Coverage of Wildlife Crimes in Indian Newspapers –

An Interdisciplinary Conservation Criminology Approach to Journalism Studies

Abstract

The causes and impacts of wildlife crimes – the fourth largest criminal enterprise – transcend spatial, temporal and disciplinary boundaries, deeming it a wicked problem, manageable only through interdisciplinary strategies. This exploratory quantitative content analysis examines how India's leading English-language newspapers cover wildlife crime. Rarely studied from a communication perspective, wildlife crime-related and environmental journalism research in India is limited. The three-pronged, interdisciplinary conservation criminology framework is applied to this novel study of wildlife crime media coverage.

Keywords: India, content analysis, wildlife crime, interdisciplinary research

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Introduction

Wildlife crime and the illegal trade in wildlife, its parts, derivatives, and products is a global, cross-border criminal enterprise that is extremely profitable and known to converge with other forms of serious, at times violent, crimes including the trafficking of drugs, weapons and humans (UNODC, 2016). Estimated to be worth between $20 billion to $30 billion annually, wildlife crimes are increasingly being described as threats to not only ecological sustainability – as they contribute to accelerating species extinction – but also as threats to political, social and cultural security, and public health (Greenfield & Veríssimo, 2019; O'Donoghue, Rutz, & Thompson, 2016; Pires & Moreto, 2011). Contemporary interventions against wildlife crimes, that often involve organized criminal syndicates with access to enviable resources, include militarized responses for protecting habitats and species which can have serious, unanticipated consequences. Recent investigative news stories allege that the World Wildlife Fund, a globally renowned conservation organization, is responsible for serious human rights violations in Nepal, highlighting that such militarized conservation interventions can add a completely new dimension of social, cultural and political instability to an already complex problem of international wildlife crime (Baker, 2019.-a, 2019.-b; Duffy, 2014; Warren, 2019.).

International wildlife crime is inherently multidimensional; it involves various risks, criminological aspects, and biodiversity-related issues. Poaching, or the illegal hunting of wildlife, has far-ranging consequences for conservation such as impacts on viability of species populations, environmental education programs, public-private collaborations, conservation funding etc. and, as previously stated, may involve substantial violence (Elliott,

2017; Kahler & Gore, 2015). From a natural resource perspective, not all species of wildlife are equally vulnerable to wildlife crimes such as the illegal trade in live animals or the trafficking of wildlife parts and derivatives etc. For instance, while species such as tigers, elephants and rhinos may be commonly known to be associated with wildlife crime, lesser-known species such as many reptiles, amphibians, birds etc. also frequently fall victim to this cross-border criminal enterprise.

Defining what constitutes wildlife crimes from a criminological perspective is beyond the scope of this study. Instead, this study describes wildlife crimes by using the typology commonly evident in media coverage of the topic, by using categories such as poaching, the illegal trade in wildlife parts and products which includes the trafficking and smuggling of dead animals or their parts, the illegal trade in live animals, etc. This study does *not* include crimes involving species of plants and focuses only on wildlife crimes relevant to wild animals instead.

Despite the emerging research on wildlife crime, the application of a communication dimension to the study of wildlife crimes has not received enough attention. Wildlife crimes are a characteristic example of a "wicked problem", meaning that their causes and impacts transcend disciplinary, spatial and temporal boundaries. Wicked problems, by definition, cannot be 'solved', and must be managed. However, the only way to design successful interventions and management strategies, is by adopting interdisciplinary theoretical and practical approaches (Haubold, 2012; Levin, Cashore, Bernstein, & Auld, 2012; Rivers & Gibbs, 2011). This study, therefore, argues that applying a communication lens to further examining a contemporary wicked problem such as wildlife crime will help paint a larger and more detailed picture of this global issue, helping us better understand the problem and potential intervention strategies.

This study also adds to the thus far scant research on environmental journalism in India which, while on the rise, has barely scratched the surface and no prior studies have analyzed media coverage of wildlife crime. This study, therefore, enhances our knowledge of environmental journalism in emerging economies by assessing how a contemporary, "wicked" environmental issue such as wildlife crime is covered by the Indian news media.

This examination is especially important given the key role that India plays in international wildlife conservation, and its vital status as a source and transit country for multiple wildlife products and species that are commonly and illegally traded on the international black market. Long-term analyses have underscored the importance of the South and Southeast Asian region to any examination of international wildlife crime (UNODC, 2016). An integral part of this region, India is a member of the South Asian Wildlife Enforcement Network (SAWEN), and a party to the Convention on International Trade in Endangered Species (CITES) – an international conservation treaty regulating wildlife trade.

India's newspaper industry has also managed to thrive as new media emerges (Schneider, 2013). Research has indicated the news media's ability to influence both public and policy agendas, even on seemingly-abstract environmental issues (Atwater, Salwen, & Anderson, 1985; Pralle, 2009). How the news media covers wildlife crime in this critical hub in the South Asian region, therefore, is arguably important. A study using conventional journalism methods would prove inadequate in this context, however. Considering that wicked problems such as wildlife crime can only be effectively studied through interdisciplinary theoretical and methodological perspective, this study approaches a content analysis of environmental news from a journalistically unconventional point of view by adopting an interdisciplinary framework as the backbone of the coding structure.

Finally, since prior research on media coverage of wildlife crimes is limited, this exploratory content analysis is guided by the overarching research question: How is wildlife crime presented in India's leading English-language newspapers? The following individual questions serve to answer the overarching question and represent three dimensions of the interdisciplinary framework used in this study, as described below: a) What are the types of species represented in this coverage? b) What are the different types of wildlife crimes represented in this coverage? c) To what extent are judicial and law enforcement elements represented in this coverage? d) What is the relationship between the species represented in the coverage and their endangered status? e) How does the coverage represent the convergent and international nature of wildlife crimes?

Literature Review

Environmental Journalism and India

Research on environmental journalism – and journalism itself – has tended to disproportionately overlook issues relevant to developing countries, particularly in the global South. Research on environmental issues in the Indian news media has been fairly limited in its scope and volume, covering issues such as man-animal conflict, climate change, energy and power, pollution, and natural disasters etc. (Aram, Prem Nivas, & Ramya, 2014; Barua, 2010; Billett, 2010; Crown & Doubleday, 2017; de Souza, 2010; Gurwitt, Malkki, & Mitra, 2017; Olausson, 2014; Schäfer, Ivanova, & Schmidt, 2014).

