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43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641035, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

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Cover: Himalayan Gray Langur *Semnopithecus ajax* (adult female) © Rupali Thakur.

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COMMUNICATION

SMALL WILD CATS SPECIAL SERIES

The killing of Fishing Cat *Prionailurus viverrinus* (Bennett, 1833) (Mammalia: Carnivora: Felidae) in Hakaluki Haor, Bangladesh

Meherun Niger Sultana [1], Ai Suzuki [2], Shinya Numata [3], M. Abdul Aziz [4] & Anwar Palash [5]

[1,2,3] Department of Tourism Science, Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University, 1-1 Minami-Osawa, Hachioji, Tokyo 192-0397, Japan.

[2] Graduate School of Asian and African studies, Kyoto University, Yoshidashimoadachoi-cho 46, Kyoto 606-8501, Japan.

[2] Research Organization of Open Innovation and Collaboration, Ritsumeikan University, Iwakura-Cho 2-150, Ibaraki, Osaka 567-8570, Japan.

[4] Department of Zoology, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh.

[5] IGCSE faculty, IBDP Biology, Adbul Kadir Molla International School, Narshingdi-1600, Bangladesh.

[1] moudnj27@gmail.com (corresponding author) [2] ai23suzuki@gmail.com, [3] nmt@tmu.ac.jp, [4] maaziz@juniv.edu, [5] palash.anwar@akmis.net

Abstract: While considerable attention has been paid to the killing of carnivore species which cause significant damage, little attention has been paid to the killings of other carnivores causing less personal and economic damage. We therefore assessed the patterns and motives behind the killing of Fishing Cats *Prionailurus viverrinus* by local people in northeastern Bangladesh. We conducted interviews with local people and used qualitative content and narrative analyses to clarify the pattern and motives of killing. Most Fishing Cats were killed by gatherings of 10–15 people with any available tools. Dead bodies were not used after killing, suggesting that the intention was only to kill the individuals. The results of the survey indicated that fear was the strongest motive for killing, which differed from the motivation behind the killing of other sympatric carnivores. Therefore, we conclude that the killing of Fishing Cat cannot be prevented only by an economic based solution but, rather a change in attitude towards the species among local communities.

Keywords: Conservation, fear, human-wildlife interactions, human-carnivore interaction, motives, small wild cat.

Bengali: ক্ষতিসাধনকারি মাংসাশী প্রাণিনিধনের দিকে উল্লেখযোগ্য দৃষ্টিনিক্ষেপ করা হলেও যেসব মাংসাশী প্রাণী তুলনামূলকভাবে কম ব্যক্তিগত ও আর্থিক ক্ষতির কারণ সেগুলো হত্যার দিকে বিশেষ মনোযোগ দেওয়া হয়নি। এজন্য আমরা বাংলাদেশের উত্তর-পূর্বাঞ্চলের স্থানীয় জনগণের দ্বারা মেছোবিড়াল হত্যার ধরণ ও উদ্দেশ্য নিরীক্ষা করি। আমরা হত্যার প্রকৃতি ও উদ্দেশ্য নির্ণয় করার জন্য স্থানীয় জনগণের সাক্ষাৎকার গ্রহণ করেছি এবং তথ্যের গুণগত বিষয়বস্তু বিচার ও বর্ণনামূলক বিশ্লেষণ করেছি। অধিকাংশ মেছোবিড়াল হত্যার ধরণ ছিল, ১০-১৫ জন লোক জড়ো হয়ে কোনও সহজলভ্য হাতিয়ার দিয়ে হত্যা করা। এমনকি হত্যার পরে মৃতদেহগুলোকেও ব্যবহার করা হয়নি, যা ইঙ্গিত করে প্রানিটিকে হত্যা করাই ছিল একমাত্র উদ্দেশ্য। জরিপের ফলাফল থেকে দেখা যায়, ভয়ই ছিল মেছোবিড়াল হত্যার প্রধান উদ্দেশ্য যা অন্য স্থানীয় মাংসাশী প্রাণি হত্যার উদ্দেশ্য থেকে আলাদা। সুতরাং আমরা এই সিদ্ধান্তে উপনীত হয়েছি যে, কেবলমাত্র আর্থিক সমাধানের মাধ্যমে এই প্রাণিনিধন কমানো যাবে না। বরং এই প্রজাতির কার্যকর সংরক্ষণের জন্য জরুরি এর প্রতি স্থানীয় জনগোষ্ঠীর মনোভাবের পরিবর্তন ঘটানো।

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Competing interests: The authors declare no competing interests.

Author details: Meherun Niger Sultana is a PhD student and is interested in biodiversity conservation. At present, she is working in the Fishing Cat project, Bangladesh. Ai Suzuki has been working on human-wildlife interactions and conservation. Her research interest is conservation of small wild cats and research implementation gap in carnivore conservation. Shinya Numata heads the Human-Nature lab. He is working on nature-based tourism focusing on wildlife tourism, protected area management, extinction of nature experiences, tropical rainforests and urban ecosystems. Md. Abdul Aziz serves as professor and has been engaged in research and conservation on threatened wildlife species and their habitats in Bangladesh. His research interests include, but are not limited to, conservation research of mammals with particular focus on the Tiger and other carnivore species. Anwar Palash has a keen interest in behavioural ecology, wildlife biology and conservation. At present, he is teaching biology at Abdul Kadir Molla International School as IBDP and IGCSE biology teacher.

Author contributions: MNS, AS, SN, and MAA contributed to conceiving and designing the questionnaires. MNS and AP implemented the interview surveys. MNS performed the analyses with the assistance of SN and AS and prepared the first draft of the manuscript. All authors contributed to writing the manuscript.

