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Human-fishing cat conflicts and conservation needs of fishing cats in Bangladesh

Bangladesh is known as one of the key countries of the fishing cat *Prionailurus viverrinus*, which is now recognized as a globally endangered species in response to its potentially rapid population declines in the last decade primarily due to habitat loss. We analysed media coverage of two major daily newspapers and interviewed local forest officials and conservationists in order to understand human-fishing cat conflicts, the distribution of human-fishing cat conflicts, current management practices and public perceptions. Content analysis of a total of 82 reports on the fishing cat in local and national newspapers revealed 30 confirmed deaths in four years. Other reports included 18 rescue-release cases by the Forest Department of Bangladesh. However, the status of the cats in 38 cases remained undetermined, as there was not enough information in the news reports. A survey of fishing cat habitat inside and outside protected areas throughout Bangladesh is essential. A management plan involving local conservation groups based in villages adjacent to wetlands can help reduce possible human-fishing cat conflicts and notify local wildlife authorities to take necessary conservation actions.

The fishing cat is a globally endangered felid. It was up-listed from Vulnerable to Endangered on the IUCN Red List in 2008 in response to the decline of at least 50% of the wetland habitats and large-scale indiscriminate killings. If habitat protection efforts are not strengthened and killings are not stopped, a future decline of similar magnitude over the next 18 years is projected (Mukherjee et al. 2010). Fishing cat populations are widespread but patchily distributed throughout Asia owing to their association with freshwater and coastal wetlands (Mukherjee et al. 2010). Over 45% of protected wetlands and 94% of globally significant wetlands in Southeast Asia are considered threatened (Dugan 1993) due to human settlement, draining or clearing aquatic vegetation for agriculture, depletion of fish stocks from over-fishing, pollution and excessive hunting and wood-cutting.

A severe decline in the fishing cat population throughout much of its range over the last decade led to a global population of fewer than 10,000 individuals (Mukherjee et al. 2010). The species is possibly extinct in Pakistan and has been extirpated from many parts of its native range in Bangladesh, Bhutan, Cambodia, India, Indonesia (Java), Lao People's Democratic Republic, Myanmar, Nepal, Sri Lanka, Thailand and Viet Nam (Mukherjee et al. 2010). In Bangladesh, the fishing cat is considered as endangered; although widely distributed anywhere outside city limits preferring wetland-rich areas, fairly common in the mangroves of the Sundarbans and occurs in all protected areas except for Ramsagar National Park (Siddiqui et al. 2008, Islam et al. 2000).

Given the apparent significance of wetlands and potential habitat in Bangladesh for this species, consistent reports on killings, and to better understand its distribution and conservation status in the country, we collected data on fishing cat killings, hunting incidents, as well as rescue-release cases through reviews of a variety of media sources (primarily newspapers) and interviews with the Forest Department staff and local conservationists.

Methods

We compiled media reports on the fishing cat from Bangladesh published in The Daily Star and Prothom Alo and some local newspapers between January 2010 and March 2013. We reviewed archives of the two major newspapers mentioned above from the library of North South University, Dhaka. We also performed web-based searches for fishing cat incidents in other local newspapers. Locals have often misidentified fishing cats, especially cubs, due to the possible confusion with other small carnivores, and as a result incorrect information has commonly been published in daily national newspapers. In order to assess the reliability of these reports, we verified photos from each news item and used only confirmed fishing cat reports towards our analysis. Additionally, to gather unpublished information on fishing cats, we interviewed Forest Department staff and local nature conservationists of northeast Bangladesh where there have been frequent reports of killings, rescue operations and release incidents related to fishing cats. While it is almost certain that these additional incidents of fishing cat killings and rescue attempts may have occurred during the same period that we performed our survey, these data provide an idea of the degree of human-fishing cat conflicts and their distribution in Bangladesh.

Results

We collected a total of 82 fishing cat reports from news articles between January 2010 and March 2013. Collectively, we were unable to determine the status of 38 fishing cats since and we suspect these individuals were rescued and released, killed, or otherwise died in captivity. In addition, we found at least 10 jungle cats *Felis chaus* reported dead from all over the country and one leopard cat *Prionailurus bengalensis* reported trapped from Chauddagram, Comilla of Chittagong division during February 2012. Of all the media reports, 40.27% were confirmed deaths, 13.88% were rescued and released

Table 1. Number of fishing cat reports collected from newspapers, together with the status of the individuals, between January 2010 and March 2013.