An abundance of research supports the news media's ability to influence public and policy agendas, by directing people to think about specific issues and think about them in a certain way (Castrechini, Pol, & Guàrdia-Olmos, 2014; M. McCombs, Llamas, Lopez-Escobar, & Rey, 1997; M. E. McCombs & Shaw, 1972; M. E. McCombs, Shaw, & Weaver, 2014). This agenda-setting capability of the news media extends to environmental issues as

well (Atwater et al., 1985; Pralle, 2009; Salwen, 1988). Research also suggests the news media can influence people's risk perceptions, their opinions and policy-related decisions (Crown & Doubleday, 2017), and can amplify wildlife-related risk perceptions (Gore & Knuth, 2009).

India's newspaper industry has been doing well compared to how print media has been doing in other, even developed, parts of the world (de Souza, 2010; Schneider, 2013). Studies on Indian newspapers have largely examined the country's most elite publications, frequently using the three most widely-read and circulated English-language newspapers to source data; The *Times of India*, *The Hindu,* and the *Hindustan Times* are, therefore, also the sources for this content analysis (Crown & Doubleday, 2017; de Souza, 2010; Maslog, Lee, & Kim, 2006).

Environmental journalism research in India and the world has yet to examine the issue of wildlife crime. On a global platform, India's diverse environment holds substantial value. The country is home to various internationally protected areas, ecologically sensitive biodiversity hotspots, and a plethora of wild ecosystems and species. This underscores the need for contemporary and new research in environmental journalism that this study will serve to contribute to (Barua, 2010; Bennett et al., 2017). Moreover, scholars have expressed concern over developing countries being under-represented in journalism and social science research. It is thus, imperative that journalism studies become more inclusive of diversity by embracing interdisciplinary scholarship examining journalism in the developing world (Freeman, 2017; Takahashi, 2011).

Wildlife Crime in South Asia

Globally, environmental crimes are worth over $258 billion annually and wildlife crime is considered the fourth largest international criminal enterprise. It is no longer

associated merely with environmental impacts; rather, the convergence of wildlife crimes with other serious crimes such as drugs and human trafficking, murder, financial fraud etc. is increasingly being recognized (Nellemann et al., 2016). A 2016 wildlife crime report called attention to global environmental and security threats posed by poaching (illegal hunting) and the illegal trade in wildlife and wildlife parts. The report was based on information from more than 164,000 wildlife crime-related seizures from 120 countries, highlighting the sheer range of these crimes all over the world (UNODC, 2016).

Wildlife crime-related seizures were notably high in India, Nepal and Bangladesh for tigers and leopards, in addition to crimes against Asian elephants, Indian rhinos, pangolins, clouded leopards etc. India was identified as a source and transit country for wildlife products and parts such as tiger bones, leopard skins, pangolin scales and meat, reptiles, birds etc. (UNODC, 2016). Other reports have illustrated how wildlife traffickers have exploited transportation systems to ferry illegal consignments of ivory, rhino horn, reptiles, birds, etc., relating to frequent and large consignment seizures between India and other South Asian countries (Utermohlen, 2017).

Conservation Criminology Framework

The nature of wildlife crimes as a contemporary "wicked problem" illustrates the need for interdisciplinary theoretical and methodological research that may help manage this problem. The conservation criminology framework is an example of such an interdisciplinary approach that is especially relevant to the study of wildlife crimes (C. Gibbs, Gore, McGarrell, & Rivers, 2010; Rivers & Gibbs, 2011). Considering the multidimensionality of the causes and impacts of wildlife crime, the conservation criminology framework is itself influenced by the coupled human and natural systems (CHANS) framework, and offers a three-pronged tool for examining wildlife crimes (Carter et al., 2014; Liu et al., 2007). These

three prongs each represent a field of study – all three of which constitute the conservation criminology framework: natural resource management, risk and decision science, and criminology. This interdisciplinary framework was designed specifically for studying conservation crimes, and helps develop a more holistic understanding of wildlife crime to design better, comprehensive, and effective interventions and management strategies.

Risk. Inherently multidimensional itself, risk has cognitive and affective, and by extension, both objective and subjective characteristics. Objective assessments of risk may refer to the quantitative probability (likelihood) of a hazardous event occurring. However, other, potentially subjective measures of risk may assess whether a risk is controllable, novel, chronic, man-made, voluntary etc. (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978; Grantham & Vieira, 2014; Kapuściński & Richards, 2016). Subjective measures of risk also include risk perceptions (Wilson, Zwickle, & Walpole, 2018).

This study adopts the conceptual definition of risk put forth by Sayers, Hall, and Meadowcroft (2002) where risk is the product of the probability of being exposed to a hazard and the expected consequences of such an exposure. Simply put then, risk is the product of probability (or vulnerability) and severity.

Since 1965, the International Union for the Conservation of Nature (IUCN) has published a comprehensive archive called the Red List of Threatened Species which ranks and organizes species of wild plants and animals into one of seven categories from 'Data Deficient' [DD] to 'Extinct' [EX] on a spectrum representing an ordinally increasing risk of species going extinct. Vulnerable [VU], Endangered [EN] and Critically endangered [CR] species are cumulatively labelled endangered species. Species lower than this on the spectrum face lower risk of extinction while those higher on the Red List spectrum are either Extinct in the Wild [EW] or extinct entirely (D'Elia & McCarthy, 2010; Mace et al., 2008).

This study examines which species are identified as being most vulnerable to wildlife crime. As international reports and experts have attested, the causes and consequences of wildlife crimes transcend spatial, temporal and environmental boundaries (Kahler & Gore, 2015; Nellemann et al., 2016; UNODC, 2016). Research questions *d* and *e* represent the risk dimension in this study by examining: a) The IUCN Red List status of species identified as victims of wildlife crimes; b) whether the articles reported convergence of wildlife crimes with other forms of crime such as drug trafficking, illegal possession of weapons, financial crimes, corruption, etc. and; c) assessing the international nature of wildlife crimes.

Natural resource management. Within the conservation criminology framework, the natural resource management dimension may refer to a national conservation or wildlife management plan, environmental impact assessments, or mitigation plans for natural disasters etc. In this study, the natural resource management dimension plays a more applied role.

Research suggests that only a handful of all species of wildlife are consistently used as symbols for conservation movements or campaigns. However, scholars have used multiple construct labels such as 'iconic species', 'flagship species', 'keystone species', 'umbrella species', 'indicator species', and 'charismatic species' interchangeably over the years to describe these symbolic species, which is reflected in media coverage as well (Barua, 2010, 2011). These iconic species often receive more support in the form of funding, media and public attention, and policy representation at times (Clements, 2013; L. Douglas & Winkel, 2014; L. R. Douglas & Verissimo, 2013; McClenachan, Cooper, Carpenter, & Dulvy, 2012). This study uses a definition put forth by Heywood, Watson, and United Nations Environment (1995) to operationalize species' iconic status as flagship species, which are "popular charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action."