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INTRODUCTION

Human–wildlife interactions happen in the area where both people and wildlife occur, but it depends on the attitude of society whether it results in conflict or not (Bruskotter & Wilson 2014; Young et al. 2015; Dorresteijn et al. 2016; Frank & Glikman 2019). Interactions between human and wildlife vary from species to species and location (Frank & Glikman 2019). In broad stroke, conflict with large-sized carnivores differ from conflict with small- and medium-sized carnivores in the magnitude and severity of damage caused (Ahmad et al. 2016). For instance, the Forest Department in Bangladesh recorded an average of 20–30 people killed each year by Tigers *Panthera tigris* in the Bangladesh Sundarbans (Inskip et al. 2013), whereas damage caused by small carnivores are generally restricted to small livestock or poultry (Rawshan et al. 2012). Although the damage from small- or medium-sized carnivores is limited, they often live close to human settlements. Consequently, they have more chance to come into contact with people such as Jungle Cat *Felis chaus* in Pakistan (Anjum et al. 2020), Golden Jackal *Canis aureus* in Bangladesh (Jaeger et al. 2007), and Jungle Cat, Golden Jackal and Indian Fox *Vulpes bengalensis* in India (Katna et al. 2022).

This is a conservation concern since killing small- and medium-sized carnivores is relatively easier than killing large carnivores. Even without the significant damage for people's life, the negative interactions between people and small-sized carnivores could be driven by perceived damage (Holmern & Røskaft 2014).

The Fishing Cat *Prionailurus viverrinus* is a small wild cat listed as Vulnerable on the IUCN Red List of Threatened Species; it is thought to be declining across its range (Mukherjee et al. 2016). In Bangladesh, it is categorized as Endangered on the national Red List and is widely distributed throughout the country (Feeroz 2015). It is fully protected throughout the country since 1973 under the Bangladesh Wild Life (Preservation) Order, 1973, and currently under the Bangladesh Wild Life (Conservation and Security) Act, 2012. The killing of Fishing Cats by local people is observed in most of Bangladesh and is possibly carried out in retaliation for perceived predation on small livestock, fish and poultry (Chowdhury et al. 2015). However, little information is available as to how and why local people kill Fishing Cats.

With our present study we sought to clarify the pattern of Fishing Cat killing and to find hints at potential approaches that can assist to modify people's attitude. We conducted in-depth interviews to investigate: 1) how local people in the study area killed Fishing Cats and 2) whether their motives for killing Fishing Cats differed from those for killing sympatric carnivore species like Jungle Cat and Golden Jackal.

Study area

Our study site was the Hakaluki Haor Wetland (HHW), a marshy wetland ecosystem in Bangladesh, which is a bowl or saucer shaped depression that has the appearance of an inland sea during the monsoon floods. It is located in the northeastern part of Bangladesh (Figure 1) and has a total area of 416.14km^2 (CWBMP-DOE-CNRS Consortium 2005) in the Moulvibazar and Sylhet districts and five upazilas, namely Kulaura, Barlekha, Fenchugonj, Juri, and Golapgonj (IUCN 2005). It is surrounded by hillocks, reserve and planted forests, tea estates and rubber plantations with a floodplain area of 700km^2 (Iqbal et al. 2015). Because of its economic and ecological significance, it was declared as one of the ecologically critical areas by Bangladesh Department of Environment in 1999 (Ahmed et al. 2008).

HHW is one of the largest inland wetland ecosystems in southern Asia and encompasses more than 10 small sanctuaries for fish and birds (Khan 2012). It comprises more than 80 inter-connected permanent waterbodies ranging in width from 10m to 1km in the dry season from November to March; these waterbodies merge to a single inundated area extending over 180km^2 during the rainy season from April to October (IUCN 2005). The wetland components of HHW are managed by different government agencies (Khan 2012). Two government agencies govern waterbodies depending on their size, the Forestry Department manages the vegetation and wildlife, and some areas are managed by communities for restoration of plantations (Khan 2012).

HHW support the livelihoods of around 190,000 people. They generally have a lower middle class or middle class economic status (Aziz et al. 2021), with 32% depending on fishing and related professions, 29% on rearing of poultry and cattle, 6% on fuel wood collection, 3% sand extraction, and 2% on reed collection (Rana et al. 2009).

MATERIALS AND METHODS

Firstly, we selected our focused area where killing of Fishing Cats is likely to happen based on information collected since 2017 during a Fishing Cat conservation project as well as provided in electronic and print media and by local forest departments. Secondly, we conducted a pilot survey for testing our initial questionnaire. Thirdly,

we conducted a general survey to select respondents who have information on the killing of Fishing Cats and were willing to participate in further in-depth interviews. When they agreed to have their answers recorded, we proceeded with in-depth interviews.

Sampling strategy and approach to interviews

We used non-probability convenience sampling method followed by snowball sampling to identify respondents for gaining a deeper insight on the topic in question (Ritchie et al. 2003; Pratt et al. 2004; Karanth et al. 2008; MacMillan & Han 2011; Said et al. 2016; Saif et al. 2016). The questionnaire for the general survey was designed to acquire general information from respondents about their encounters with carnivores and their presence nearby (see Annex 1). For the in-depth interviews, we prepared a semi-structured questionnaire (see Annex 2) to obtain an understanding of the general scenario and details of events (Rust et al. 2017). Interviews were conducted in Bengali.

We took special care to build trust with respondents to ask for their knowhow about the killing of Fishing Cats. We have worked in this area since 2017 in the framework of a small-scale Fishing Cat conservation project and often talked about Fishing Cat killing. This helped to build the rapport with key persons in the villages. In addition to establish local contacts, we spent time outside the formal interview process with the respondents and their family members, especially children, to gain their trust. We did not collect GPS locations of respondents' homes and did not ask for their names or addresses to avoid security issues and ensured their willingness to provide time for the interview.

