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RESEARCH ARTICLE

Media portrayal of the illegal trade in wildlife: The case of turtles in the US and implications for conservation

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Abstract

1. Illegal wildlife trade is a global threat to biodiversity, but its drivers and impacts and ways to combat it vary by taxa. News media framing of instances of illegal trade provides a novel window into understanding public perceptions of these dynamics and potential support for management actions.
2. We used 54 known cases of illegal turtle trade in the United States occurring between 1998 and 2021 as a case study to investigate news media framing of this emergent issue in illegal wildlife trade. We synthesized information from these cases and qualitatively analysed how they were framed in 217 associated news articles.
3. The 54 cases involved the illegal trade of at least 24,000 freshwater turtles of 34 different species; box turtles (*Terrapene* spp.) were traded the most. Of the known species involved, 23 were listed under one of the CITES Appendices, and 12 were considered threatened by the International Union for the Conservation of Nature. Trade occurred in at least 43 US states and 6 countries.
4. Despite the multifaceted nature of these cases, problem and solution framing were relatively unvarying. Media coverage framed foreign demand, particularly from Asia for high-value pet turtles, as a main driver of illegal trade. Solutions focused on regulations and enforcement which follows global trends in illegal wildlife trade discourses. However, we also found that articles neutralized illegal turtle trade in several ways, reflecting a lack of perceived legitimacy of and necessity for trade rules and enforcement.
5. Without acknowledging longstanding and formerly legal practices in wildlife trading, conservation efforts which focus on regulations and enforcement may be undermined by a lack of normative compliance.

KEYWORDS
conservation, content analysis, freshwater turtles, illegal wildlife trade, media framing, neutralization theory

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1 | INTRODUCTION

The implementation and success of any conservation programme or policy depends largely on its perceived necessity and legitimacy by both decision-makers and the general public (Kuperan & Sutinen, 1998; Moreto & Gau, 2017; Turner et al., 2016). Media framing (i.e. the inclusion and emphasis of certain information in mass communications that make some aspects of a perceived reality more or less salient; Entman, 1993) plays a significant role in shaping such perceptions and thus can hinder or facilitate conservation agendas (Drews & van den Bergh, 2016; Lakoff, 2010; Walker et al., 2019). More specifically, media framing defines problems, diagnoses causes, makes moral judgements and suggests remedies (Entman, 1993, p. 52). Media selectivity and coverage of certain events also influences an issue's perceived importance and scale (Weaver, 2007). For example, the media's amplification of relatively rare instances of shark or grizzly bear (*Ursus arctos*) attacks on people frames these species as dangerous to the public, which can hinder support for their conservation and restoration (Hughes et al., 2020; Muter et al., 2013). In addition, disproportionate media coverage of certain conservation issues (e.g. shark finning and plastic pollution) may inadvertently divert public attention and limited resources away from more pressing concerns for endangered species such as sharks and sea turtles (Santos & Crowder, 2021; Shiffman et al., 2020).

Illegal and unsustainable wildlife trade is recognized as a significant threat to the survival of species across the globe (Morton et al., 2021; Scheffers et al., 2019), drawing calls for better monitoring systems, increased regulatory oversight and enforcement of trade rules (Macdonald et al., 2021; Massé et al., 2020; Watters et al., 2022). Efforts to gain control over unsustainable and illegal trade revolve around building certainty about the drivers of trade, most effective supply and/or demand reduction strategies, and normative and ethical considerations of animal welfare and commodification (Bennett et al., 2021; Challender & MacMillan, 2014; Collard & Dempsey, 2013; Cooney et al., 2021; Rizzolo, 2021). Understanding how wildlife trade issues are framed in news media can bring clarity while revealing the assumptions and evidence underlying different standpoints (Li et al., 2022; Margulies, 2020; Walker et al., 2019). However, few such studies exist. We conducted a media framing analysis to understand perceptions and responses to an emergent wildlife trade issue: the illegal trade in non-marine turtles.

Turtles and tortoises (Order Testudines) are among the most threatened vertebrates in the world, with over half of recognized species listed as Critically Endangered, Endangered or Vulnerable on the International Union for the Conservation of Nature's (IUCN) Red List (Rhodin et al., 2018). The overexploitation and global trade of wild turtles for pets, meat and medicinal markets or cultural uses is one of the main drivers of their population declines (Stanford et al., 2020). Turtles are particularly vulnerable to overexploitation due to their slow reproductive rates, but biologists and conservation managers did not realize the extent of the problem with freshwater turtle exploitation until the late 1990s, which spurred a worldwide increase in turtle conservation monitoring, legal trade regulations, illegal trade prosecutions and incorporations of non-governmental organizations such as the Turtle Survival Alliance (Gibbons & Lovich, 2019; Stanford et al., 2020; van Dijk et al., 2000). These efforts have heightened awareness of significant illegal trading in threatened turtle species among conservation managers (Auliya et al., 2016; Nijman & Shepherd, 2007; Sigouin et al., 2017), but we know less of how this problem and its potential solutions are communicated to general audiences. Such information could dramatically increase insight into existing norms towards turtle trade and the perceived necessity and legitimacy of newly implemented regulatory and enforcement actions for managing the trade (Gamson & Modigliani, 1989; Humphreys & Latour, 2013; McLeod & Detenber, 1999).

The United States is a microcosm of the global trade in turtles and shifting norms and regulations regarding the trade in reptiles, more generally. It has one of the richest assemblages of freshwater turtle species in the world (Mittermeier et al., 2015), which have long been legally hunted, collected and commercialized for their meat and as pets domestically and abroad (Moll & Moll, 2004). Snapping turtle meat was once such a common food that it was used in commercially produced Campbell's turtle soup until the late 1960s. While turtle soup is less popular than it once was in the United States, snapping and softshell turtles are still commercially harvested in several states and sent to meat wholesalers or shipped abroad. Likewise, the United States is one of the largest suppliers of pet turtles in the world, stemming from the establishment of commercial turtle farms in the 1950s which have sold many millions of hatchlings in domestic and international pet markets (Hughes, 1999). Reptile breeding and keeping as a hobby has also grown immensely, with hundreds of reptile expos and trade shows happening every year in the United States (Collis & Fenili, 2011). However, with the increased recognition of the plight of turtles, stricter trade regulations and greater enforcement of them have shed light onto the illegal underside to turtle trading in the United States (UNDOC, 2020). For example, diamondback terrapins (*Malaclemys terrapin*) were heavily exploited for commercial food markets in the 19th and early 20th centuries (Moll & Moll, 2004), but as population declines became more apparent and terrapins grew in popularity as pets, several states banned the commercial harvest of terrapins. Subsequent enforcement efforts then exposed continued illegal collection, which likely threatens already dwindling populations (e.g. Maron, 2019). Some states, such as Florida, have reacted to this potential threat with stricter rules on personal possession of terrapins, while others, such as Louisiana, allow for regulated commercial harvest of the species.

Given the growing concern over illegal trade among managers and the US's significant role in the global turtle market, we analysed how known instances of illegal turtle trade—defined here as any instance where one or more turtles were caught, transported, sold, offered for sale, bought, attempted to be bought or possessed in violation of the law—in the United States are framed in news media (predominantly electronic versions of newspaper articles) to broaden our understanding of how the heterogeneous regulatory and enforcement landscape regarding turtle trade is perceived.