As this study examines the coverage of wildlife crime in India, a comprehensive list wild animal species was compiled during the pre-testing stage to include all potential candidates for flagship species. The World Wildlife Fund (WWF) has long been conducting species-centric conservation and engagement campaigns in India. Using its current list of "priority species that have global and/or national importance," and drawing from its threatened species conservation programme, a pre-determined list of flagship species was compiled (WWF, 2019). Despite the organization's recently-marred reputation, this is currently the most comprehensive list that explicitly identifies target species by a conservation organization working in India and therefore, this study uses a modified version of this list to compare the wildlife crime articles against.

During the pre-testing stage, the author determined whether all 23 of these species appeared in newspaper coverage of wildlife crime in India. Based on those results and scholars' descriptions of flagship species, the list was modified to represent the flagships that may appear in wildlife crime coverage (Home, Keller, Nagel, Bauer, & Hunziker, 2009; Smith & Sutton, 2008). Therefore, this study operationalizes the natural resource management prong of the conservation criminology framework by examining which species were identified as victims of wildlife crimes and whether they were flagship species or non-flagship species as per their conservation icon status, reflecting in research question *a*.

Criminology. Rivers and Gibbs (2011) describe criminology as "a scientific endeavor to explain crime (the breaking of laws), while acknowledging the importance of making law and reacting to law violations." This dimension of the framework encompasses the theoretical and practical underpinnings of criminology such as situational crime prevention, deterrence, normative compliance, enforcement, intelligence-led policing, etc. Wildlife crimes inherently have a human dimension because, while the perpetrators of these crimes are always humans,

at times, the victims can be too such as when people or forest rangers die or get injured during violent exchanges between organized crime syndicates and law enforcement.

Commonly used theories in criminology suggest that crime is a choice and a situational landscape is necessary for them to occur, that criminals are rational thinkers who may even be aware of the costs and benefits of committing a crime, and may be influence by their perceptions of how severe, certain, and swift the punishment for a crime might be (Brantingham & Brantingham, 1984; Cohen & Felson, 1979; Cornish & Clarke, 1987; J. P. Gibbs, 1968; Nagin & Pogarsky, 2001; Tittle, Botchkovar, & Antonaccio, 2011).

The criminology dimension is represented in this study by the types of wildlife crimes reported within the media coverage, assessments of whether a judicial/policy aspect was reported, and whether a law enforcement action was reported to have taken place in response to the wildlife crime incident. Research questions *b* and *c* represent this dimension.

Method

Procedure and Sampling

The absence of previously validated measures for coding content on wildlife crime necessitates this exploratory study using conventional quantitative content analysis strategies but deriving its variables and codebook through the conservation criminology framework.

In line with journalism research on India, this study uses the three most widely-read and widely-circulated English-language newspapers in India for analysis: *The Times of India, The Hindu*, and the *Hindustan Times* (Aram et al., 2014; Bhatia, Athreya, Grenyer, & Macdonald, 2013; de Souza, 2010; Schneider, 2013). Coverage of wildlife crime issues in these newspapers was sought for a period of five years, between November 1st, 2013 and November 1st, 2018 to provide a more comprehensive picture of how the issue is covered

longitudinally, given the exploratory and largely descriptive nature of this study (Feldman, Hart, & Milosevic, 2017).

The Access World News database was scanned for articles using the search string "wildlife crime OR wildlife trade OR illegal wildlife trade OR poaching OR illegal hunting OR wildlife trafficking OR illegal pet trade OR illicit pet trade OR illegal bird trade OR wildlife smuggling". Advertising, sponsored content, advice, calendar events, corporate digests and obituaries were excluded while editorials, blogs, opinions, columns etc. were retained in addition to straight news stories. Total recall was 7,822 articles.

A systematic random sample was then obtained using every 10th article from the total number of recalled search results, producing a sample that was approximately 9.5% of the number of recalled articles ($n = 742$). Between August and November 2018, the author trained two non-expert coders and conducted four pre-tests to revise and improve the codebook considering the novel nature of the variables. An older but similar sample (from 2009 to 2012) was obtained and used for the training and pre-tests. Using the author's subject matter expertise, a thorough review of the media content during pre-tests, and feedback from coders, the codebook was modified to minimize confusion, maximize clarity, and be as representative of real news coverage of wildlife crime as possible. After removing 128 articles used to test intercoder reliability, and further cleaning the dataset to eliminate irrelevant and duplicate articles, the final sample ($n = 603$) contained 383 articles from *The Times of India*, 134 from *The Hindu*, and 86 from the *Hindustan Times* (see Table 1).

Table 1

Year-by-year breakdown of articles in final dataset.

Year of Publication	Number of Articles in:			
	Final Dataset	Times of India	The Hindu	Hindustan Times
2014	48	29	16	3
2015	159	108	38	13
2016	134	90	28	16

2017	148	93	25	30
2018	114	63	27	24
Total articles	603	383	134	86

Variables and Measures

The codebook was designed using the three-pronged conservation criminology framework to represent each of the framework's three fields of study namely, natural resource management, risk and decision science, and criminology.

Table 2 describes the variables used in this study, their level of measurement, and which branch of the conservation criminology framework they are linked to, in keeping with the research questions. In addition to these wildlife crime-related variables, the year of publication and name of newspaper were also documented.

Table 2

Variables, levels of measurement and corresponding conservation criminology discipline.

Construct Name	Measurement Level	Conservation Criminology Discipline
Species characteristics: - Flagship species - Non-flagship species	Nominal (dichotomous)	Natural resource management
Type of wildlife crime: - Poaching or illegal hunting - Illegal wildlife trade, trafficking and/or smuggling - Illegal trade in live animals - Other crimes like poisoning, theft, etc. - Culturally-based wildlife crimes	Nominal (dichotomous)	Criminology
Judicial action	Nominal (dichotomous)	Criminology
Law enforcement action	Nominal (dichotomous)	Criminology
IUCN Red List status of species	Ordinal	Risk and decision science
Convergence	Nominal (dichotomous)	Risk and decision science
International element	Nominal (dichotomous, categorical)	Risk and decision science

Using the Heywood et al. (1995) definition and a review of the WWF species programs (WWF, 2019), a list of flagship species was compiled prior to the coding process and handed to both coders. Species mentioned in the data were compared against this list and then determined to be either flagship species or non-flagship species in relation to wildlife crimes. All species that were not on the pre-compiled list of flagship species, were classified as non-flagship species, including groups of animals as well as individual animals, for example, deer, wild boar, snakes, birds, crocodiles, jackals, etc. The identified flagship species were then cross-referenced with their associated IUCN Red List status to determine whether they are listed as endangered, vulnerable, threatened, etc. to assess a risk dimension.

