logged)				0.0006*	0.0007**
				(0.0002)	(0.0003)
Conflicts, 3-year × CITES Listed					-0.0008
					(0.0010)
Fixed-effects					
Species	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Origin Country	Yes	Yes	Yes	Yes	Yes
Fit statistics					
Observations	2,842,361	2,800,668	2,800,668	1,358,229	1,358,229
R^2	0.04860	0.04910	0.04932	0.11462	0.11463
Within R^2	0.00018	2.73×10^{-6}	0.00023	2.43×10^{-5}	3.72×10^{-5}

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*

8 Conclusion

In this paper, I have made two claims. First, I argued that despite a lack of stringent enforcement mechanisms and dispute resolution clauses, the primary agreement regulating international wildlife trade does actually affect actors' behavior in this space. While other work has also found that international agreements do lead to behavior change (Jensen and

Malesky 2018; Mitchell 1994), this is fairly surprising given the lack of success of many ambitious international environmental agreements and the state of environmental crises globally (Barnosky et al. 2011; Hansen et al. 2025). The second claim is that CITES is partially effective because it can help counteract a particularly publicized form of wildlife trade: trade stemming from violent conflict. I argued (and found) that while conflict may decrease trade overall, it actually increases trade in conflict-zone species–unless they are listed on CITES, the publicity and attention from which can counteract conflict's effect. This is not to say that CITES has solved the problem of the overexploitation of species for commercial purposes. Domestic consumption, illegal, unmonitored trade, under-reporting, and habitat destruction continue to threaten millions of species. Indeed, it is a limitation of this paper that it relies on reported wildlife trade, which is known to almost certainly be an undercount. But it is heartening that this global convention whose processes appear to be quite free from political considerations can actually influence actions on the ground.

By taking advantage of trade data from the United States, I side-step a common problem facing the assessment of the effectiveness of international agreements: a lack of counterfactual data. It may be difficult to measure the effectiveness of an international labor rights regime, for example, if rights were not systematically monitored until the regime came into being. Using data from another source that has comprehensively monitored trade in both listed and non-listed species, I am better able to assess any influence that CITES has on trade. Research in the broader area of international organization can look for similar opportunities. The limitation to this approach, of course, is that my analyses were based solely on wildlife imports into the United States. While the US is the largest importer of wildlife and is therefore important to understand in its own right, future research can examine how far the conclusions from this paper travel, or how much monitoring/enforcement behavior have changed in the US itself given recent anti-environmental priorities in the US government. By using import data from a single country, this paper also cannot address heterogeneity in importer capacity, enforcement, or motivations. Future work could unpack this, although data availability is an issue per the above point.

While the field of environmental politics is growing within political science, the majority of work focuses (understandably) on climate change and deforestation, with a recent growing interest in area-based conservation. This paper contributes to the broader field by highlighting that trade in non-human species is an important factor leading to species decline, which in turn affects ecosystem health, carbon sinks, fish stocks, agricultural yields, and more. CITES appears to substantially reduce trade in listed species, perhaps giving hope that broader, evidence-based, consensus can be reached in other arenas like emissions reduction and plastic production. As global norms slowly shift in a more sustainable direction, understanding past and present successes (however small) has never been more important.

References

Alger, Justin (2023). "The Political Economy of Protected Area Designations: Commercial Interests in Conservation Policy". *Global Environmental Politics* 23.2, pp. 54–73.

Allee, Todd and Clint Peinhardt (2011). "Contingent Credibility: The Impact of Investment Treaty Violations on Foreign Direct Investment". *International Organization* 65.3, pp. 401–432.

Barnosky, Anthony D. et al. (2011). "Has the Earth's sixth mass extinction already arrived?" *Nature* 471.7336, pp. 51–57.

Barron, David H. (2015). "How the Illegal Wildlife Trade Is Fueling Armed Conflict". *Georgetown Journal of International Affairs* 16, p. 217.

Bayer, Resat and Matthew C. Rupert (2004). "Effects of Civil Wars on International Trade, 1950-92". EN. *Journal of Peace Research* 41.6, pp. 699–713.

Beacham, Austin (2023). "Extraction, Contestation, and Conservation: Natural Resource Dependence and Protected Area Designation". UC Institute on Global Conflict and Cooperation, Working Paper No. 22.
DOI: https://ucigcc.org/publication/natural-resource-dependence-and-citizen-mobilization/ (visited on 04/08/2025).