Prior to the interview, we asked each respondent for permission to record the interview. We stopped recording if the respondent was not comfortable being recorded. We initially asked for general information about Fishing Cats (Annex 1). Then we conducted an in-depth interview with any person who was involved in a killing incident, or anyone who witnessed such an incident. We verified the

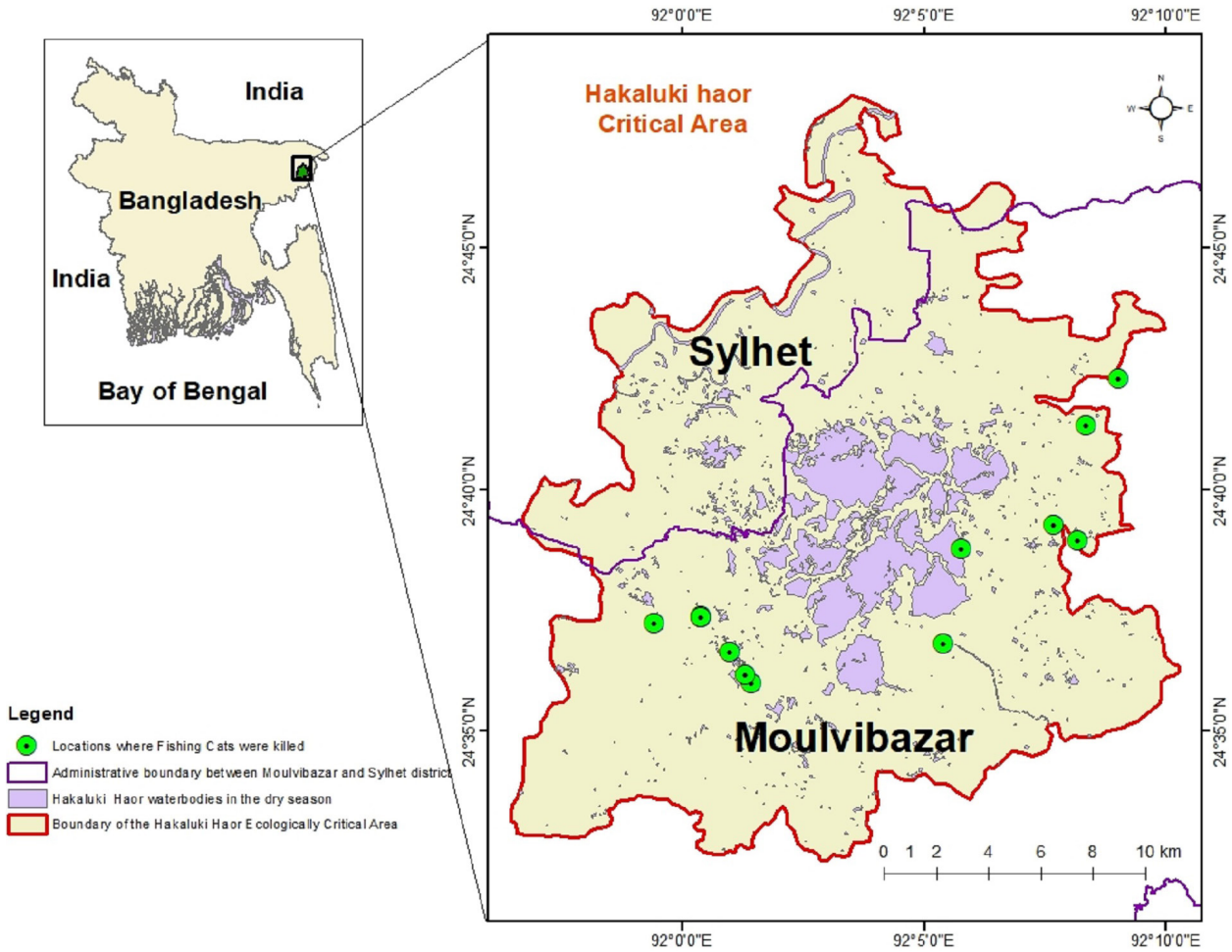

Figure 1. Location of the Hakaluki Haor Wetland in northeastern Bangladesh.

respondent's information on the sighting, encountering and killing of Fishing Cats, Jungle Cats and Golden Jackals by showing them photographs of each animal and asking them to describe the animals' external features. Interviews continued until the data reached saturation (Newing et al. 2011). When we came across the killing information, we conducted interviews in different parts of the village with different respondents in order to verify the episodes and their involvement. The reliability of the episodic data was assessed by asking details about the month, season and local activities at the time of the killing event, e.g. before or after harvesting time, monsoon or not, and how old were their children at that time.

During interviews, we ensured the respondents were not influenced or pressurized by the audience. The interviews were conducted inside respondents' homes in a secluded and silent room to avoid recording talk by other people nearby. We did not provide any financial incentives to the respondents, but spent time with them at the start of each interview to get to know them and their preferred topics of interest.

Analysis

We performed a qualitative content analysis to categorise the motives for each killing incident. We also performed a narrative analysis to describe the general killing pattern. The most common words used by the respondents in the texts and recordings were extracted as motives for the killings. We categorized the motivation mentioned by respondents for the first time as primary motivation. Other motivations mentioned in the course of interviews are considered secondary motivation. We tested the rigour and accuracy of our descriptions and interpretations by comparing seven interview recordings about reported killing events and examined common descriptions to find a common pattern of the killings. To identify major underlying motives for killing, we count the frequency of each motive and categorization of risk as high, medium and low to define the level of each motive.

RESULTS

From 17 February to 16 March 2020, we conducted 133 interviews with a total of 107 respondents in 37 villages of Moulvibazar District (Table 1). Each interview took around 1–2 hours to complete.

General survey

Fishing Cats were sighted in the dry season by 64 respondents (85% of all). Of the 75 respondents, 18 respondents (24%) answered that Fishing Cats came to their village for poultry, 21 respondents (28%) answered that they were looking for a hiding place, and the remaining 36 respondents (48%) did not know the reason. However, 49 of them (65%) have no idea about the trend of the number of killings of Fishing Cat, Golden Jackal, and Jungle Cat.

In-depth survey

From the general survey, we identified 26 respondents (35%) who had joined or witnessed the killing of Fishing Cats and who were willing to answer questions about the process of killing during the in-depth survey. They reported 13 incidents of Fishing Cat killing and three incidents of Fishing Cat rescues in 11 different villages around the HHW in the period from November 2010 to January 2020 (Table 2). Twelve incidents occurred inside villages and one in the wetland area. Local villagers

Table 1. Details of respondents participating in the interview survey.