Multiple pre-tests and a thorough review of literature on wildlife crime guided the typology of wildlife crimes used in the codebook to assess the presence or absence of: a) poaching; b) illegal trade in or the trafficking/smuggling of wildlife parts, products or derivatives; c) the illegal trade in live animals; d) wildlife crimes driven by cultural factors; and e) other crimes such as poisoning, theft etc.

The presence or absence of legal or judicial actions was also assessed. These refer to mentions of wildlife-related laws, policies, international treaties, or mentions of court filings, proceedings, legal verdicts and cases etc. A similar assessment was carried out for law enforcement actions such as carrying out arrests, police raids, inspections, investigations, etc.

Finally, the presence or absence of convergence and an international element were also assessed. Convergence refers to the co-occurrence of wildlife crime with any other type of crime such as the illegal possession of weapons, corruption, money laundering, fraud, bribery, murder, drug trafficking or human trafficking etc. The international nature of wildlife crime was assessed by documenting countries (other than India) that were associated with the reported act of wildlife crime. Mere mentions of international coalitions were not coded as a

presence but reporting that an illegal consignment of wildlife products was seized coming in from or going out to another country, was documented as a presence in this regard.

Coding Procedure and Intercoder Reliability

Both coders were provided with a) digital versions of the news articles; b) a Microsoft Excel spreadsheet master-list of article headlines and corresponding unique article ID numbers for each article; and c) an updated version of the codebook with coding instructions and detailed descriptions of each variable for their reference. The coding sheet was digitally hosted on a Qualtrics survey page so that coders could electronically enter the data, which could then be downloaded directly from Qualtrics in a format appropriate for analysis.

Considering that most variables are nominal and dichotomous, and that there were two coders, intercoder reliability was measured using Gwet's agreement coefficient ($AC1$) (Kilem L. Gwet, 2016; Tammaa et al., 2015; Wongpakaran, Wongpakaran, Wedding, & Gwet, 2013).

$$Gwet's AC1 = \frac{p - e(y)}{1 - e(y)}$$

$$p = \frac{A + D}{N}$$

$$e(y) = 2q(1 - q)$$

$$q = \frac{A1 + B1}{2N}$$

In the above Gwet's $AC1$ calculations, A = the number of times both coders rated something as present; B = the number of times $Coder_1$ rated a variable absent but $Coder_2$ rated it present; C = the number of times $Coder_1$ rated a variable present but $Coder_2$ rated it absent; D = the number of times both coders rated a variable absent. To calculate q, using

these four cells, $A1 = A+C$ and $B1 = A+B$. Additionally, N refers to the total sample size. The p in the Gwet's $AC1$ formula refers to the overall percent agreement (K.L. Gwet, 2008; Wongpakaran et al., 2013). As with other, commonly used reliability coefficients such as Cohen's *kappa* or Krippendorff's *alpha*, a Gwet's $AC1$ of above 0.75 is considered high.

Intercoder reliability was analyzed twice through the final coding stage – once at the beginning and once when the coders were mid-way through the coding – to ensure reliability was strong through the entire coding period. Table 3 presents the reliability scores for both these reliability analyses for each individual variable without averaging scores.

Table 3

Beginning and mid-way reliability scores for each individual dimension measured.

Variable Item	Gwet's $AC1$ – First check	Gwet's $AC1$ – Second check
Flagship species:		
- Bengal tiger	0.98	1
- Asian elephant	0.98	1
- Indian pangolin	1	1
- Leopard (common)	0.98	1
- Indian rhino	1	1
- Snow leopard	1	1
- Asiatic lion	0.98	1
- Ganges river dolphin	1	1
- Smooth-coated otter	1	1
Non-flagship species	0.94	1
Type of wildlife crime:		
- Poaching	0.90	0.70
- Illegal wildlife trade	0.74	0.80
- Illegal pet trade	0.97	0.88
- Other wildlife crimes	0.94	0.88
- Cultural wildlife crimes	0.98	0.81
- No wildlife crimes reported	1	1
Judicial action	0.76	1
Law enforcement action	0.92	0.89
Convergence	0.89	1
International element	0.89	1

Analysis and Results

The data was analyzed using IBM SPSS v.25 software and Microsoft Excel was used to generate graphical representations of the results. The exploratory and nominal nature of most variables necessitated using largely descriptive analyses, however, a Pearson's correlation was run for testing the relationship between the flagship nature of a species and its IUCN-ascribed Red List status of extinction risk.

Species Represented

Each flagship species was represented at least once through all the coverage of wildlife crime analyzed. While Figure 1 shows the five most frequently-represented species, other flagship species represented in the coverage included the Asiatic lion ($n = 6$), the snow leopard ($n = 1$), the Ganges river dolphin ($n = 1$), and the smooth-coated otter ($n = 3$). However, 272 articles of the total ($n = 603$) did not mentioned a single flagship species. Non-flagship species were mentioned in 53.56% of all articles ($n = 323$).
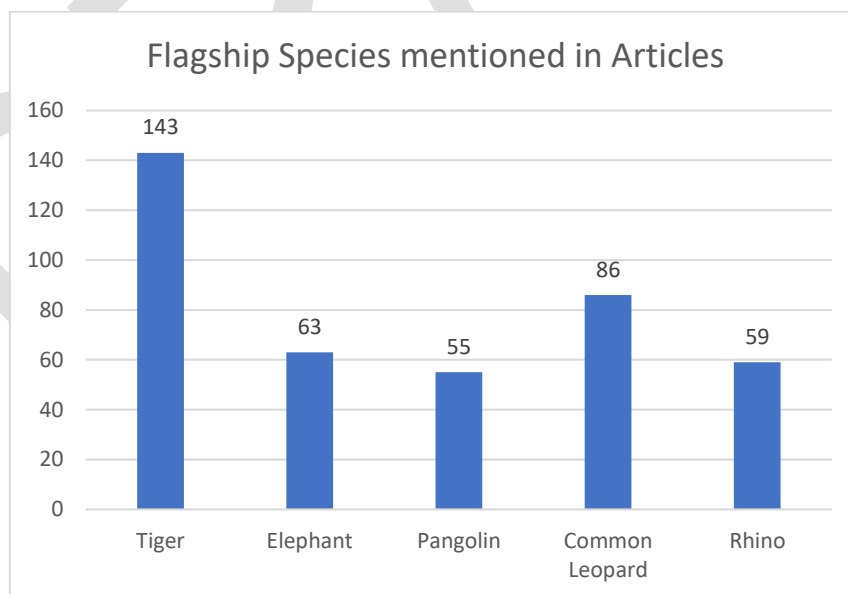

Figure 1. The five most-frequently mentioned flagship species in wildlife crime news stories.