Berge, Tarald Laudal and Axel Berger (2021). "Do Investor-State Dispute Settlement Cases Influence Domestic Environmental Regulation? The Role of Respondent State Bureaucratic Capacity". *Journal of International Dispute Settlement* 12.1, pp. 1–41.

Blundell, Arthur G. and Michael B. Mascia (2005). "Discrepancies in Reported Levels of International Wildlife Trade". *Conservation Biology* 19.6, pp. 2020–2025.

Breetz, Hanna, Matto Mildenberger, and Leah Stokes (2018). "The political logics of clean energy transitions". *Business and Politics* 20.4, pp. 492–522.

Buchanan, Allen and Robert O. Keohane (2006). "The Legitimacy of Global Governance Institutions". *Ethics & International Affairs* 20.4, pp. 405–437.

Busch, Marc L. (2007). "Overlapping Institutions, Forum Shopping, and Dispute Settlement in International Trade". *International Organization* 61.04.

Carnegie, Allison (2014). "States Held Hostage: Political Hold-Up Problems and the Effects of International Institutions". *American Political Science Review* 108.1, pp. 54–70.

Chapman, Terrence L. et al. (2021). ""Leakage" in International Regulatory Regimes: Did the OECD Anti-bribery Convention Increase Bribery?" English. *Quarterly Journal of Political Science* 16.4, pp. 387–427.

Chayes, Abram and Antonia Handler Chayes (1993). "On compliance". *International Organization* 47.2, pp. 175–205.

CITES (2013). *Eight countries submit national action plans to combat illegal trade in elephant ivory*. Tech. rep. DOI: https://cites.org/eng/news/pr/2013/20130516_elephant_action_plan.php (visited on 07/20/2025).

CITES Secretariat (2022). *World Wildlife Trade Report 2022*.

— (2025a). *CITES Brochure*. DOI: https://cites.org/sites/default/files/I/Brochure_UNEP_CITES_eng.pdf (visited on 06/02/2025).

— (2025b). *What is CITES?* DOI: https://cites.org/eng/disc/what.php (visited on 06/02/2025).

Clark, Richard and Lindsay R. Dolan (2021). "Pleasing the Principal: U.S. Influence in World Bank Policymaking". *American Journal of Political Science* 65.1, pp. 36–51.

Colgan, Jeff, Jessica Green, and Thomas Hale (2021). "Asset Revaluation and the Existential Politics of Climate Change". *International Organization* 75.2, pp. 586–610.

Colléony, Agathe et al. (2017). "Human preferences for species conservation: Animal charisma trumps endangered status". *Biological Conservation* 206, pp. 263–269.

Collier, Paul (2000). *Economic Causes of Civil Conflict and their Implications for Policy*. Washington, DC: World Bank.

Coppedge, Michael et al. (2021). *V-dem country-year/country-date dataset v11*. DOI: https://www.v-dem.net/en/data/data-version-11/.

Creamer, Cosette D and Beth A Simmons (2019). "Do Self-Reporting Regimes Matter? Evidence from the Convention Against Torture". *International Studies Quarterly* 63.4, pp. 1051–1064.

Crippa, Lorenzo, Edmund J Malesky, and Lucio Picci (2025). "Unpacking Compliance and "Leakages" in International Regimes: The Case of the OECD Anti-Bribery Convention". DOI: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5241232 (visited on 12/09/2025).

Dai, Xinyuan (2007). *International Institutions and National Policies*. Cambridge: Cambridge University Press.

Daskin, Joshua H. and Robert M. Pringle (2018). "Warfare and wildlife declines in Africa's protected areas". *Nature* 553.7688, pp. 328–332.

Douglas, Leo R. and Kelvin Alie (2014). "High-value natural resources: Linking wildlife conservation to international conflict, insecurity, and development concerns". *Biological Conservation* 171, pp. 270–277.

Downs, George W., David M. Rocke, and Peter N. Barsoom (1996). "Is the good news about compliance good news about cooperation?" *International Organization* 50.3, pp. 379–406.

Dreher, Axel, Jan-Egbert Sturm, and James Raymond Vreeland (2009). "Global horse trading: IMF loans for votes in the United Nations Security Council". *European Economic Review* 53.7, pp. 742–757.

— (2015). "Politics and IMF Conditionality". *Journal of Conflict Resolution* 59.1, pp. 120–148.

Duffy, Rosaleen (2022a). "Crime, Security, and Illegal Wildlife Trade: Political Ecologies of International Conservation". *Global Environmental Politics* 22.2, pp. 23–44.