Interview type	Total number of respondents	Sex	Age class 18–37	Age class 38–57	Age class 58–77	Professions
Pilot survey	32	25 men 7 women	17 men 3 women	5 men 4 women	3 men	10 farmers 5 fishers 4 shopkeepers 5 students 6 daily labourers 2 unemployed
General survey	75	60 men 15 women	-	-	-	-
In-depth survey	26	25 men 1 woman	10 men 1 woman	8 men	7 men	7 farmers 3 fishers 1 hunter 4 shopkeepers 5 students 4 daily labourers 1 housewife 1 businessman

Table 2. Description of each killing incident with the factors involved in killing and the story line for each killing incident.

Case	Year	Season	Who killed	First encounter	What killer did	What happened	Dead body	Other people joined	Assumed species	Incident frequency
1	2010	Dry	Local villagers	Someone found a Fishing Cat sleeping in an unused water pipe	Came to call others to catch it	Village head used gun to kill the Fishing Cat	Buried in nearby field area	Out of fear they tried to kill it	Cheeta Bagh	First Fishing Cat incident in the village
2	2013/2014	Dry	Local villagers along with poultry owner	Observed a Fishing Cat inside a commercial poultry house	Screamed and asked for help to catch it	They caught it with net and beat it to death	Buried far away from home area	Out of fear and avoid next attack to poultry and people	Wild animal (carnivore)	Encountered this type of incident earlier
3	2013/2014	Dry	Local villagers	Regular haor worker suddenly encountered a Fishing Cat	Screamed and called others for help to catch it	They chased and killed it	Drowned in the waterbody	Out of fear that it could attack people and to avoid next attack	Bagh	Encountered many times before
4	2013/2014	Dry	Fishermen	Suddenly got face to face with a Fishing Cat in the haor	Screamed and alerted other fishermen and attacked it at once	Attacked and killed	Drowned in the waterbody	Due to fear and avoid next attack	Khuphia Bagh (Fishing Cat)	Encountered many times before
5	2015/2016	Wet	Local villagers	Suddenly encountered a Fishing Cat, and it tried to come closer	Screamed and asked help to kill the unknown cat	Others tried to catch and kill it	Drowned in nearby irrigation channel	Out of fear and to avoid next attack	Bagher bachcha (Tiger cub)	First incident in the village
6	2018	Dry	Local villagers	Suddenly observed a wild animal inside the village lying in a bushy area	Called other nearby people to identify and catch the cat	They tied the cat with a rope to a tree. People poked it with a stick, took photographs, and eventually it died	Buried the dead body far from locality	Curiosity, also fear to see unknown wild animal	Bagh	Encountered this type of incident earlier
7	2018	Dry	Local villagers	Suddenly observed a Fishing Cat hunting ducks	Screamed and called others for help to catch the cat	All chased and caught it, later beat it to death	Buried in field far from home area	Out of fear that it could attack human and to avoid next attack	Bagh	First incident in village but encountered in haor before
8	2018	Dry	Farmers, local villagers	Fishing Cat hiding in the paddy field	Screamed	Caught and beat it to death	Buried	Curiosity, help others	Cheeta (Leopard)	Encountered many times before
9	2019	Dry	Local villagers	Suddenly encountered a Fishing Cat but had a prior idea of its presence around the village	Screamed and chased it	Caught and killed it	Buried in the nearby field area	Out of fear and disturbance to calves and cow	Wild animal (carnivore)	First killing incident inside village
10	2019	Dry	Local villagers	Chased 3-4 Fishing Cat kittens when found in bush inside village	Screamed and chased them	They caught one kitten and killed it	Took with them	Curiosity to catch Tiger cubs	Cheeta cubs (Leopard cubs)	First incident in the village
11	2019	Dry	Indigenous people	Owner of the house seen before, then informed indigenous people	Search according to information	Caught and killed	Took with them	They went to the incident place out of curiosity	Wild animal (carnivore)	Encountered many times before
12	2020	Dry	Local villagers along with poultry owner	Has prior information about the presence of Fishing Cat	Called other nearby people when saw Fishing Cat sleeping in the poultry house	They chased and beat to death two Fishing Cat	Put out skin of one individual and threw the two dead bodies far away from the village	Other people joined out of fear and to avoid next attack by the same individual	Bagh	First incident in the village
13	2020	Dry	Local villagers	Saw a Fishing Cat sleeping in his cow stable	Silently called relatives living nearby to help him kill the cat	All chased and caught it, later beat it to death	Buried in field far from home area	Out of fear that it could attack human and to avoid next attack	Cheeta Bagh (Leopard)	First incident in village but identified species from Facebook post

around the HHW were the main participants in the killings (Figure 2). One killing incident was claimed to have been conducted by people from the hills who occasionally come down to Hakaluki Haor. Respondents involved in killing events were all men. Each killing generally began with an accidental encounter with a Fishing Cat.

Residents from neighbourhoods in the villages called out to each other when a Fishing Cat was observed (Figure 2). Encounters were mostly sudden, and in 10 incidents people beat Fishing Cats to death in large group gatherings of more than 25 people with any tools they could grab such as a bamboo stick or a knife. When villagers recognized the presence of a Fishing Cat sleeping, hiding or resting in a shed, poultry house and water pipe, they used the time for the preparation to kill the cat. Both situations started from calling neighbours to gather at that spot. When the crowd agreed to kill the Fishing Cat at the encounter point, then the process of killing started.

The bodies of the dead Fishing Cats were not used (Image 1). Local villagers generally disposed of the body after a killing to avoid any health hazard or odour from the decomposing carcass. In four cases, local villagers displayed the carcass in a common area of the village due to a sense of excitement after the killing. In one case, local villager kept the skin of a mature Fishing Cat and disposed of the remaining carcass.

Six constant common traits were present before a kill: 1) The collaboration of the neighbourhood with 5–10 villagers involved; 2) The absence of a knowledgeable person in terms of national wildlife laws; 3) The absence of knowledge about wild animals; 4) The agreement of participants in the killing as retaliation for previous Fishing Cat attacks on livestock and poultry; 5) Previous knowledge of a nearby carnivore attack in the same or neighbouring village; and 6) Direct sighting of a Fishing Cat and misidentification of the species at the time of encounter.