A single article could mention either both flagship and non-flagship species, or a combination of the two, or none. Table 4 illustrates how multiple flagship species and non-flagship species were represented in the data. There were 27 articles that mentioned neither flagship nor non-flagship species, and a further 245 articles that mentioned only *non*-flagship species but no flagship species. 43 articles mentioned at least one flagship species along with non-flagship species while 220 articles were determined to have only one flagship species and nothing else. 23 articles mentioned two flagship species in addition to non-flagships, while 29 articles were determined to have two flagship species and nothing else. Interestingly, 12 articles mentioned more than two flagship species while also mentioning non-flagships. 54.89% of all articles mentioned flagship species while 45.1% did not.

Table 4

Cross-tabs comparing articles mentioning multiple flagship species with those where non-flagship species were either present or absent.

	Number of Flagship Species in an Article					
	0	**1**	**2**	**3**	**4**	**Total**
Non-flagship Species Present	245	43	23	10	2	323
Non-flagship Species Absent	27	220	29	4	0	280
Total	272	263	52	14	2	603

Of all articles mentioning flagship species, therefore, 43.2% mentioned Bengal tiger ($n = 143$, $M = 3.2$, $SD = 1.29$), 25.98% mentioned the common Indian leopard ($n = 86$, $M = 3.42$, $SD = 1.28$), 19% mentioned the Asian elephant ($n = 63$, $M = 3.08$, $SD = 1.22$), 17.82% mentioned the greater one-horned or Indian rhino ($n = 59$, $M = 2.95$, $SD = 1.15$), and 16.61% mentioned the Indian pangolin ($n = 55$, $M = 2.82$, $SD = 1.21$) (see Figure 1). Table 5 shows how these prominent flagship species were represented longitudinally in the analyzed media coverage.

Table 5

Year-wise comparison of coverage of the five most frequently-mentioned flagship species.

	Year of Publication				
Flagship Species	2014	2015	2016	2017	2018
Bengal tiger	15	35	27	38	28
Asian elephant	5	19	15	14	10
Common leopard	9	13	17	27	20
Indian rhino	6	16	18	13	6
Indian pangolin	7	18	15	8	7

Wildlife Crimes Represented

As explained above, the typology of wildlife crimes in this study is based on thorough reviews of both the media content during the pre-testing stage, and a robust body of literature on wildlife crime. While Table 2 identifies these five types of wildlife crime that this study used to categorize the content, Figure 2 shows how these different crimes were distributed across the analyzed sample. 282 articles mentioned at least one type of wildlife crime while 321 articles mentioned more than one type of wildlife crime.
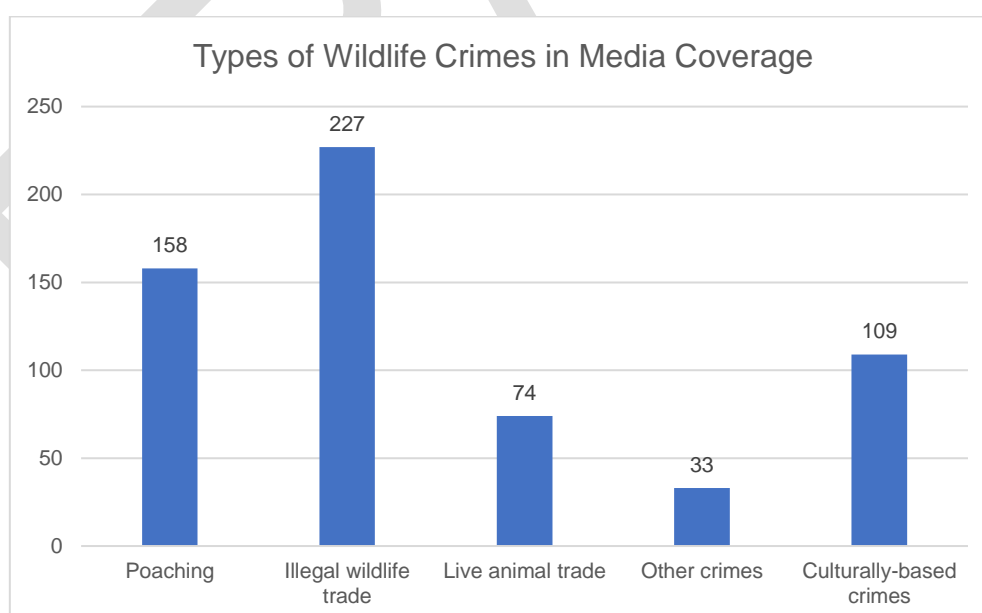

Figure 2. Frequency distributions of how the five types of wildlife crimes were represented in the media coverage.

A total of 601 articles mentioned at least one type of wildlife crime. As Figure 2 shows, most coverage was representative of the illegal trade of wildlife or wildlife parts and products. This category included the trafficking and smuggling of dead wildlife, and the parts and derivatives of these dead wild animals. The illegal trade, trafficking or smuggling of wildlife or wildlife parts and products therefore comprised 37.77% of all the coverage ($n = 227$, $M = 3.12$, $SD = 1.21$). The second most frequently occurring wildlife crime was poaching, which comprised 26.28% of total coverage ($n = 158$, $M = 3.15$, $SD = 1.25$), and refers to the unlawful hunting or killing of wild animals by any method whether snaring, trapping, shooting, etc.

While scholars in criminal justice may not classify cultural crimes in this regard as a *type* of wildlife crime, but rather as a motivation for committing the crime, an analysis of the media coverage during the pre-testing stage revealed frequent references to drivers of wildlife crime such as superstition, black magic, consumption of meat or wildlife products because of religious or cultural beliefs, and most prominently, traditional Chinese medicines. These references were substantial enough to warrant their own category primarily because not documenting them would miss covering a significant angle that the media appears to be taking in their explanations of wildlife crimes. As Figure 2 indicates, 18.13% of all coverage referred to these cultural drivers of wildlife crimes in one way or another ($n = 109$, $M = 3.05$, $SD = 1.18$).