— (2022b). *Security and Conservation: The Politics of the Illegal Wildlife Trade*. New Haven, CT: Yale University Press.

Elkins, Zachary, Andrew T. Guzman, and Beth A. Simmons (2006). "Competing for Capital: The Diffusion of Bilateral Investment Treaties, 1960–2000". *International Organization* 60.4, pp. 811–846.

Eskew, Evan A. et al. (2020). "United States wildlife and wildlife product imports from 2000–2014". *Scientific Data* 7.1, p. 22.

Gaynor, Kaitlyn M et al. (2016). "War and wildlife: linking armed conflict to conservation". *Frontiers in Ecology and the Environment* 14.10, pp. 533–542.

Gehring, Thomas and Eva Ruffing (2008). "When Arguments Prevail Over Power: The CITES Procedure for the Listing of Endangered Species". *Global Environmental Politics* 8.2, pp. 123–148.

Goho, Shaun A. (2001). "The Cites Fort Lauderdale Criteria: The Uses and Limits of Science in International Conservation Decisionmaking". *Harvard Law Review* 114.6, pp. 1769–1792.

Gray, Julia (2013). "Domestic Capacity and the Implementation Gap in Regional Trade Agreements". *Comparative Political Studies* 47.1, pp. 55–84.

Haass, Felix (2020). "Insurgency and Ivory: The Territorial Origins of Illicit Resource Extraction in Civil Conflicts:" *Comparative Political Studies*.

Hafner-Burton, Emilie M., Brad L. LeVeck, and David G. Victor (2016). "How Activists Perceive the Utility of International Law". *The Journal of Politics* 78.1, pp. 167–180.

Hansen, James E. et al. (2025). "Global Warming Has Accelerated: Are the United Nations and the Public Well-Informed?" *Environment: Science and Policy for Sustainable Development* 67.1, pp. 6–44.

Hausmann, A. et al. (2017). "Ecotourism marketing alternative to charismatic megafauna can also support biodiversity conservation". *Animal Conservation* 20.1, pp. 91–100.

Helm, Carsten and Detlef Sprinz (2000). "Measuring the Effectiveness of International Environmental Regimes". *Journal of Conflict Resolution* 44.5, pp. 630–652.

Hughes, Alice et al. (2023). "Determining the sustainability of legal wildlife trade". *Journal of Environmental Management* 341, p. 117987.

Hutchinson, Alison, Nathan Stephens-Griffin, and Tanya Wyatt (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.

IUCN (2025). *The IUCN Red List of Threatened Species*. DOI: https://www.iucnredlist.org (visited on 05/05/2025).

Jensen, Nathan M. and Edmund J. Malesky (2018). "Nonstate Actors and Compliance with International Agreements: An Empirical Analysis of the OECD Anti-Bribery Convention". *International Organization* 72.1, pp. 33–69.

Keck, Margaret E. and Kathryn Sikkink (1998). *Activists beyond borders: advocacy networks in international politics*. Ithaca, N.Y: Cornell University Press.

König, Thomas and Lars Mäder (2014). "The Strategic Nature of Compliance: An Empirical Evaluation of Law Implementation in the Central Monitoring System of the European Union". *American Journal of Political Science* 58.1, pp. 246–263.

Konisky, David M. and Neal D. Woods (2010). "Exporting Air Pollution? Regulatory Enforcement and Environmental Free Riding in the United States". EN. *Political Research Quarterly* 63.4, pp. 771–782.

Lopes, Adrian A. (2014). "Civil unrest and the poaching of rhinos in the Kaziranga National Park, India". *Ecological Economics* 103, pp. 20–28.

Mangonnet, Jorge, Jacob Kopas, and Johannes Urpelainen (2022). "Playing Politics with Environmental Protection: The Political Economy of Designating Protected Areas". *The Journal of Politics* 84.3, pp. 1453–1468.

Marshall, Benjamin M., Colin Strine, and Alice C. Hughes (2020). "Thousands of reptile species threatened by under-regulated global trade". *Nature Communications* 11.1, p. 4738.

Marshall, Benjamin Michael, Aubrey L. Alamshah, et al. (2025). "The magnitude of legal wildlife trade and implications for species survival". *Proceedings of the National Academy of Sciences* 122.2, e2410774121.

Massé, Francis and Jared D. Margulies (2020). "The geopolitical ecology of conservation: The emergence of illegal wildlife trade as national security interest and the re-shaping of US foreign conservation assistance". *World Development* 132, p. 104958.