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We had two main objectives. First, because there are no published, open-access and verified data sources on the scale and dynamics of illegal turtle trade, we sought to synthesize existing information on the spatial, temporal, taxonomic and prosecutorial trends of illegal turtle trade from media articles. Second, given the context of those trends and existing legal markets, we characterized how news media frames illegal turtle trade in the United States. Specifically, we asked (1) in what ways does the news media problematize illegal turtle trade, (2) what are the stated drivers of trade, (3) how do media frames suggest we mitigate illegal trade, and (4) what moral and normative evaluations of illegal trade, trade regulations and its enforcement exist in media frames? To answer this last question, we applied criminology's techniques of neutralization theory to analyse how media framing constructs notions of normative deviance (i.e. when an act violates a formal norm) beyond the legal/illegal dichotomy (Kaptein & van Helvoort, 2019; Pritchard & Hughes, 1997; Sykes & Matza, 1957). With this framework, we posited that neutralizing media frames reflect and reinforce broader social norms about what is considered legitimate and deviant in wildlife trade, which can determine the success or failure of subsequent policies.

2 | MATERIALS AND METHODS

2.1 | Sampling

We first identified known instances of illegal trade in non-marine turtles (hereafter referred to as 'cases'), similar to other studies of events- and place-based media analyses (e.g. An & Gower, 2009; Daniels et al., 2007; Jørgensen & Renöfält, 2013; Pritchard & Hughes, 1997; Solman & Henderson, 2018). We used press releases and monthly bulletins from the US Department of Justice's Environment and Natural Resources Division (ENRD, available from 2006 to October 2021) to identify an initial set of cases. These sources summarize the developments of criminal cases in the United States involving violations of federal laws dealing with wildlife and the environment, and their purpose is to increase information sharing between district attorneys and enforcement agencies (https://www.justice.gov/enrd/selected-publications/environmental-crimes-monthly-bulletins). To overcome the potential bias for press releases to only highlight larger busts of illegal trade and the limited timeframe of available bulletins, we supplemented this search with an inhouse ENRD database of non-confidential/completed turtle trade cases, which included the defendant's name, a short summary of the case (similar to bulletin summaries), and the sentencing. We also deployed a form of snowball sampling (Parker et al., 2019); if during analysis another case was referenced that had not been previously identified through the above sources and it met our criteria for inclusion, we added it to our analysis.

Cases had to involve the illegal trade in turtles sourced from the United States to be included in our analysis. This included cases that explicitly involved the trade of species native to North America but may have been prosecuted elsewhere (e.g. cases where North American species were trafficked from the United States into Canada and the offender was prosecuted in Canada). This also included cases where the offender acquired turtles in the United States and was prosecuted in the United States, but the specific species involved were not stated in case summaries.

Cases often involved multiple people or a network of traders that were charged at different times. We considered cases to be separate if the people involved were charged at different times, at least one of the associated news articles focused on only that individual, and details of that person's case can be reasonably split from the rest of the group. For example, WG was involved in illegal trading with SB and others, but this person was charged separately; that case received individualized attention in the media, and the trade that occurred and species involved were listed separately from that of SB and others in that network. Thus, we treated this as two cases—one identified as WG and one identified as SB and others. Although the names of offenders are public information, we will refer to them using short identifier codes throughout this paper.

In all, this process identified 54 cases prosecuted from 1998 to 2021. While not exhaustive, we focused on this time frame because around the late 1990s was when commercial turtle trade became known as an international threat to turtle populations and garnered more media and policy attention, as described earlier (Cheung & Dudgeon, 2006; Gibbons & Lovich, 2019; van Dijk et al., 2000). We used the name of the person or business charged with illegal trade and 'turtles' to search NewsBank—an online database that archives print and web-based newspapers, newswires, periodicals, broadcast transcripts and other publications from sources all over the world (hereafter 'articles')—for related news articles. This search resulted in 867 associated articles, and after removing duplicates, we analysed 217 articles. Articles did not have to be solely about the case to be included but had to mention it. For example, articles about turtle-related books that reference certain cases were included, but articles that quoted a charged individual about turtle-related activities (e.g. turtle farming) but predated a charge were removed. Finally, news articles that mentioned more than one case were tallied for each case to assess total coverage associated with each case, but the content of such articles was only coded once.

2.2 | Summarizing case characteristics

We extracted contextual information that described the scope and scale of each of the 54 cases and their prosecutions from their associated press releases and news articles. We coded every statement related to our list of categories (Table 1; Table S1), no matter how vague the statement was to ensure a complete portrayal of what transpired. We then synthesized the coded statements to create case summaries and explore trends in illegal turtle trade. We summarized data in the most detailed form that it was available. For example, some articles stated the exact number of turtles and which species were traded, while others used more vague language such as 'hundreds of box turtles'. We mapped illegal trade flows for the cases with information

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TABLE 1 Contextual information that was coded from all articles and their associated descriptions.

Category and code	Description
Scales of case	
Geography	Stated locations of where illegal trade occurred
Timeline	Stated dates or timelines of illegal trade
Value	Stated monetary value of illegally traded turtles
Volume	Actual or estimated numbers of turtles illegally traded
Prosecutorial	
Actual sentencing	Fine, restitution fee, property forfeiture, prison or probation sentence
Evidentiary behaviour	Descriptions of the ways offenders knowingly evaded laws or regulations
Max. possible sentencing	Stated maximum sentencing a case could receive based on the charges
Relevant law(s)	Descriptions of the laws or regulations that were violated (e.g. Lacey Act)
Repeat offender	Statements on prior wildlife-related charges or warnings
Turtle characteristics	
Conservation status	Stated conservation listing/designation (e.g. listed 'threatened' by International Union for the Conservation of Nature)
Natural and life history	Stated reproductive rates, life spans, distributions, ecologies, morphologies
Protection status	Stated protection status (e.g. illegal to harvest from New Jersey)
Threats	Stated threats to a species (e.g. poaching, vehicle strikes, habitat loss)

on starting and ending locations of trade using the centre points of source and destination states and countries in ArcGIS Pro (2.8). We plotted the number and type of turtles traded over time in R 4.0.3 (R Core Team, 2013) with the package VISTIME (Raabe, 2022) to explore taxonomic trends using information from only the cases with explicit information on North American species traded to gauge potential impacts and pressures on wild populations. We also plotted the amount of coverage each case received using the package GGBREAK (Xu et al., 2021) and recorded the laws broken, the mode of operation for each case and summarized the sentences (fines, imprisonment and probation) each case received. All of this information is further used to contextualize the framing analysis.

2.3 | Analysing media frames

To identify different frames used to portray illegal turtle trade cases in the United States, we conducted a thematic analysis of the 217 articles following Braun and Clarke (2006). This method is iterative and involves multiple rounds of revisions and checks among coders to ensure congruence in the interpretation of themes and frames. We used Entman's (1993) broad framing categories (problem definition, causal diagnosis, moral judgement and remedy suggestions) as a guide for frame categories and code themes (Giles & Shaw, 2009; Matthes & Kohring, 2008).

To develop the codebook, first the lead author read all the articles to get a sense of tone and content. Then, the first and second authors freely coded a randomly selected set of 20 articles (~10% of total). We compared these codes and drafted an initial codebook based on material coded similarly by both authors. We then used this initial codebook to recode the same set of articles to check for missing or overlapping themes and revised the codebook accordingly. The first and second authors then independently coded another randomly selected sample of articles (n = 34, ~15% of total) using the revised codebook. To gauge agreement among coders, we used percent agreement and Krippendorf's Alpha (KALPHA) to check intercoder reliability with this set of 34 articles. These tests were performed in NVivo (1.5) and R 4.0.3 (R Core Team, 2013) using the package IRR (Gamer et al., 2019). Categories with a KALPHA score below 0.80 and variables with percent agreement below 90% were dropped (Hayes & Krippendorff, 2007). First and second authors then proceeded to both code all 217 articles with the remaining and revised variables.