The trade in live animals encompasses illegal trade in any living animals – from birds, turtles, reptiles, marine life, or primates – for an internationally rampant trade in exotic pets etc. The primary distinction between this category and the illegal wildlife trade category is merely that animals traded under *this* category were alive. This illegal *live* animal trade comprised 12.31% of total coverage ($n = 74$, $M = 3.27$, $SD = 1.25$). Finally, the last category, referring to "other crimes" encompasses crimes that legally constitute wildlife crimes because

they do violate laws, but they cannot logically be filed under any of the other categories. These include crimes such as retaliatory killings of wild animals by poisoning prey or watering holes as long as the articles did not describe the act as poaching, and theft of wildlife or wildlife parts ($n = 33$, $M = 3.76$, $SD = 1.17$).

As explained in the literature review, all species of wild animals are not equally vulnerable to the same kinds of wildlife crimes. Table 6 explicates which flagship species were mentioned in connection to which type of wildlife crime, offering some additional insight on the different vulnerabilities and demand characteristics of wildlife crimes.

Table 6

Cross-tabs comparing the relationships between the five most-prominently featured flagship species and the five types of wildlife crime.

Types of Wildlife Crimes	Most Prominent Flagship Species				
	Tiger	Elephant	Common leopard	Rhino	Pangolin
Poaching	25	13	6	30	1
Illegal wildlife trade	46	28	25	15	7
Live animal trade	1	1	0	0	0
Other crimes	8	2	6	1	0
Cultural crimes	8	3	1	6	22

As for the other criminology-related aspects of the study, 52.9% of all articles did have some mention of a judicial or policy-related element ($n = 319$). For example, some articles cited India's Wildlife Protection Act of 1972 in reference to arrests or judicial action being taken against a wildlife criminal. Other articles merely mentioned the international wildlife trade regulating treaty, CITES, or mentioned that court proceedings were either being initiated, continued or concluded in relation to an act of wildlife crime. Of the articles that reported a judicial or policy-related element, 203 were from the *Times of India*, 69 were from *The Hindu*, and 47 were from the *Hindustan Times*.

Some form of law enforcement actions was mentioned in 86.6% of all articles ($n =$ 522). These included mentions of, for instance, arrests, criminals being charged with an offense, police raids or investigations being launched or conducted, deployment of protective or security forces, intelligence-gathering operations, a criminal being sent to jail or being remanded to police custody, or the official registration of a police complaint. Of the articles that reported some measure of law enforcement action being taken in relation to wildlife crime, 337 were from the *Times of India*, while 117 were from *The Hindu*, and 68 were from the *Hindustan Times*.

To track wildlife crime coverage between November 1st, 2014 and November 1st, 2018, Table 7 shows how the types of wildlife crime were represented across time.

Table 7

Year-wise distribution of the five types of wildlife crime from November 2014 to November 2018.

	Year of Publication				
Type of Wildlife Crimes	2014	2015	2016	2017	2018
Poaching	12	43	32	38	33
Illegal wildlife trade	22	59	52	57	37
Live animal trade	3	21	15	19	16
Other crimes	2	4	7	8	12
Cultural crimes	9	32	28	25	15
Total	48	159	134	148	114

Risk Elements

As explained in the literature, the International Union for the Conservation of Nature (IUCN) uses seven different categories to assign species varying levels of extinction risk in its world-renowned Red List of Threatened Species. However, since this study did not document each individual non-flagship species that was mentioned in the data, only flagship species can be compared to the pre-existing Red List categories.

From all nine flagship species in this study, five are listed as endangered or 'EN' by the IUCN's Red List, while the rest are all categorized as vulnerable or 'VU'. Among the endangered species are the Bengal tiger, the Asian elephant, the Indian pangolin, the Asiatic lion, and the Ganges river dolphin. The species vulnerable to population declines and extinction are the common leopard, the Indian rhino, the snow leopard, and the smooth-coated otter. Within the data, almost 24% of the articles mentioned flagship species that are classified as vulnerable ($n = 144$), while 31% of the articles mentioned endangered flagship species ($n = 187$).

Another element representing the risk dimension of the conservation criminology framework in this study was the convergence of crime. Convergence was considered present if the news article mentioned any other serious or violent crimes as occurring concurrently or in unison with the wildlife crime being reported. Examples included connections between wildlife crimes and cybercrime or financial crimes and illegal possession of weapons etc. Assessing convergence allows us to better understand to what extent the English-language newspapers in India portray wildlife crime as a threat to non-environmental aspects of human life, such as political, social, and cultural security, as well as public health. Of all the articles analyzed, 14.3% of them mentioned wildlife crimes as converging with other types of crimes ($n = 86$, $M = 1.86$, $SD = 0.35$).

The third aspect representing the risk dimension is the international nature of wildlife crime, which is one of the most profitable cross-border criminal enterprises. Through all of the data analyzed, 27 different countries were mentioned in connection to wildlife crime. 33.38% of the articles were rated as having an international element such that countries other than India were associated with the reported incident of wildlife crime ($n = 201$, $M = 1.67$, $SD = 0.47$).

Each species was associated differently with whether an article mentioned an international connection to wildlife crime. Figure 3 compares the five prominent flagship species in this coverage against whether an international reference was indicated or not. In addition to these five species, one article each mentioning the snow leopard, the Asiatic lion, and the smooth-coated otter was tagged with an international wildlife crime reference.
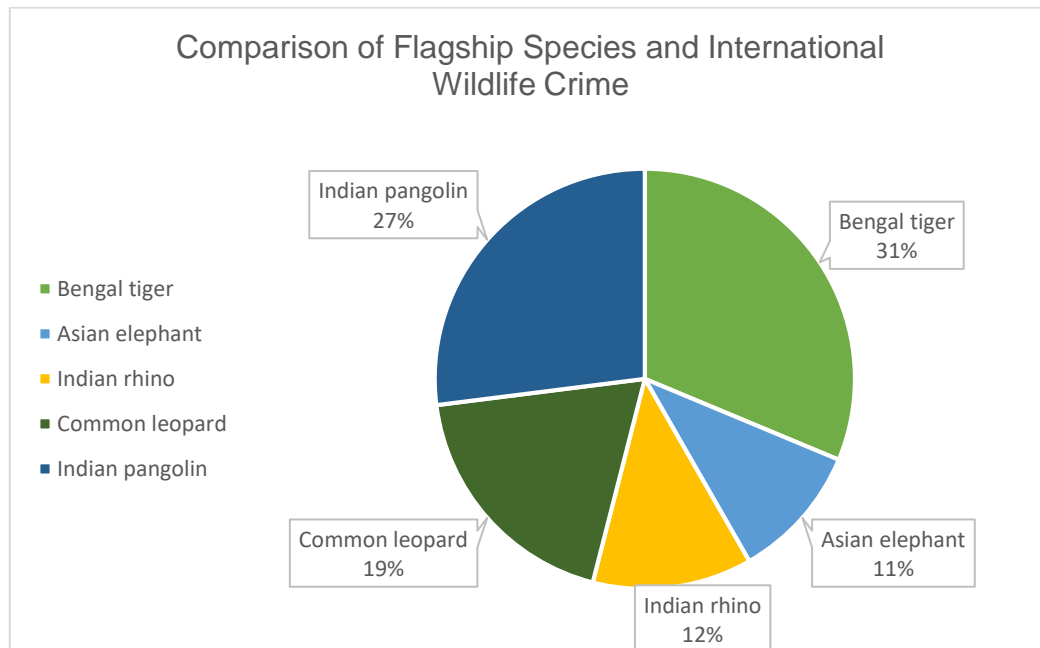