We identified five primary motives of respondents for killing Fishing Cats, namely fear, poultry loss, loss of social respect, social norms and retaliation (Table 3). The main motives given for killing Fishing Cats were “fear” and “social norm” (Figure 3). In contrast, the main motives for killing Jungle Cats and Golden Jackals were poultry loss and retaliation, respectively. Nine respondents (35%) expressed their concerns about poultry loss as their main motivation for killing Jungle Cats, and 11 respondents (42%) mentioned this motive for killing Golden Jackals. Commonly, the prevention of economic loss was the motive for the killing of Jungle Cats and Golden Jackals, but not for killing Fishing Cats. In regard to Fishing Cat, 20 respondents (77%) referred to it as ‘Khuphia Bagh’ meaning Tiger. Besides those main motives, excitement, and curiosity about killing wild animals, retaliation and self-satisfaction were commonly given as motives for killing Fishing Cat and other carnivore species. Five respondents (19%) emphasized the role of social bonding in their intention to join the killing of all carnivore species.

Image 1. Dead Fishing Cat in our study area.

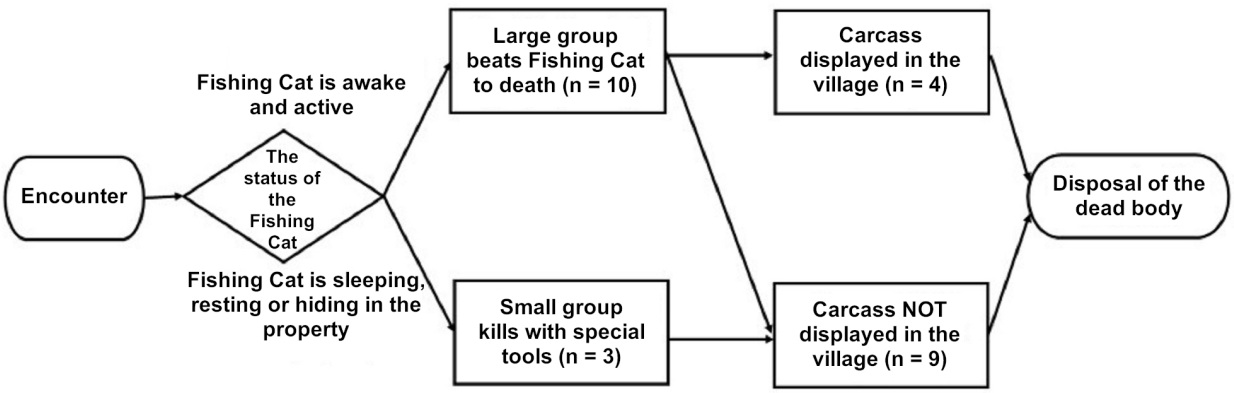

Figure 2. Flowchart of a Fishing Cat killing from the initial encounter to disposal of the carcass by local villagers after the killing had taken place.

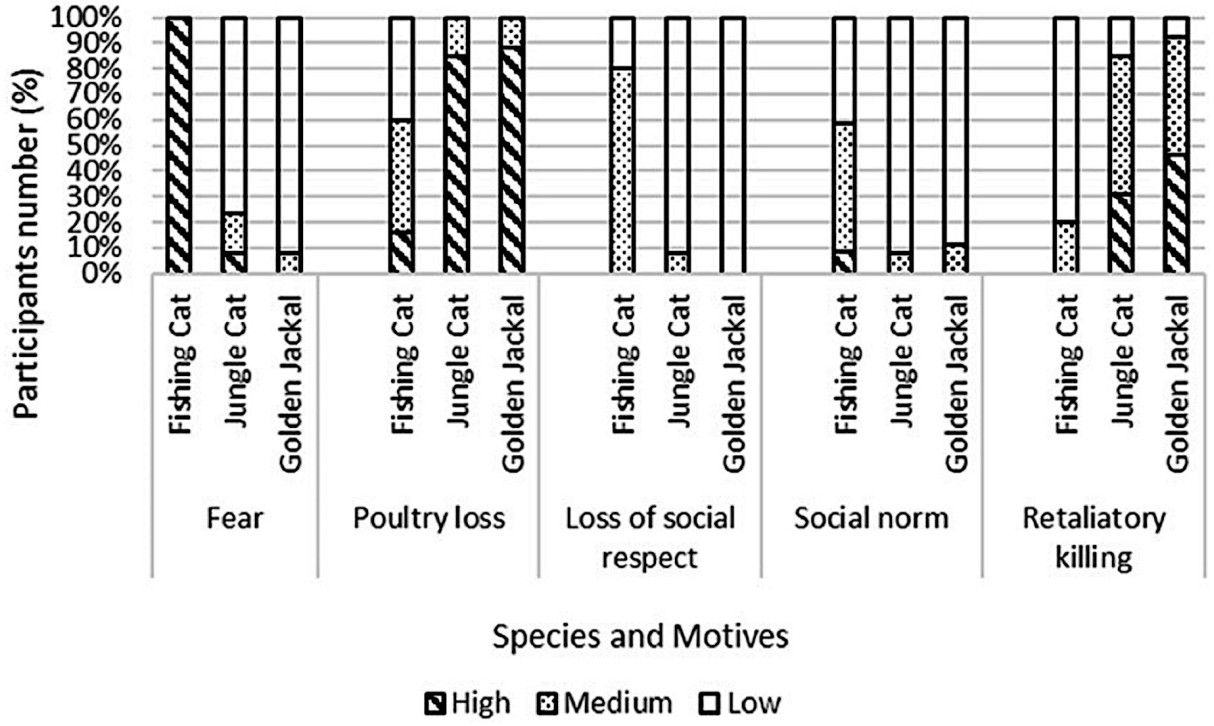

Figure 3. Analysis of respondents' motives in % for killing three sympatric carnivore species. High, medium and low indicate the degree of an individual's motivation for killing each species.

Motives for killing Fishing Cats

Five motives were identified as primary and five as secondary to join in killing Fishing Cats (Table 2). Respondents expressed fear for getting attacked by the cat. They also shared concerns to avoid an attack as a Fishing Cat had attacked poultry or cow before. Twenty respondents were worried of losing social respect if they did not join the killing. Sixteen respondents mentioned revenge for poultry loss to join the killing of a Fishing Cat.