We organized a final set of themes within four framing categories: problem drivers, problem impacts, solutions and neutralizations (Table 2; Table S1). Problem drivers referred to anything that was framed as a reason for why illegal trade may occur, for example, high market values of turtles. Content coded to the problem impacts frame encompassed why we (or the article's audience) should care about illegal turtle trade, that is what harm does it cause? The solutions frame included any offered remedy to the problem of illegal turtle trade, that is what should be done about this issue? The neutralization frame constituted ways that articles downplayed or diverted attention from the harm caused by illegal turtle trade. We equated this to how neutralization theory is operationalized in criminology, where offenders justify their deviant behaviour to avoid admitting guilt (Sykes & Matza, 1957). We coded content generally as 'neutralizations' following Kaptein and van Helvoort's (2019) model, then further divvied this content into the two top tier categories of their model: denying responsibility and denying deviance. We added a third category that included instances of othering and joking about the offender or case that we label as uniquely deviant. Finally, we summarized the frequency of each theme by dividing the number of cases where a theme was found by the total number of cases and by the number of articles where a theme was found by the total number of articles.

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TABLE 2 Framing categories and codes with example statements. Occurrence frequencies of each theme are provided by the percent of cases a theme occurred in out of 47 cases with associated news articles ('Case Freq.') and the percent of articles a theme occurred in out of 217 total articles ('Article Freq.'). Frames are not mutually exclusive. See Table S1 for additional code descriptions.

Frame	Case freq.	Article freq.	Example statement	Article
Problem drivers	53% *n* = 25	51% *n* = 110		
Foreign demand	43% *n* = 20	30% *n* = 65	'The trade in reptiles has been a particular concern for authorities in the Southeast, a region with an abundance of turtles sought as pets and food in Asia'	Fretwell, S 2021, 'Man with SC ties indicted on wildlife trafficking charges', *The State*, 3 April
Pet trade	40% *n* = 19	37% *n* = 80	'"Turtles with intense and unique spot patterns are sought after in the domestic and foreign pet trade," he said'	Walsh, J 2019, 'Feds: smuggling ring had south jersey connection', *The Record*, 19 February
Lucrative	38% *n* = 18	23% *n* = 49	'Wildlife traffickers get involved in the business because of the world's insatiable demand for animals and the profits dealers can make when they sell wildlife. In a single year, some dealers have reportedly made $100,000 selling turtles, snakes and other reptiles'	Fretwell, S 2018, 'Booming black market puts SC wildlife in peril', *The State*, 8 July
Meat trade	30% *n* = 14	23% *n* = 49	'...but [he] has a keen interest in common snapping turtles in New York--which he says are abundant now, but due to growing global demand for turtle meat, could see their numbers plummet quickly'	Smith, V 2009, 'Fear the Turtle—A federal raid in Maryland shows how common snapping turtles can have an uncommon bite', *City Paper*, 18 March
Medicinal or cultural uses	17% *n* = 8	8% *n* = 18	'Some turtles were being kept domestically as pets, but many were being sent overseas, driven by demand as food or use in traditional medicine'	Yee, G 2020, 'With new law protecting SC's reptiles and amphibians, conservationists look to future', *The Post and Courier*, 7 December
US demand	17% *n* = 8	7% *n* = 16	'Driven both by demand for North American turtles in east Asia and by trade in the United States, poaching of wild turtles can devastate local populations, experts said'	Friedmann, M 2021, 'Turtle protectors work together to end poaching', *Connecticut Post*, 7 October
Problem impacts	62% *n* = 29	50% *n* = 108		
Threat to species populations	51% *n* = 24	26% *n* = 56	'Perpetuating an international trade threatening turtle stocks in the United States and Asia, pet shop owner NS and two Hong Kong-born middlemen worked for 4 years in the smuggling scheme'	No author, 2014, 'Everett pet shop owner turned animal smuggler: I went too far chasing my "dream"', *Seattle Post-Intelligencer*, 16 January
Crisis	40% *n* = 19	23% *n* = 49	'Wildlife smuggling is a major international issue that law enforcement agencies struggle to get a handle on'	Fretwell, S 2021, 'Man with SC ties indicted on wildlife trafficking charges', *The State*, 3 April
Poor animal welfare	38% *n* = 18	22% *n* = 48	'This is certainly not the most serious offence', ... 'Quite frankly, the worst part for me is the cruelty exhibited to the turtles—the ones that died during the shipment apparently from asphyxiation'	No author, 2014', Man jailed for illegal turtle sales', *Charleston Gazette*, 16 December
Disease and public health risk	23% *n* = 11	12% *n* = 26	'Bringing wildlife illegally into the United States or shipping it overseas can spread disease and hurt native animal populations in South Carolina'	Fretwell, S 2018, 'Scheme that hid rare turtles in candy wrappers bring s down SC wildlife Smugglers', *The State*, 5 September
Undermining business and law	13% *n* = 6	6% *n* = 13	'Some legitimate wildlife dealers say they could support stricter state oversight of some types of wildlife dealing to weed out the shady businesses that give their industry a bad name'	Fretwell, S 2018, 'Booming black market puts SC wildlife in peril', *The State*, 8 July
Invasive species risk	6% *n* = 3	2% *n* = 4	'It's important to prevent imported animals from spreading disease to people or other animals, while preventing exotic animals from establishing themselves in the state, he said'	Fretwell, S 2018, 'Man imported 220 deadly snakes to SC, where illegal animal trade is Growing', *The Herald*, 9 July

(Continues)

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TABLE 2 (Continued)