Figure 3. A pie-chart comparing the proportion of the five prominent flagship species that appeared in articles that had an international reference of wildlife crime.

While one cannot draw conclusions through the results of a content analysis, these results suggest that media coverage, in this regard, appears to be in sync with research on wildlife crime which has highlighted concerns over increasing international demands for pangolins and their parts over the last few years. While this information does not necessarily tell us which species are in high international demand, and how the supply-demand relationship works for crimes related to these species, it does help visualize and describe a real-world representation of this complicated, wicked problem of wildlife crime.

Far more descriptive and indicative of the sheer extent of cross-border wildlife crimes, is Figure 4. Not only does it mark the 27 different countries that were mentioned to be associated with wildlife crime incidents reported in these articles, but it shows the extent to which each of those countries featured as a wildlife crime-related node. For instance, it shows that the country most frequently mentioned to be connected to wildlife crime in these news articles was China ($n = 42$), followed by Myanmar ($n = 22$), and Nepal ($n = 20$).
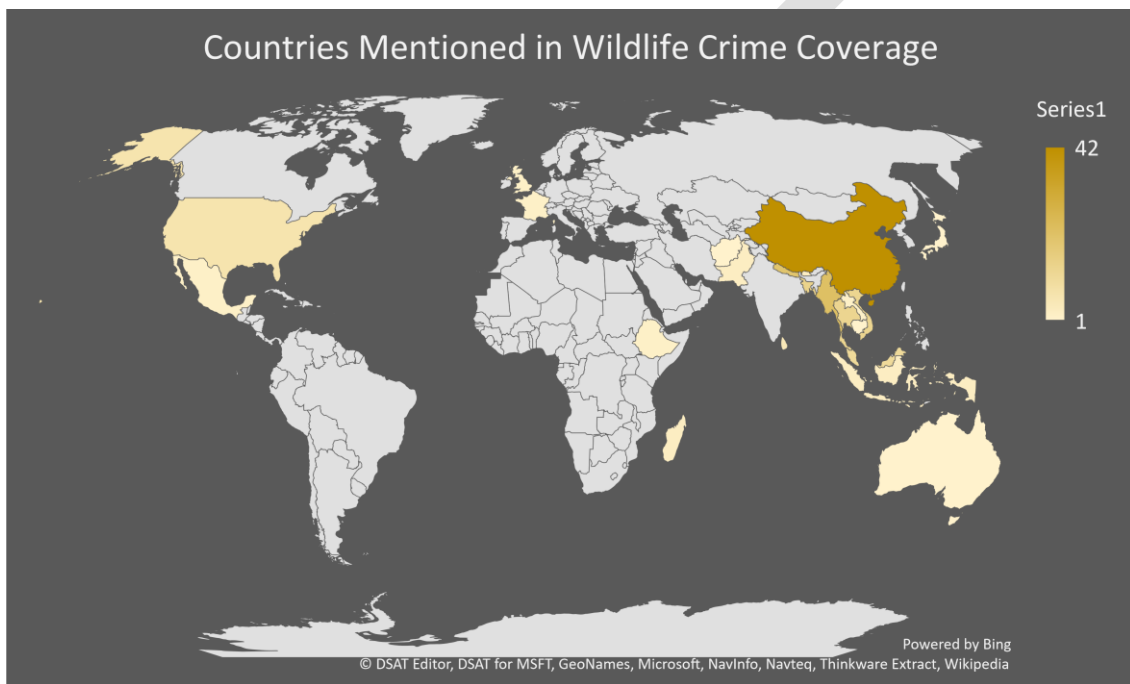

Figure 4. World map showing highlighting countries mentioned in connection to wildlife crime and the frequency of representation.

This map (see Figure 4) reflects all the countries that were identified to be connected to wildlife crimes occurring in India by articles in all three newspapers across all 5 years, and more so than anything else, it helps visualize the spread of these crimes.

Discussion and Limitations

The results of this interdisciplinary exploratory content analysis suggest that wildlife crime coverage in Indian elite English-language newspapers tends to represent more flagship

species than it does non-flagship species, and even within flagship species, there appears to be a substantial amount of coverage for Bengal tigers, Asian elephants, leopards, Indian rhinos, and Indian pangolins over other, potentially unexplored or understudied species – whether flagship or not. Interestingly, flagship species only received slightly more coverage ($n = 331$) than non-flagship species ($n = 323$). 41.9% of the data mentioned only flagship species while non-flagships were absent ($n = 253$). However, 40.6% of the data mentioned only *non*-flagship species in cases where flagships were absent ($n = 245$). These results suggest, on a positive note, that despite the symbolic status of flagship species as rallying points for conservation movements and campaigns, the coverage of wildlife crime in India's top-most English-language newspapers does not overlook non-flagship species that are also vulnerable to wildlife crimes.

Five broad types of wildlife crime emerged through this study. As previously stated, given the lack of scholarly precedent on which to base a codebook and without validated scales, this study was designed as an exploratory content analysis to fill that very gap by setting up precedent on media coverage of wildlife crime specifically. It proved to be exceedingly difficult, during the pre-testing stage, to develop an exhaustive yet mutually exclusive category for the illegal trade in wildlife parts or products. The literature is murky on definitions of wildlife trafficking, wildlife smuggling, and there are undeniable overlaps between these two violations and what is broadly referred to, globally, as the 'illegal wildlife trade'. These overlaps and the difficulty of creating legitimately separate coding categories for each of these types of wildlife crime were also evident in the coders' struggle to understand the differences between these three terms, which ultimately impacted reliability. Therefore, in the pre-testing stage itself, wildlife trafficking, wildlife smuggling, and the illegal trade in (dead) wild animals, their parts, derivatives and products were collapsed into one broad category labelled the illegal wildlife trade in this study. As the results suggest, this

was the most prominent type of wildlife crime reported in the news coverage, highlighting

the transnational or international nature and the financial underpinnings to wildlife crime.