McLean, Elena V., Jaeyoung Hur, and Taehee Whang (2021). "Renewable energy policies and household solid fuel dependence". *Global Environmental Change* 71, p. 102408.

Meiri, Shai and David G. Chapple (2016). "Biases in the current knowledge of threat status in lizards, and bridging the 'assessment gap'". *Biological Conservation*. Advancing reptile conservation: Addressing knowledge gaps and mitigating key drivers of extinction risk 204, pp. 6–15.

Mitchell, Ronald B. (1994). "Regime Design Matters: Intentional Oil Pollution and Treaty Compliance". *International Organization* 48.3, pp. 425–458.

— (2003). "International Environmental Agreements: A Survey of Their Features, Formation, and Effects". *Annual Review of Environment and Resources* 28, pp. 429–461.

Mitchell, Ronald B. et al. (2020). "What We Know (and Could Know) About International Environmental Agreements". *Global Environmental Politics* 20.1, pp. 103–121.

Olsen, Maria Therese Bager et al. (2021). "Thirty-six years of legal and illegal wildlife trade entering the USA". *Oryx* 55.3, pp. 432–441.

Peritz, Lauren (2020). "When are International Institutions Effective? The Impact of Domestic Veto Players on Compliance with WTO Rulings". *International Studies Quarterly* 64.1, pp. 220–234.

Petrossian, Gohar A., Stephen F. Pires, and Daan P. van Uhm (2016). "An overview of seized illegal wildlife entering the United States". *Global Crime* 17.2, pp. 181–201.

Prokop, Pavol et al. (2022). "Prioritisation of Charismatic Animals in Major Conservation Journals Measured by the Altmetric Attention Score". *Sustainability* 14.24, p. 17029.

Ratan, Ishana (2024). "Chasing the Sun: The Political Economy of Solar Investment in the Global South". DOI: https://ishanaratan.com/wp-content/uploads/2024/12/jmp_draft_10_29.pdf (visited on 05/08/2025).

Reeve, Rosalind (2006). "Wildlife Trade, Sanctions and Compliance: Lessons from the CITES Regime". *International Affairs (Royal Institute of International Affairs 1944-)* 82.5, pp. 881–897.

Rosendorff, B. Peter and Helen V. Milner (2001). "The Optimal Design of International Trade Institutions: Uncertainty and Escape". *International Organization* 55.4, pp. 829–857.

Sand, Peter H. (1997). "Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment". *European Journal of International Law* 8.1, pp. 29–58.

Scales, Helen (2024). *What the wild sea can be: the future of the world's ocean*. First edition. New York: Atlantic Monthly Press.

Schultz, Kenneth A. (2015). "Borders, Conflict, and Trade". *Annual Review of Political Science* 18.Volume 18, 2015, pp. 125–145.

Shibaike, Takumi (2022). “Small NGOs and Agenda-Setting in Global Conservation Governance: The Case of Pangolin Conservation”. *Global Environmental Politics* 22.2, pp. 45–69.

Simmons, Beth (2009). *Mobilizing Human Rights: International Law in Domestic Politics*. Cambridge University Press.

Simmons, Beth A. (2014). “Bargaining over BITs, Arbitrating Awards: The Regime for Protection and Promotion of International Investment”. *World Politics* 66.1, pp. 12–46.

Stoett, Peter (2002). “The International Regulation of Trade in Wildlife: Institutional and Normative Considerations”. *International Environmental Agreements* 2.2, pp. 193–208.

Stone, Randall W. (2004). “The Political Economy of IMF Lending in Africa”. *American Political Science Review* 98.4, pp. 577–591.

— (2008). “The Scope of IMF Conditionality”. *International Organization* 62.4, pp. 589–620.

Sundberg, Ralph and Erik Melander (2013). “Introducing the UCDP Georeferenced Event Dataset”. EN. *Journal of Peace Research* 50.4, pp. 523–532.

Symes, William S. et al. (2018). “The gravity of wildlife trade”. *Biological Conservation* 218, pp. 268–276.

Tallberg, Jonas and Michael Zürn (2019). “The legitimacy and legitimation of international organizations: introduction and framework”. *The Review of International Organizations* 14.4, pp. 581–606.

Tata, Alexia (2023). *Peace, Poaching and Pangolins in Central Africa*. DOI: https://www.usip.org/publications/2023/04/peace-poaching-and-pangolins-central-africa (visited on 09/04/2025).

UNEP-WCMC (Comps.) (2025). *The Checklist of CITES Species Website*. DOI: http://checklist.cites.org (visited on 05/09/2025).