Moreover, respondents shared concern about a sighting of a Fishing Cat as they were worried about being attacked by it, assuming Fishing Cat to be a Tiger. When asked about how often this cat comes to the village, respondents stated:

"Twice may be. I told you that last year, this Tiger attacked our religious leader. I tell we have to face it, there is no safety for us here."

"Did it ever take any poultry? Yes! They also took poultry and attacked people at night. People felt so at risk at that time, they never returned back alone from the market, always stayed in groups. Or if they had to move alone, they kept some tools with them."

"This is a communication road used for going to school, college and markets, we all the time stay in the market area, everyone in the area says there is a Tiger, do not get late to come home. It was kind of a panic situation. So, after it got killed the panic vanished as the Tiger was dead. This happened once upon a time, not now, already being killed." When asked about its spotted skin and size, a respondent showed a young animal and replied: "Yes, similar like this, and two individuals. I have seen the Tiger directly at late night after watching movie. It was crossing the road. Then someone saw it and screamed "Tiger, Tiger is there", and we ran towards it." "We call it Tiger. Leopard? Kind of that."

DISCUSSION

Our study was the first attempt to gain an understanding of the detailed process of the killing of Fishing Cats in Bangladesh and motives underlying this killing. Our interviews in villages of Hakaluki Haor revealed two types of killing patterns that depend on the activity of the Fishing Cat encountered. When it was active, people spontaneously gathered in a large group of more than 25 people and reached for any available tools to beat the Fishing Cat to death. This killing pattern is commonly seen in the killing of other carnivores, which can cause loss of livestock or threaten human life, both in Bangladesh (Inskip et al. 2014) and in India (Kolipaka 2018). Saif et al. (2018) described similar large gatherings

Table 3. Examples of respondents' narratives about their motivation for killing Fishing Cats.

Primary motives	Narrative of respondents
Fear	Eight respondents of both the general and in-depth questionnaires mentioned fear as the reason for joining a killing. Eleven respondents directly used the word fear as the primary reason, and six respondents mentioned fear as a secondary reason for joining a killing event. One 37-year-old respondent described a killing as follows: "Some saw it in the water pipeline and got scared. We were playing football in the nearby field, and they ran to us to let us know. We were all scared and ran to our chairman. He has a gun." Another respondent described the event: "It was roaming around the village for the last three or four days. One evening, one woman saw it on the way to the market, she informed others in the village that she encountered a Tiger in the village. Later some young boys planned to kill it, looked for its location. The next morning, they went to kill it in a huge group. We tried to kill to prevent a next attack on our poultry. We went with almost 100 people to kill it for future human safety." Further questioning about motives, this respondent replied: "When I saw it, it looked scary, it was angry and if got chance it would have killed me. I got scared and …"
Poultry loss	Nine respondents mentioned poultry loss as motives. Three respondents used the word livestock safety as the main reason to join in the killing. One of them described his encounter as follows: "It was sleeping in the straw at our cow stable. I went to check my cows before sleeping. Suddenly I saw it and got scared. Then I immediately went back inside the house and let my other family members know. We all decided to kill it for the safety of our cows and us. Otherwise, if it awoke, it could attack our cows. So for our calf's safety we killed it."
Social norm	"If majority people go, I have to go, to chase it or kill it. All the time, it was in my mind that next time if I get attacked, they might not help if I do not join this time."
Retaliation	Local villagers have experienced carnivore attacks on poultry, and therefore some of them will attack any carnivore out of retaliation. Sixteen respondents mentioned retaliation as a motive to attack Fishing Cats. A poultry farmer described one incident as follows: "We decided to kill it because it took some poultry, and each year Golden Jackals and Jungle Cats also take poultry. We killed it to take revenge for our previous poultry losses."
Loss of social respect	Twenty respondents mentioned a medium level of risk to loss of social respect if not joining or denying help in Fishing Cat killing. One respondent explained: "I can say no to join in killing, but he might mind about it, and the rest of life he will remember that and choose not to be my friend anymore." During the general discussion, eleven respondents said it was important for them to join in with the killing as a good neighbour or relative. This thinking derived from the social setting. One incident was described as follows: "If I didn't help to kill it, next time they will not help me either. They also consider me to be brave." Joining in with a killing determines social reputation and ranking; there is some pressure from other people in the village.
Secondary motives	
Excitement and curiosity	Four respondents mentioned excitement and curiosity as a motive to participate in a killing event. Mainly young people in the age class 18–37 years mentioned this as a reason to join a killing incident. One of them described the situation as follows: "Some people took the initiative to kill it, but most people joined in from curiosity and excitement."
Medicinal use	One female respondent provided information on medicinal use of Fishing Cat body parts. She described this as follows: "Every year, a group of indigenous people come to our village to hunt wild animals. They hunt Jungle Cat, Golden Jackal, civets and rats. As far I know they eat those animals, and there are also some medicinal uses for the different parts."
Self- satisfaction	"One person kept the skin of the bigger species. He said, he wants to have it just to keep it with him." Only one such case was recorded.
Consumption	Two incidents were reported of indigenous people eating Fishing Cats.
Possible trade	One interviewee shared his thoughts as follows: "After that incident a forest official asked us to capture one Fishing Cat. They said they needed it for a zoo. But we could not find any Fishing Cat near our village."

of people using an array of tools for killing Tigers in the Bangladesh Sundarbans. When the Fishing Cat was resting or sleeping, people usually formed a group of 5–10 people and used guns, local fishing gear or bamboo implements to kill the cat. Both patterns are unique in regard to Fishing Cats, whereas respondents did not feel the need to gather in groups and be well equipped when encountering Jungle Cats and Golden Jackals.

Such preparation for special tools including axes, sticks, bamboo rods and billhooks are generally used in encounters with large damage-causing animals (Saif et al. 2018). We found a similar behaviour in our study area that small groups of people joined to kill Fishing Cats suggesting that people feel the need to be well equipped to make sure to kill Fishing Cats. Both killing patterns started by calling neighbours for help to form small to large groups to join the killing events of Fishing Cat. We emphasize that this behaviour is unique towards the Fishing Cat. Chowdhury et al. (2015) described similar severe beatings, strangulations and captures of Fishing Cats elsewhere in Bangladesh by mobs of villagers who later hung up the dead animals for display. In contrast, villagers in our study area attempted to kill Jungle Cats and Golden Jackals without the help of neighbours and special tools.