Frame	Case freq.	Article freq.	Example statement	Article
Neutralizations	43% *n* = 20	30% *n* = 65		
Denying responsibility	32% *n* = 15	13% *n* = 28	'He "buys from so many states that he could not keep track of the laws," so "he buys turtles based on what was legal where he lived (Maryland)"'	Smith, V 2009, 'Fear the Turtle—A federal raid in Maryland shows how common snapping turtles can have an uncommon bite', *City Paper*, 18 March
Uniquely deviant	26% *n* = 12	15% *n* = 32	'Former Trentonian reporter DS has found himself caught up in the same type of oddball story he used to crank out for the capital city's scrappy tabloid newspaper'	Avilucea, I 2018, 'Former Trentonian reporter indicted for smuggling protected turtles out of New Jersey', *The* Trentonian, 10 July
Denying deviance	23% *n* = 11	14% *n* = 31	'There are rapists and murderers and drug traffickers' that deserve a high priority for prosecution… 'Yet they want to come after some (expletive) animals. They have nothing better to do?'	Fretwell, S 2018, 'Booming black market puts SC wildlife in peril', *The State*, 8 July
Solutions	43% *n* = 20	23% *n* = 50		
Law enforcement and prosecutions	36% n = 17	18% n = 39	'With this operation, we hope to shed light on the problem of smuggling and provide a deterrence', … 'If you come to Los Angeles to smuggle wildlife, then you are going to get caught and you are going to get prosecuted'	Brennon Dixson, B 2017, 'Wildlife Trafficking seizure nets tigers to deadly snakes', *Daily Breeze*, 21 October
Policy and regulations	17% *n* = 8	8% *n* = 17	'The difficulty with turtles in South Carolina is we do not have stringent regulations', … 'That makes turtles, other reptiles and amphibians prone to being commercially exploited'	Fretwell, S 2019, 'Black market wildlife trade leads to SC—again', *The Herald*, 21 September
Communications and awareness	11% *n* = 5	2% *n* = 5	'The company also has agreed to provide future purchasers of baby turtles with leaflets explaining the law'	No author 2008, 'Firm accused of improper turtle sales', *South Florida Sun-Sentinel*, 5 July
Captive breeding	4% *n* = 2	1% *n* = 2	'But it is possible to combat the Chinese turtle trade. When the Burmese star … almost became extinct, its native country of Myanmar launched a captive breeding program to save them'	Cahalan, S 2018, 'The insatiable Chinese appetite for turtles could lead to the animal's extinction in the US', *New York Post*, 11 November
Research and assessments	2% *n* = 1	0.5% *n* = 1	'That's why the Minnesota Department of Natural Resources and the Nature Conservancy in Minnesota are teaming to launch a pilot program to monitor turtle populations there'	Molseed, J 2020, 'New pilot program monitors Blanding's turtle population', *Post-Bulletin*, 20 June
Alternative pet choice	2% *n* = 1	0.5% *n* = 1	'Consider choosing a different type of animal to keep as a pet, as there is no way to be 100% certain a dealer is operating ethically'	Friedmann, M 2021, 'Turtle protectors work together to end poaching', *Connecticut Post*, 7 October

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3 | RESULTS

3.1 | Trends in case characteristics and media coverage

We collected information from 54 cases involving illegal trade of turtles sourced from the United States and 217 associated news articles covering 47 of those cases. The number of news articles collected from NewsBank that mentioned each case ranged from 0 to 177, and the number of unique articles ranged from 1 to 31 (Figure 1). There was a higher number of cases and news articles in later years, with a time lag between case occurrence and media coverage in part due to media attention often occurring in two stages: when a person was charged and later when they were sentenced (Figure 2). Not all cases had reached the sentencing phase at the time of this analysis. Articles on new cases would also sometimes reference back to older cases to frame the issue, adding to the time lag and total coverage some cases received over others.

3.1.1 | Offences and prosecutions

Most charges were brought under the Lacey Act and included violations of the Endangered Species Act, various state regulations, CITES permitting requirements, false labelling and/or money laundering. Two cases involved the sale of undersized turtles (which is banned by the US Food and Drug Administration). The longest stated prison sentence of cases that had concluded at the time of this analysis was for 57 months out of the 18 cases (33%) that received a prison sentence. The largest fine charged, including restitution fees to different organizations, was $450,000 out of the 27 cases (50%) that were fined. Most cases with known charges (33 of 46) received some amount of a probationary sentence ranging from 1 to 8 years. Articles reported that nine of the charged offenders had previously been charged or cited for a wildlife-related violation. One offender occurs in our database for three separate cases (Table S2).

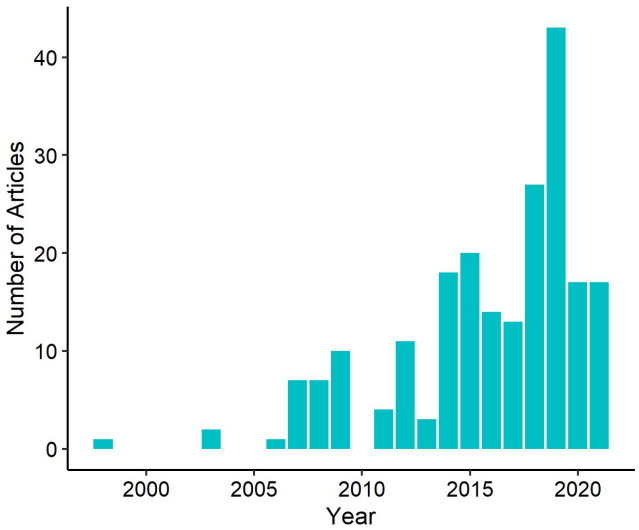

FIGURE 2 Total number of unique articles by the year they were published.

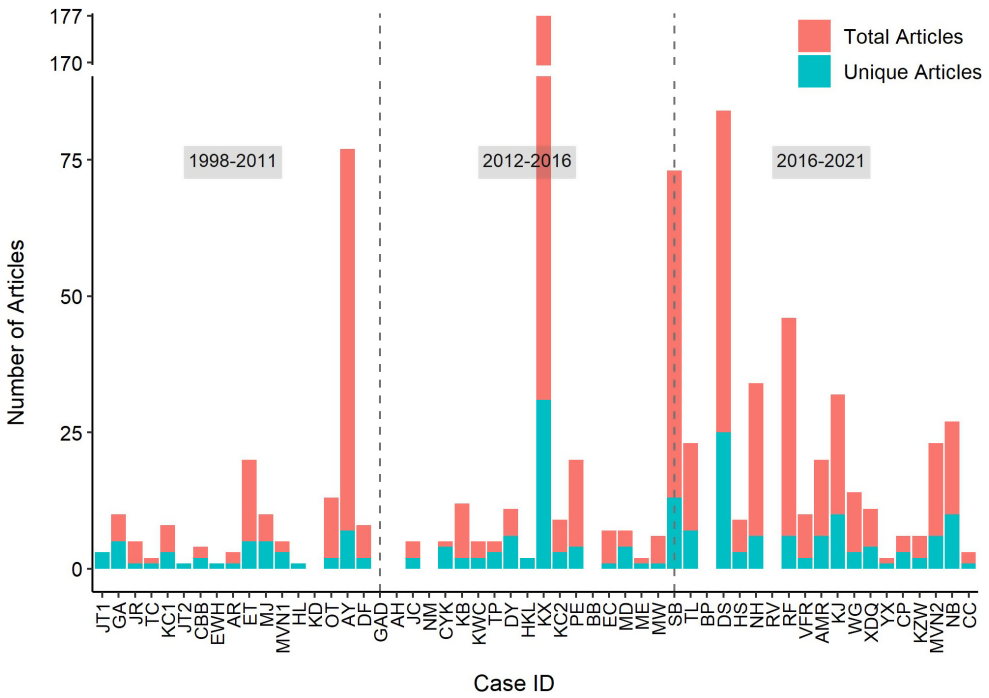

FIGURE 1 Number of news articles associated with each case, with the cases ordered on the *x*-axis by the year the offender(s) were charged with illegal trade from 1998 to 2021. Case charges did not occur evenly across time, so three general time periods are marked by the vertical, dashed lines. Only unique articles were coded for the content analysis.