Wellhausen, Rachel L. (2019). “International Investment Law and Foreign Direct Reinvestment”. *International Organization* 73.4, pp. 839–858.

WWF (2004). *Humphead wrasse: coral reef fish gains trade protection at CITES*. DOI: https://wwf.panda.org/wwf_news/?16071/Humphead-wrasse-coral-reef-fish-gains-trade-protection-at-CITES (visited on 07/15/2025).

Yilmaz, Mert Can (2024). *UCDP Country-Year Dataset on Organized Violence within Country Borders*. Uppsala University.

Young, Oran R. (2011). “Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies”. *Proceedings of the National Academy of Sciences* 108.50, pp. 19853–19860.

Appendix

A Robustness Checks

Table A.1: Separating CITES Appendices

Dependent Variable:	Total Imports (Logged)					
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
CITES Listing (I)	-0.2566†		-0.2406†		-0.2334	
	(0.1353)		(0.1360)		(0.1996)	
Democracy	-0.2893***	-0.2901***	-0.3190***	-0.3198***	0.0116	0.0120
	(0.0292)	(0.0292)	(0.0301)	(0.0301)	(0.0078)	(0.0078)
CITES Listing (II/III)		-0.1256*		-0.0633		-0.0506
		(0.0637)		(0.0609)		(0.0495)
Country Conflict Deaths			-0.0044***	-0.0022*		
			(0.0009)	(0.0010)		
CITES Listing (I) × Country Conflict Deaths			-0.0248**			
			(0.0093)			
CITES Listing (II/III) × Country Conflict Deaths				-0.0260***		
				(0.0037)		
Species Conflict Count					0.0055***	0.0066***
					(0.0013)	(0.0014)
Species Conflict Count × CITES Listing (I)					-0.0111	
					(0.0082)	
Species Conflict Count × CITES Listing (II/III)						-0.0110*
						(0.0050)
Fixed-effects						
Species	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	2,842,360	2,842,360	2,800,667	2,800,667	1,357,723	1,357,723
R^2	0.13650	0.13652	0.13714	0.13714	0.29572	0.29577
Within R^2	9.97×10^{-5}	0.00012	0.00014	0.00014	0.00011	0.00019

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*

Table A.2: Replicating Full Results in Range Sample

Dependent Variable:	Total Imports (Logged)		
Model:	(1)	(2)	(3)
Variables			
CITES Listing (Any)	-0.0655		-0.0389
	(0.0475)		(0.0486)
Country Conflict Deaths		-0.0005	0.0007
		(0.0004)	(0.0006)
CITES Listing (Any) × Country Conflict Deaths			-0.0096**
			(0.0035)
Fixed-effects			
Species	Yes	Yes	Yes
Origin Country	Yes	Yes	Yes
Year	Yes	Yes	Yes
Fit statistics			
Observations	1,451,317	1,384,077	1,384,077
R^2	0.28335	0.28966	0.28979
Within R^2	1.8×10^{-5}	1.33×10^{-6}	0.00018

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*

Table A.3: Country-Year Fixed Effects

Dependent Variable:	Total Imports (Logged)		
Model:	(1)	(2)	(3)
Variables			
CITES Listing (Any)	-0.1121*		-0.0507
	(0.0561)		(0.0476)
Species Conflict Count		0.0088***	0.0103***
		(0.0017)	(0.0018)
Species Conflict Count × CITES Listing (Any)			-0.0097*
			(0.0048)
Fixed-effects			
Species	Yes	Yes	Yes
Origin Country-Year	Yes	Yes	Yes
Fit statistics			
Observations	3,256,868	1,451,317	1,451,317
R^2	0.13847	0.29102	0.29108
Within R^2	1.55×10^{-5}	0.00019	0.00028

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*

Table A.4: Mechanical Decline Test

Dependent Variable:	Total Imports (Logged)	
Model:	(1)	(2)
Variables		
CITES Listing (Any)	-0.0895*	-0.0703†
	(0.0401)	(0.0365)
Democracy	-0.2724***	
	(0.0312)	
Fixed-effects		
Species	Yes	Yes
Year	Yes	
Origin Country	Yes	
Year-Origin Country		Yes
Fit statistics		
Observations	2,519,706	2,876,963
R^2	0.14026	0.14201
Within R^2	9.06×10^{-5}	2.25×10^{-6}

Clustered (Species) standard-errors in parentheses
*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05, †: 0.1*