The motivation for killing Fishing Cats

Our results suggest that fear is a strong motivation for killing Fishing Cats. Fear is assumed to be induced by large carnivores that people perceive as harmful (Castillio-Huitrón et al. 2020). Inskip et al. (2014) found worry and fear of harm by Tigers in Bangladesh to be a stronger motivation than retaliation. Carnivore killing behaviour is complex and nuanced, sometimes driven by emotions like fear (Johansson et al. 2016). Such negative emotions represented a significant motivation for the killing of Fishing Cats. In contrast, respondents killed other medium-sized carnivores mainly in retaliation for poultry loss.

The reason why only the Fishing Cat evokes the feeling of fear within the community needs further study. The most plausible reason is that local villagers confuse Fishing Cats with animals related to Tigers and consider them to be potentially dangerous. Respondents used the word "Bagh" for Fishing Cats throughout their stories when explaining their concerns about safety and risks. The local name "Bagh" means Tiger. Their concept of "Bagh" is often likely to be more abstract concept as "kind of a Tiger", when they put other words in front of "Bagh" such as "Cheeta Bagh" (a spotted Tiger) indicating Leopard *Panthera pardus*, "Khuphia Bagh" indicating Fishing Cat. On the other hand, Jungle Cat has not been called "Bagh", as locals did not consider it being a member of the "Tiger" group.

Common motivations for killing carnivores are for the use of their body parts like skins (Datta et al. 2008), fur (Saif et al. 2016), and meat (Harrison et al. 2016). In our study area, neither parts nor the whole body of Fishing Cats were used by local people after a kill. Only the Fishing Cat's carcass was displayed in the common areas of villages out of a sense of excitement after the killing. This may indicate that the excitement of successfully killing which is also a reason to join a killing event (Røskaft et al. 2007; Saif et al. 2018).

Implications for conservation practices

Although three sympatric carnivores have been killed in our study area, an economic incentive-based conflict mitigation plan is unlikely to be effective for the conservation of the Fishing Cat. Emotional fear-based behaviour is more difficult to control (Castillo-Huitrón et al. 2020), and it is often difficult to effectively implement measures with a cognitive fix, i.e. changing attitude and behaviour by providing knowledge (Heberlein 2012). On the other hand, the technological fix, i.e. changing behaviour by addressing a particular environmental problem (Heberlein 2012) could be applied by intervening in the steps of the process of killing Fishing Cats. Six constant common traits were found across all 13 cases including collaboration with neighbours who were not aware of the illegality of the killing. The first step to make it difficult to kill Fishing Cats technically would be to explore which of those six common traits are necessary conditions in the society to kill Fishing Cats, and which of those can act as strong barriers to stop the process of killing.

It may be difficult but not impossible to reduce people's willingness for fear-based killing in the long term. Although fear often evokes automatic appraisal, the learning could change the cognitive process when the fear is based on a false perception (Jacobs & Vaske 2019). This emphasizes the importance to dispel the misconception about the Fishing Cat in the long term such as education for the younger generation. We suggest developing outreach strategies to retrieving a positive perception for animals integrated with local culture. Positive interest and attention towards species could favour changing people's perception for conserving the species. Prokop et al. (2011) suggested that if children see wildlife species in a positive way through different media showing the real facts about unpopular animals, this is more likely to decrease fear and disgust but develop empathy. Species-specific positive ecological knowledge sharing with new generations could lead to eradication of the embedded fear in the society, increase awareness, impact attitudes, and advocate empathy.

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Annexure 1. General questionnaire on Fishing Cat, Jungle Cat, and Golden Jackal.

1. Where do the Jungle Cat, Golden Jackal and Fishing Cat usually live? (GPS: Location of sighting)
2. How many years they are living in that place?
3. Why are they living there?
4. How many of them are living there? (House/ Haor/ nearby bushy area)
5. What do they eat?
6. In which season are they seen much?
7. If they are not seen all the year round, then where do they live during the rest of the time?
8. Is bush area or house enough for the survival of these species (Fishing Cat, Jungle Cat, Golden Jackal)?
9. Are they being killed around village in last five years? If not, why are not being killed?
10. What would you like to see happen to the numbers of the following animals in this area, and why?

	Increase	Decrease	Disappear completely	Stay the same	Don't know	Why?
Fishing Cat						
Jungle Cat						
Golden Jackal						
Other small carnivores						

Annexure 2. In-depth questionnaire.

Interview No. Interviewer Name: Interviewee Name: Longitude Latitude	Date: Time: Union Name: Village Name: Religion:

General information

Age				Occupation						
Sex										
How long you have been living in this village?				Since I was born		Yes				
						No: Since When?		Year:		
Education		Illiterate			Primary incomplete		Primary complete		Secondary incomplete	
		Secondary complete			Higher than Secondary					

Identify Fishing Cat

Species	Description
Fishing Cat	
Jungle cat	
Golden Jackal	

Photo of the species	Yes	No	Others
Fishing Cat			
Jungle Cat			
Golden Jackal			

Identify the killing pattern

1. Have you ever been a part of killing incident?			
	Fishing Cat	Jungle Cat	Golden Jackal
Yes			
No			

2. How did you find out about the killing incident?			
Species	Someone's scream	Ask for help from neighbour, relative, village head	Later from someone in the village
Fishing Cat			
Jungle Cat			
Golden Jackal			
Other carnivore			

3. Which news you got first?			
Species	Kill	Catch	Encounter
Fishing Cat			
Jungle Cat			
Golden Jackal			
Other carnivore			

4. When did the incident happen?					
Species	Early morning (Dawn)	Day time	Late afternoon (Dusk)	Night with electricity	Night without electricity
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

5. How many times it happened? (Within five years) and when?					Year, probable time
Species	Once	2–3 times	5–10 times	More than 10 times	
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

6. Which season, month?					
Species	Summer (May-July)	Rainy (August-Oct)	Winter (Nov-Jan)	Spring (Feb-Apr)	All the year round
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