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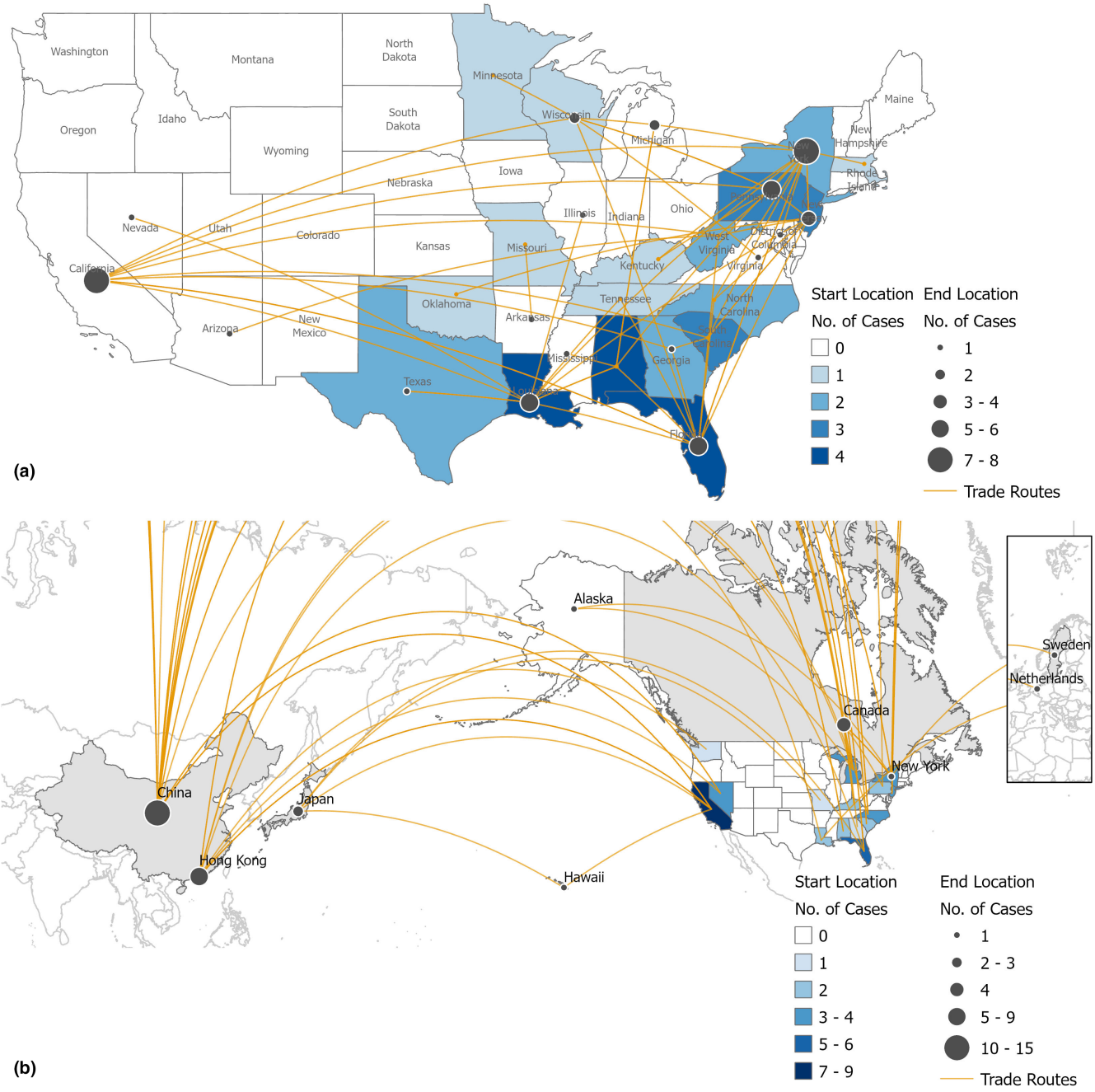

FIGURE 3 Documented illegal turtle trade routes within the continental US (a) and outside the continental US (b). Blue states are where trade routes began, with darker blues representing more cases which involved that state as a start location. Grey dots and filled in countries are where trade routes ended, with the larger dots representing more cases involving that state or country as an end location. Start and end points are oriented at the approximate centre of a given state, province or country. Orange lines represent the known trade routes. Cases without known start and end locations were not included in this figure ($n = 11$).

3.1.2 | Trade flows

The analysed cases were filed in 24 states as well as Washington D.C. and Ontario, Canada. Illegal trade of turtles sourced from the United States was said to have occurred across at least 43 US states and six countries or territories (Canada, China, Hong Kong, Japan, Netherlands and Sweden). Although the origins and final destinations of illegally traded wildlife were often unknown or unspecified, 19 states were identified as starting points for trade, and 17 states and 6 countries or territories were reported as destination locations (Figure 3; Table S3).

3.1.3 | Volume and species traded

Of cases where any volumes of turtles illegally traded was reported (48 of the 54 cases), they ranged in trade of between 1 and 5581 turtles. In sum, over 24,000 North American freshwater turtles were

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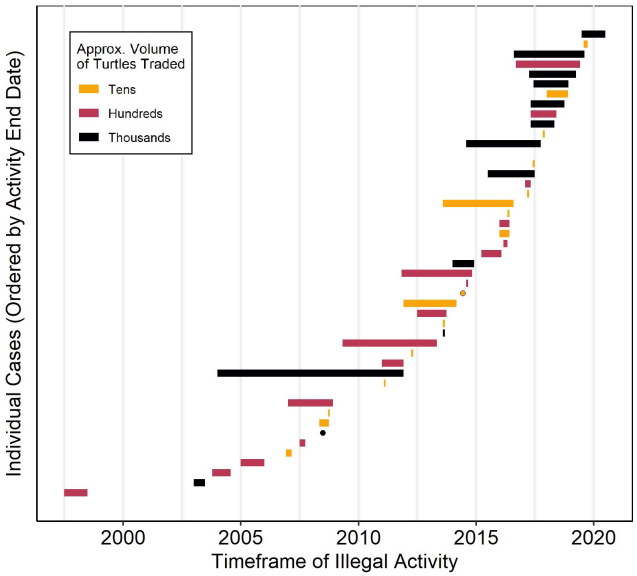

FIGURE 4 The approximate volume of turtles illegally traded in each case by the timeframe that the illegal activity occurred. Horizontal bars represent the length of time that illegal activity occurred for each case ($n = 47$). Orange bars indicate that the case involved fewer than 100 turtles ($n = 18$). Purple indicates that between 100 and 1000 turtles were estimated to have been traded ($n = 16$). Black indicates thousands of traded turtles ($n = 13$). Cases where there was not enough information to approximate the volume of North American turtles traded or the timeline of illegal activity were not included in this figure ($n = 7$).

illegally caught, transported or sold in these 48 cases. It is important to note that this is a conservative estimate based only on exact numbers reported in these cases. Often, a person is charged based on one interdiction and only the number of turtles involved in that instance are reported, but in many cases that person had been involved in illegal trading for years. On the other hand, several cases involved high volumes of reptile trade but the majority of which was in other reptile species or turtles not native to North America. For example, one case involved an estimated '18,000 turtles and reptiles', but it was unclear how many North American turtle species were involved, if any. Therefore, this number is not included in the reported totals (Table S3).

Because of so much taxonomic and exact volume uncertainty, Figure 4 shows volume approximations of North American turtles illegally traded based on either quotations from law enforcement (e.g. 'Evidence suggests person X was dealing in thousands of turtles over X years') or estimates based on the offender's activity. For example, one case involved the interdiction of 11 packages containing a total of 59 turtles, but law enforcement later estimated that between 60 and 70 packages were successfully sent prior to this interdiction. For this case, we assume that 'hundreds' of turtles were smuggled for Figure 4. We also must emphasize that these cases and volumes of turtles involve a range of violation types, from selling undersized, potentially captive bred turtles to trafficking in thousands of wild caught turtles.