Poaching emerged as the second most prominent type of wildlife crime in this study

which, I argue, aligns with international reports that have expressed concern regarding

countries in South and Southeast Asia being targeted as source countries for their wildlife.

India is home to several fragile ecosystems and biodiversity hotspots, and is one of the last-

remaining strongholds of many of these charismatic species that are considered flagships,

such as Bengal tigers, Asian elephants, Indian pangolins, the greater one-horned rhino, the

Asiatic lion, the Ganges river dolphin, etc. As Table 6 points out, tigers, elephants, rhinos etc.

remain vulnerable to poaching and the illegal wildlife trade, suggesting that there continues to

be an illegal and international demand for these species and their parts and products.

While cultural crimes, as briefly stated above, would not be considered a "type" of

wildlife crime in a criminological context based on how they are defined in this study, this

category was included after a comprehensive review of the media coverage during the pre-

tests revealed a strong and consistent reference to traditional Chinese medicine, religious

festivals, superstitions, and back magic being drivers of poaching. While the inclusion of this

category *may* downplay some numbers for other types of crime such as poaching or the

illegal wildlife trade, I argue that its inclusion reveals far more and thus, outweighs that con.

For instance, Table 6 shows that pangolins – now the world's most illegally traded mammal –

appear to be especially vulnerable to a rising culturally-driven demand for their meat, scales,

and other parts (Harrington, D'Cruze, & Macdonald, 2018; Zhang, Gouveia, Qin, Quan, &

Nijman, 2017). This category, therefore, helps associate certain species with a set of cultural

factors that appear to be driving crimes against those species. As Figure 3 suggests, in cases

where international connections to wildlife crime were mentioned, the pangolin had the

second-most mentions. This observation, in addition to the cultural drivers of crimes against

pangolins observed in the media coverage, one can then begin to conceptualize how to further examine the impact of cultural drivers (traditional Chinese medicine, perceptions that pangolin meat is a delicacy) and an international demand on the currently endangered pangolin species.

While this study cannot make connections between aspects of criminal deterrence (as outlined in the criminology-specific literature above) in media coverage and actual causal reduction of wildlife crime, it is nonetheless worthwhile to examine how deterrence elements are represented in media coverage of wildlife crime. This study found that 52.9% of all articles mentioned some form of judicial or policy-based action or references in association with reported incidents of wildlife crime, and 86.6% of articles mentioned at least one form of law enforcement action that was taken in response to the act of wildlife crime reportedly committed. 46.34% of all articles reported the presence of both, a judicial element and a law enforcement action ($n = 279$). The inclusion of these variables serves a broader purpose of the author developing a unique interdisciplinary research agenda to examine wildlife crime using different communication-based approaches. Upcoming projects use wildlife crime-based messages containing such deterrence elements to examine individuals' risk perceptions regarding the varying threats posed by wildlife crimes. While there are undoubtedly more advanced ways to operationalize and measure such concepts in criminal justice as they appear in media coverage of wildlife crime, this set of variables, and this study itself, offers an entry point for journalism and communication researchers, and interdisciplinary social scientists to build on these preliminary findings and expand interdisciplinary research on wildlife crime.

The first part of the results examining the third and final research question about the elements of risk in wildlife crime coverage tie-in with species' recognition as flagships or non-flagships. 31% of articles referenced flagships species that are currently listed as 'endangered' on the IUCN Red List while 24% of them referenced flagship species currently

referenced as 'vulnerable' on the Red List. This particular finding is not surprising considering flagship species are chosen because of their iconic status and there tends to be a positive, albeit weak, correlation between a species being identified as a flagship and also being in one of the threatened categories of the Red List (including vulnerable, endangered, and critically endangered). Moreover, since conservation organizations tend to run their species-centric conservation programs for threatened species, and they then also confer these species with different labels of iconicity.

Other findings pertinent to the risk dimension suggest that media coverage does, in fact, seem to portray wildlife crimes as converging with other crimes, as indicated in 14.3% of the data. While this may not be a significant proportion of the data, it does suggest that, as converging crimes, the threats posed by international wildlife crimes do potentially extend beyond only ecological impacts. This aligns with what experts have been saying about organized wildlife crime syndicates using similar trade routes or even middle-men as those used by syndicates who are known for the trafficking of humans, drugs, and illegal weapons (Nellemann et al., 2016). Future research on media coverage of wildlife crime could dissect this dimension further by examining which crimes are reported to be converging with specific types of wildlife crimes etc.

The last and final dimension of risk in this study transports the conversation to a global scale, bringing out the sheer reach and expanse of wildlife crime as an international, cross-border problem. Figure 4 communicates the variety and frequency of countries mentioned in association with reported wildlife crime incidents in just these three Indian newspapers across this specific five-year time period. 33.38% of the articles rated an international connection to wildlife crime as being present, and 27 different countries were mentioned, which, as Figure 4 illustrates, span across continents and hemispheres. With China unsurprisingly marking up the highest score for international mentions, the map (see

Figure 4) helps visualize potential transit routes for illegal wildlife products sourced in India but making their way to destination countries through transit and neighboring nations such as Nepal, Bhutan, Bangladesh, Myanmar and Sri Lanka. These findings, again, align with reports that have mapped out these illegal trade routes in South and Southeast Asia for specific wildlife products or species, and have identified countries such as China, Vietnam, Malaysia, the United States, and countries in Europe as destination countries for either illegally traded live and exotic animals, or for illegal wildlife products, parts and derivative such as rhino horn, elephant ivory, pangolin scales or meat, tiger skins and bones, leopard pelts, etc. (UNODC, 2016).

With these preliminary findings and analyses, this study serves as the groundwork for an interdisciplinary research agenda of applying a journalism or communication dimension to the study of wildlife crimes. While these results do not provide any advanced statistical analyses, this exploratory content analysis does attest to the global and complex nature of this wicked problem. It is encouraging that social scientists are, in fact, answering a call for bringing conservation research together with a more diverse set of disciplines and fields of study to collaboratively construct an appropriately comprehensive, more detailed and realistic understanding of international wildlife crime. This study may be considered a unique offering in support of that effort as the author continues to work on several other communication-based interdisciplinary projects on wildlife crime.

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