8. Place of the incident						
Species	Near home area	In the Haor	Near poultry	Paddy field	Edge of the haor	Near pond
Fishing Cat						
Jungle Cat						
Golden Jackal						
Other carnivore						

9. Who took step first towards the animal?				
Species	Male, Female	Young (10–20, 21–45)	(46–60, 61–80)	Above 80
Fishing Cat				
Jungle Cat				
Golden Jackal				
Other carnivore				

10. Where encountered first?						
Species	Near home area	In the Haor	Near poultry	Paddy field	Edge of the haor	Near pond
Fishing Cat						
Jungle Cat						
Golden Jackal						
Other carnivore						

11. What were the surroundings?								
Species	Inside house	Open agricultural field	Pond	Poultry house	Small bush	Planted forest (social forestry)	Inside haor	Edge of haor
Fishing Cat								
Jungle Cat								
Golden Jackal								
Other carnivore								

12. How many people gathered at that time?				
Species	1–5 person	5–10 person	10–25 person	More than 25 person
Fishing Cat				
Jungle Cat				
Golden Jackal				
Other carnivore				

13. Who accompanied you?					
Species	Neighbour	Relatives	Forest officials	Village head	No one
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

Species	Nearby people	Outsiders	Young (10-20/ 21-45)	(46-60/ 61-80)	above 80
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

14. Why they accompanied you?					
Species	Social norm	Same group people	Avoid next attack	Afraid of losing respect	Money
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

15. What you used to kill?							
Species	Stick bamboo	Iron material	Brick	Net, trap, poison	Wood	Branch of tree	Other equipment
Fishing Cat							
Jungle cat							
Golden Jackal							
Other carnivore							

16. After killing what you do with the body?						
Species	Drowned in nearby river, well, waterbody	Buried	Collected by forest officials	Just throw far away	Displayed in the village	Used some part
Fishing Cat						

Jungle Cat						
Golden Jackal						
Other carnivore						

17. Is there any official procedure after the killing?					
Species	Forest officer fined you	We informed	Got jailed	We did not inform	No procedure
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivore					

18. Why it came near to killing spot?						
Species	Poultry	Less prey in haor	It lives nearby	Got old	Don't know	Other reason
Fishing Cat						
Jungle Cat						
Golden Jackal						
Other carnivore						

19. How you describe the incident to others?					
Species	Share with neighbour	Share in the market	I hide it	I shared proudly	It is usual incident
Fishing Cat					
Jungle Cat					
Golden Jackal					
Other carnivosre					

20. Did you face any economic loss because of any previous attack?		
Species	Yes	No
Fishing Cat		
Jungle Cat		
Golden Jackal		
Other carnivore		

21. How much economic loss you faced?				
Species	< 1000 BDT	< 2000 BDT	< 5000 BDT	> 5000 BDT
Fishing Cat				
Jungle Cat				
Golden Jackal				
Other carnivore				

For recommendation

1. What is your relationship to people to join the killing event of Fishing Cats together?
2. If you find a Fishing Cat to kill, who are you going to call for help first?
3. Do you think what would happen if you do not join to help people to kill Fishing Cats?
4. How do you rank the importance of helping your neighbours to kill Fishing Cats in terms of your social status in your village? Not at all important, very important
5. After you and your neighbour succeeded to kill a Fishing Cat, whom are you going to tell first?
6. Did you hear of any killing information of Fishing Cat from other places?
7. What can improve the Fishing Cat human relation, co-existence? What can decrease the killing? Do nothing Habitat restoration translocation lethal control
8. Increase or decrease on killing, encounter over last 10 years? Yes No
9. Why? Explain briefly your thinking.
10. Briefly describe about how did you kill the Fishing Cat, Jungle Cat, Golden Jackal? Start the story from beginning.
11. What do you think are the most effective ways of protecting yourself from small carnivores?

Fishing Cat:
Jungle Cat:
Golden Jackal:

Other small carnivores:
12. Do you use these methods? If not, why not?
13. Do you know anything about wildlife act and laws? If yes, describe briefly.
14. Is there any legal action you know about killing wild animal or small carnivores?
15. What makes you kill the species? Rank the factors accordingly

For Fishing Cat:

Factors	Low	Medium	High
Fear			
Poultry loss			
Social respect loss			
Social norm			
Retaliatory killing			

For Jungle Cat:

Factors	Low	Medium	High
Fear			
Poultry loss			
Social respect loss			
Social norm			
Retaliatory killing			

For Golden Jackal:

Factors	Low	Medium	High
Fear			
Poultry loss			
Social respect loss			
Social norm			
Retaliatory killing			

Dr. George Mathew, Kerala Forest Research Institute, Peechi, India
Dr. John Noyes, Natural History Museum, London, UK
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Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam
Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India
Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore
Dr. Lional Monod, Natural History Museum of Geneva, Genève, Switzerland.
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Dr. V.P. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India
Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India
Dr. Priyadarsanan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

Fishes

Dr. Neelesh Dahanukar, IISER, Pune, Maharashtra, India
Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México
Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore
Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India
Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK
Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India
Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia
Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India
Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research Centre, Mumbai, Maharashtra, India
Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India
Dr. R. Ravinesh, Gujarat Institute of Desert Ecology, Gujarat, India

Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India
Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

Reptiles

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Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India
Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

Birds

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Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India
Dr. J.W. Duckworth, IUCN SSC, Bath, UK
Dr. Rajah Jayapal, SACON, Coimbatore, Tamil Nadu, India
Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India
Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India
Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India
Mr. J. Praveen, Bengaluru, India
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Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA
Dr. M. Zafar-ul Islam, Prince Saud Al Faisal Wildlife Research Center, Taif, Saudi Arabia

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Dr. David Mallon, Zoological Society of London, UK
Dr. Shomita Mukherjee, SACON, Coimbatore, Tamil Nadu, India
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Dr. Paul Racey, University of Exeter, Devon, UK
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Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraja, Indonesia
Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)
Dr. Mandar S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)
Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)
Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)
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Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India
Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India
Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India
Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka
Dr. Bahar Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

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c/o Wildlife Information Liaison Development Society,
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore,
Tamil Nadu 641035, India
ravi@threatenedtaxa.org

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