Of the known timelines, illegal activity took place over the course of 1 day to 7 years (Figures 4 and 5; Table S3). At least 34 species (including eight subspecies where specified) from 14 genera of North American

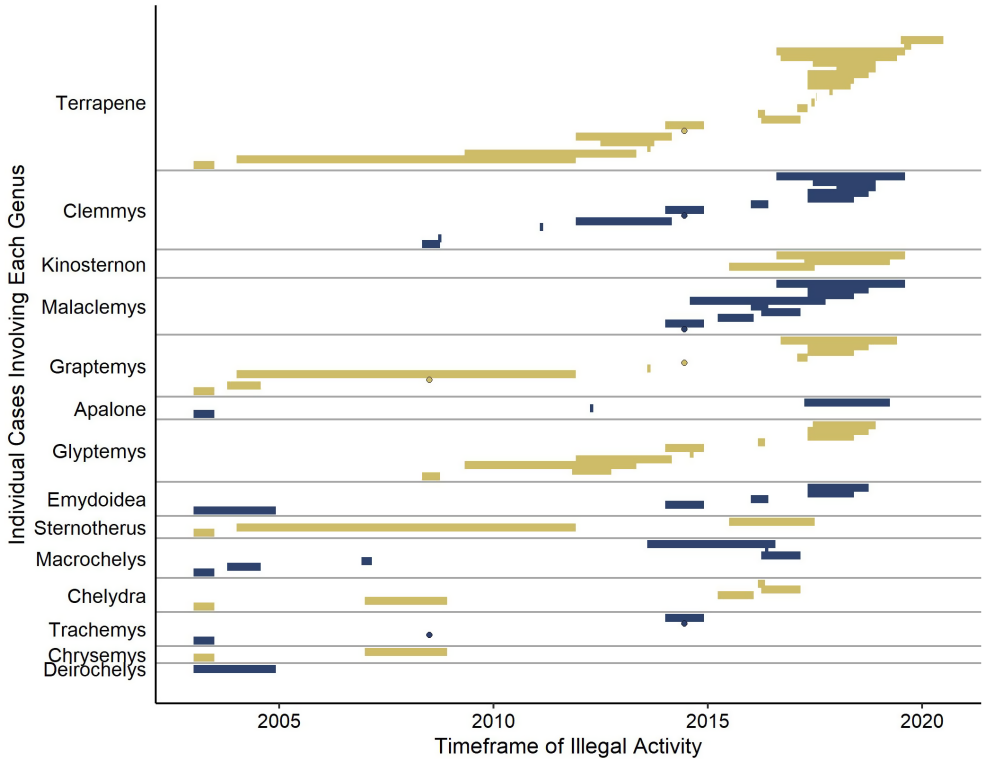

FIGURE 5 Timeframe of illegal trade organized by genus of turtle traded in each case. Horizontal bars represent the length of time that each case took place. Cases with an unknown timeline or unknown species traded ($n = 10$) are not included in this figure. Colours alternate to help distinguish between species bars.

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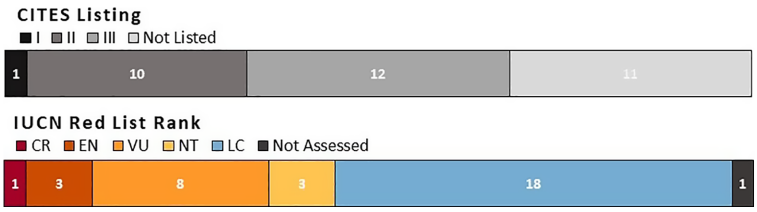

FIGURE 6 Proportion of turtle species (out of 34) illegally traded that are currently listed under the three CITES Appendices (top) and the International Union for the Conservation of Nature (IUCN) Red List (bottom). CITES Appendix I listing is the most restrictive, shown in black, followed by Appendix II, III and species not listed in lighter grey. Species listed by the IUCN as Critically Endangered, Endangered, Vulnerable and Near Threatened are shown in descending shades of orange, and Least Concern and species not assessed are shown in blue. Some cases may have predated species listings on CITES or IUCN.

turtles were illegally traded, plus other reptile species in several cases. Box turtles (*Terrapene* spp.) were the most commonly reported turtles involved in these cases (23 cases), followed by spotted turtles (*Clemmys guttata*; Figure 5). Of the 34 species involved, 23 are listed under one of the CITES Appendices, and 12 are classified by the IUCN's Red List as Vulnerable, Endangered or Critically Endangered (Figure 6).

3.2 | Main themes in case articles

Thematically coded text was sorted into four identified frames: problem drivers, problem impacts, neutralizations and solutions (Table 2). Article content associated with 12 of 47 cases did not fit into any of the frames. In these cases, articles were very short or only reported basic information.

3.2.1 | Problem drivers

Illegal turtle trade was framed most often as being driven by profit potential and increased demand that came in various forms. Specifically, a rising demand for pet turtles, mostly in Asia, was most often framed to be the cause for turtle trafficking in the United States (Table 2). Mention of US demand for turtles in the absence of any mention of foreign demand in the same article only occurs once, when discussing the legal and illegal trade in pet box turtles. The only other region specifically discussed regarding demand for turtles was Europe, which was mentioned in three articles that covered two cases (1% and 4%, respectively). Similarly, although the pet trade was more often framed as the culprit of demand, the use of turtles as food or in traditional medicines was often lumped in as a catch-all, regardless of the species involved in a given case (e.g. 'In China, turtles fetch top dollar when sold as pets, used for medicinal reasons and served as a dinner delicacy'[1]). Demand for turtles as food or medicine was more often associated with Asian demand in particular.

3.2.2 | Problem impacts

The negative impacts on wild turtle populations and poor animal welfare were most often discussed as the reason to be concerned with illegal trade (Table 2). Illegal turtle trade, or wildlife trade generally, was framed as a nonspecific 'crisis' in 19 of the cases, where articles would discuss it as a 'growing problem' for law enforcement, a 'serious crime' or an international issue involving 'organized criminal syndicates'. The potential for illegal trade to spread harmful diseases to other wildlife or people was the next most frequent concern. Risk of invasive species establishment and the concern for illegal activity undermining legal institutions (e.g. commercial turtle farms, trade shows, banks) were also points of concern.

3.2.3 | Neutralizations

Cases were often framed under more than one of the neutralization themes, but articles most frequently neutralized cases by including quotes that suggested the offender was somehow not responsible for their behaviour (Table 2). This included being coerced into an activity, claiming ignorance about the rules or blaming personal financial circumstances as the driver of their actions. The uniquely deviant theme occurred second most often. This is when articles joked about a case or 'othered' it in a way that makes illegal turtle trade seem specific to, for example, Asian cultures or an unusual interest. Some articles were even entirely satirical. For the last neutralization category, framing that denied deviance in illegal trade cases either distorted the truth of what happened, negated that a social norm was violated, insinuated that other good deeds made up for the transgression, or considered the enforcement or punishment to be unjust in comparison to the crime (see Table S4 for additional examples).

3.2.4 | Solutions

Articles included suggested 'solutions', or ways to address illegal turtle trade, for 20 of the cases, but of the four frames it occurred in articles the least often (Table 2). Increased law enforcement and prosecutions were the most frequently suggested solutions, often through the quotes of law enforcement officers themselves from press releases. The second most frequently cited solution was to change the laws and regulations to close loopholes in the legal trade of wildlife. These were often specific to certain states, rather than

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a broad suggestion. Only five articles mentioned a need to increase awareness of the issue. Captively breeding endangered turtles to reduce pressure on wild populations was mentioned twice. Conducting research to assess the effects of trade on wild populations and considering a different pet choice to avoid accidentally participating in the illegal trade of turtles were both mentioned only once.

4 | DISCUSSION

We conducted a news media analysis of 54 cases of illegal turtle trade in the United States spanning over the last 20 years to explore the scope and scale of the trade and to examine how media framing defines turtle trade problems and solutions. Three major insights emerged. First, there is increased attention to the threat of illegal wildlife trade in the United States as evidenced by increased prosecutions and media coverage that, when collated, reveal a multifaceted, extensive trade in a diversity of turtle species. Second, we found that despite great heterogeneity in these cases, relatively homogenous problem drivers and solutions emerged from article frames that mirror global discourses on illegal wildlife trade. Third, through the use of neutralization theory, we expose how existing social norms in reptile trading and a lack of perceived legitimacy and necessity for more regulations may counteract policy and enforcement-based efforts to clamp down on illegal trade.

4.1 | Scale of illegal turtle trade

The number and scale of illegal turtle trade cases in the United States have increased, overall, in the last 20 years (Figures 3–4). However, this increase may actually be indicative of greater attention to the issue through enforcement and regulations facilitated by recent government mandates, rather than an actual increase in illegal trade. Following the discovery of turtle defaunations across the globe, several state agencies and the USFWS have tightened some of their formerly loose regulations on the commercial trade of turtles and subsequently ramped up enforcement of wildlife trade rules. More broadly, combatting illegal wildlife trade was also made a national priority in the United States in 2013 by the Obama administration, then again in 2017 by the Trump administration (Exec. Order No. 13648, 2013; Exec. Order No. 13773, 2017). The END Wildlife Trafficking Act facilitated collaborations among state and federal wildlife and non-wildlife agencies, provided resources for more intensive, intelligence-led investigations and gave authority to agencies to bring charges under non-wildlife-related statutes (e.g. money laundering charges). The END sunsetted in 2022; future work could investigate how influential these policies were on enforcement effort and success.

Our analysis also indicates that the number of species reportedly traded in these cases increased over time (Figure 5). For example, cases involving mud turtles (*Kinosternon* spp.) and diamondback terrapins (*Malaclemys terrapin*) increased starting around 2015. This may again just be a byproduct of more detailed investigations and restrictive regulations. However, mud turtles were not listed under CITES at the time of this analysis, nor are the species that were illegally traded considered threatened by the IUCN. Thus, our results may in fact reflect a real trend in trade in these species and indicate that species rarity and value are not the only drivers of illegal exploitation as some studies suggest (e.g. Chen, 2016; Courchamp et al., 2006). A more holistic understanding of the drivers and trends in turtle pet markets—rather than focusing on species already of conservation concern—is critical to prevent biotic homogenization and keep common species common (Romagosa et al., 2009; Sigouin et al., 2017). Mapping trade routes was also helpful in discerning geographic trends. The southeast appears to be a notable source hub for turtles in the cases, while international trade was primarily routed through California, Florida and New York (Figure 3). California ports in Los Angeles and San Francisco are also primary transit centres for legal, commercial exports of turtles, perhaps due to its proximity to East Asian importing destinations (Mali et al., 2014).

Understanding and addressing illegal wildlife trade is inherently difficult due to limited data availability and data sensitivity. Summarizing trade dynamics using information from press releases and news articles as we have done here for turtle trade can help elucidate broad-scale patterns (Bondaroff et al., 2021; Cheng et al., 2017; Stassen & Ceccato, 2020). Identifying emerging market trends and geographical hotspots of trade, and if and where commercial collection and trade is allowed, is critical for the development of targeted, problem-oriented interventions, especially where resources are limited as is often the case in wildlife conservation (Lemieux & Pickles, 2020).

4.2 | Problematizing illegal turtle trade

Although illegal trade occurred throughout the United States and internationally (Figure 3), news articles most often framed foreign demand, particularly demand from Asian countries, as the primary driver of illegal turtle trade in the United States (Table 2). While there is a large foreign—and in fact global—demand for turtles, this framing ignores the US's history not only as consumers in the pet turtle and turtle meat markets, but as facilitators of it. Few articles mentioned the history of domestic turtle exploitation and demand, or the popularity of reptile expos and pet turtles currently. Articles also framed illegal trade as a new crisis for turtle populations stemming from Asian demand. However, to use one species as an example, concern over the decline in diamondback terrapins due to overexploitation for terrapin stew in the United States began over a century ago (Bettelheim, 2005; Moll & Moll, 2004). We do not deny that there is a large demand for turtles in Asia, but to say the problem exists and is driven solely by Asian markets and culture is to ignore the US's profound participation in and influence on global markets. Furthermore, this frame may perpetuate harmful stereotypes without addressing the drivers of illegal trade domestically (Margulies, 2020; Margulies et al., 2019). The Asian demand frame

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shifts the blame elsewhere while advocating for stricter regulations and enforcement of commercial trade in the United States.

Illegal turtle trade was most often framed as a problem for the survival of wild populations. However, we found a disparity between this framing and the evidence available to determine potential impacts these cases could have on wild populations. For many cases, there was not enough information to determine if and where the illegally traded turtles were taken from the wild, and some cases exclusively involved captive bred or ranched individuals. This echoes ongoing calls for better monitoring in wildlife trade to better direct regulatory efforts and ensure trade sustainability (Challender et al., 2021).

In addition to trade impacts on turtle populations, article frames centred animal welfare as a top concern regarding illegal trade. Gruesome photos of poached wildlife such as elephants and rhinos are often used by news media to grab attention and evoke emotion, so the media may be following the 'if it bleeds, it leads' mantra of deciding whether illegal turtle trade is newsworthy. However, this raises interesting questions for what trade regulations are designed to address. CITES, for example, is designed to ensure that 'international trade in specimens of wild animals and plants does not threaten the survival of the species' (CITES, n.d.). In its arguments for listing species under CITES, the USFWS states that listing will aid the Parties in stopping illegal trade by requiring import and export checks and ensure proper treatment of traded animals by forcing adherence with International Air Transport Association's live animal shipping standards (e.g. USFWS, 2014). However, if high demand and inefficiencies or seemingly burdensome requirements in the permitting system encourage traders to skirt these rules altogether, an unintended consequence may be the higher likelihood that turtles are more often subjected to the cruelty of smuggling. Furthermore, villainizing turtle traders due to how animals are treated in trade may feed into existing pressures for complete trade bans and tougher prosecutions, which are counter to most regulatory frameworks that are designed to ensure sustainable trade. Complete bans may also drive trade further underground (Ferns et al., 2022; Roe et al., 2020; Titeca, 2018), resulting in the higher use of risky and inhumane shipping methods to avoid detection while failing to address illegal trade.

4.3 | Addressing illegal turtle trade

Notably few solutions were offered in article frames in comparison to problem drivers and impacts and almost all of them centred on law enforcement and regulations (Table 2). Enforcement and harsher prosecutions, such as hefty fines or jail time, were framed both as a deterrent for future illegal trade and as just retribution for exploiting natural resources. The need to tighten regulations to close loopholes or limit opportunities for laundering in legal turtle trade was suggested second to greater enforcement effort. There are two probable reasons why enforcement and regulations were the dominant solution frames.

First, news articles were often made aware of turtle trade cases through the Department of Justice's or state wildlife agency and law enforcement's press releases. In those press releases, the officers and prosecutors involved are the ones who were quoted, which likely skews media coverage of those cases towards focusing on the act of enforcement. This lends significant control over messaging to those initially communicating about these cases (Killion et al., 2021). Indeed, when several large-scale turtle trade cases converged with efforts to close loopholes in South Carolina's reptile trading regulations, they were leveraged to emphasize the necessity for greater restrictions and enforcement. In those articles, South Carolina was described as a 'comfortable spot for wildlife traffickers, who can take advantage of the state's weak reptile trading laws', and one offender was called 'one of the most widely known wildlife traders in South Carolina, having had run-ins with authorities for parts of the past 14 years'. This offender's most recent prosecution in 2019 was the first time anyone in South Carolina was sentenced to prison for illegal wildlife trade. In this case, media framing likely bolstered support for the legislative change on reptile possession in South Carolina, which passed in 2020. This speaks to the agenda setting abilities of local media as well as the ability for advocates and lawmakers to craft the framing of relevant events.

Second, the frequently cited need for increased law enforcement, harsher prosecutions and tighter regulations follows global trends in strategies to combat wildlife crime (Duffy, 2014; Massé et al., 2020; Massé & Margulies, 2020). However, unlike other species threatened by illegal trade that garner more public interest, such as elephants or tigers, the trade and keeping of turtles and other herpetofauna has had relatively little oversight until recently (Mali et al., 2014; Sigouin et al., 2017). At the same time, reptile keeping, breeding and trade have grown as a hobby and created a community of herpetoculturalists that engenders interest and value in the pet trade (Collis & Fenili, 2011; Valdez, 2021). Strategies to combat illegal trade in turtles, as well as other taxa that have long been commercialized and internationally popular, may require a more multi-faceted approach to match the complex dynamics of modern, global markets (Cooney et al., 2021). Such efforts may range from short-term ways of driving prices down, such as with captive breeding and wildlife ranching, to long-term strategies to reduce demand and shift social norms (Challender & MacMillan, 2014; Ferns et al., 2022; Massé et al., 2020). In the meantime, focusing solely on uncompromising regulations and enforcement may inhibit the cooperation of hobbyists and industry participants whose activities have historically been unabated (Dietz et al., 2003).

4.4 | Neutralizing illegal turtle trade

Analysing how cases of illegal turtle trade are neutralized in news media uncovered several ways that existing norms in reptile keeping and trading may counteract the deterrence effects of turtle trade rules and potential punishments for violating them. While most

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neutralizing frames in news articles involved denying responsibility, those that denied deviance speak to prevailing notions of regulatory legitimacy. Several articles which detailed how the offender knew they were not in compliance with the rules (e.g. continuing to collect turtles covertly after clear warnings from law enforcement or mailing packages of turtles with false labels and aliases) also included neutralizing language that denied that the behaviour was deviant. This may be especially relevant for those that operate within the legal wildlife trade world, where shifting rules in response to species declines or high market demand clash with the prevailing social norm and cultural tradition of commodifying or collecting turtles. These same norms shape societal notions of harm and thus may also affect the prosecutions of turtle trade cases, such as when one article quoted a case's prosecutor justifying a lighter penalty because the crime was nonviolent and committed by someone without a criminal record, despite the legal allowance of a harsher sentence. Indeed, other forms of denying deviance in article framing involved comparing illegal turtle trade to other, seemingly more deplorable crimes, implying that the respective punishments were not justified.

Denying that these cases constituted significantly deviant behaviour or a violation of social norms highlights the disconnect between the regulatory and enforcement solutions frame and the perceived risks of illegal turtle trade. This suggests that there may be barriers to normative compliance with new, restrictive turtle trade rules, such as recent state possession bans of species popular in the pet trade. Normative compliance occurs when people not only obey the rules to avoid punishment, but when the rules align with personal and societal norms (Acemoglu & Jackson, 2017; Moreto & Gau, 2017). When a wildlife crime is not considered morally or socially wrong, or the rules governing wildlife use are thought to be illegitimate, the perceived seriousness of that crime is lowered and violations become more likely (Eliason, 2003; Muth & Bowe, 1998; Wagner et al., 2019). Thus, top-down measures to reduce illegal wildlife trade must be considered legitimate to be effective. This requires impending regulatory and enforcement reforms to be paired with other strategies, such as shifting the narrative on what is considered acceptable (e.g. through social signalling) or maintaining an efficient and adaptable monitoring system that facilitates legal, sustainable trade (Naito et al., 2022).

Importantly, the last neutralizing frame did not deny deviance at all and instead joked about and 'othered' cases in a way that framed them as strange and novel, carried out by uniquely deviant actors. We suspect that this may have the effect of downplaying the severity or prevalence of illegal turtle trade and delegitimizing efforts to address it. However, this uniquely deviant frame was also related to the cases that drew the most media attention, such as for KX and DS (Figure 1). This may provide an opportunity for educating the public on illegal wildlife trade and other threats to wildlife populations. While almost half the KX articles we analysed framed the case as uniquely deviant, joking about how he duct-taped 51 turtles to his legs, about two-thirds of the KX case articles also included details on how he had actually been involved in trafficking thousands of turtles over the years as part of a network of international traders, highlighting the severity of his case overall. Neutralizing illegal trade in this way, then, may be counteracted by increasing salience of the issue. Future work could investigate how framing wildlife trade as novel and uniquely deviant influences public knowledge of and attitudes towards the issue.

5 | CONCLUSION

To adequately address something as complex as illegal wildlife trade, it is crucial to understand how social norms, issue salience and the perceived legitimacy of problem mitigation—revealed through media framing—may affect the outcomes of conservation efforts. In this study, we investigated news media framing of illegal wildlife trade using 54 cases of illegal trade in turtles in the United States as a case study. For the first time, we summarized trends in illegal turtle trade to guide conservation and management efforts and to provide context to media frames. We found contradictions in how news articles problematized illegal turtle trade and the solutions it offered which parallel broader discourses and debates surrounding wildlife trade. We also advanced the use of neutralization theory to explore differences in legal categorizations of deviant versus what is considered socially legitimate in wildlife trade. We note that this particular analysis lacks a comparison measure to the neutralizations frame, such as how the news media frames the legal exploitation of turtles or how illegal turtle trade is framed for cases outside the United States. However, in examining news media content within the context of specific case studies, we were able to provide detailed context valuable for identifying and comparing patterns in article framing with broader implications for conservation and management strategies.

AUTHOR CONTRIBUTIONS

Tara Easter and Neil Carter had the idea for this study. Easter designed the methodology with input from Meredith Gore. Tara Easter and Julia Trautmann collected and analysed the data. Easter led the writing of the manuscript. All authors critically reviewed manuscript drafts and gave final approval for publication.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

A list of media articles analysed and monthly bulletins used to identify cases is available through Data Dryad at https://doi.org/10.5061/dryad.3xsj3txm4. PDFs are available by request.

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ENDNOTE

[1] Editorial Board 2016, 'Editorial: Short takes on bowl-game overload, no more flaming weather reports, and other weird stuff', *St. Louis Post-Dispatch*, 16 April.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Table S1. Final codebook.

Table S2. Summary of the violations and prosecutions of each case.

Table S3. Summary of turtle species illegally traded, the exact and approximated number of turtles traded, year(s) that illegal activity occurred, activity timelines and illegal trading locations (source, transit and destination) where known for each case.

Table S4. Additional examples of content coded to the 'Neutralizations' frame.

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