Year	Deaths	Releases	Unknown	Total
2010	6	1	9	16
2011	6	5	11	22
2012	17	4	13	34
2013	1	4	5	10
Total	30	14	38	82
%	36.6	17.1	46.3	

by the Forest Department and the status of 45.83% remained undetermined, as there was no information on the conditions of the cats after being captured by locals, or they were taken into custody by the Bangladesh Forest Department (Table 1). In these cases of uncertain conditions, it was mentioned that the fishing cats were either caught by the villagers or rescued by the Forest Department, however, no further information was available on whether these cats were later killed by local people, injured or released by Bangladesh Forest Department after their rescue. 90.6% of all fishing cat reports in Bangladesh were during the dry season between November and May, and 9.4% were during monsoon between July and September (Figs. 1 & 2). Similarly, in West Bengal out of 27 fishing cat deaths in 2010 and 2011, 70.37% were in dry season (Mukherjee et al. 2012). We speculate that fishing cats are forced to search for prey in more confined water bodies around human settlements, in fisheries and in lake-like wetlands, where local people fish during winter, resulting in higher mortality during these months.

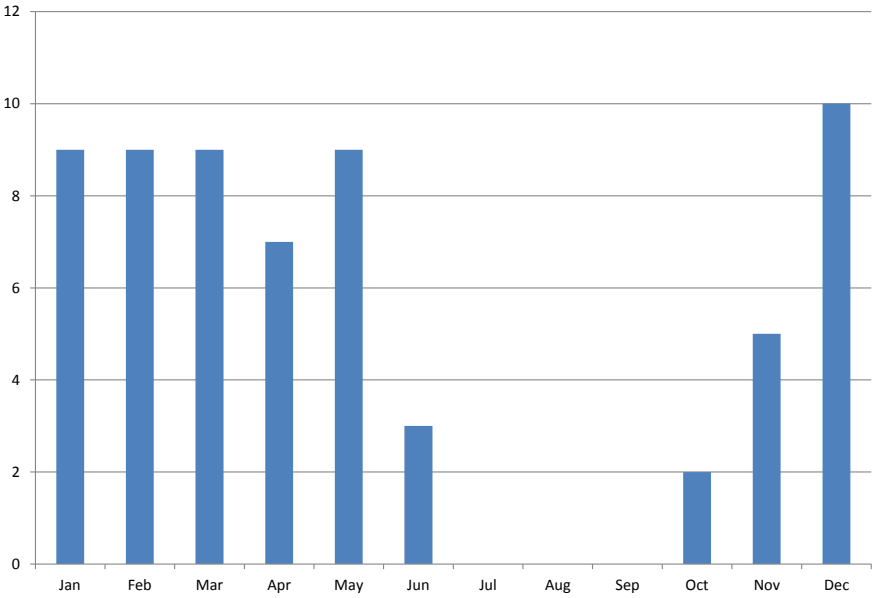

Fig. 1. Pooled yearly variation in number of fishing cat reports in the media sorted by month between January 2010 and March 2013 in Bangladesh.

Discussion

Human-fishing cat conflicts

In almost all cases of fishing cat mortalities, the causes of deaths were direct killing, snaring, captures and subsequent starvation of the cats, by the local people. We suspect that direct killing takes place primarily because locals assume that fishing cats prey on their livestock, fisheries and poultry. Many of these cats were probably misidentified to be tiger cubs or other carnivores, often out of fear or amusement. Most fishing cat direct deaths were due to severe beatings by mobs of villagers, strangulations and captures, and dead animals are later hung for display (Fig. 3, SOM F1-F3).

Reports on fishing cats varied temporally over the study period with a higher number of incidents during winter months, primarily between December and March and no reports during monsoon, between July and September.

Fishing cats in Bangladesh are severely threatened by direct mortality caused by humans. Fishing cats occur in all the divisions of Bangladesh (Fig. 4). About 50% of the total national land comprises wetlands that include rivers, estuaries, mangrove swamps, seasonal freshwater marshes (haor), oxbow lakes (baor), lake-like wetlands (beels), water storage reservoirs, fishponds, and other areas of land with seasonal inundation (Akonda 1989, Khan et al. 1994). Between 2010 and 2013, only one fishing cat was reported from the dry area of Rangpur division in the far north of Bangladesh. 17 reports were from Sylhet division and 14 reports were from Khulna and Dhaka divisions; these divisions consist of permanent and seasonal wetlands. It is probable that the most secure population of the fishing cat in Bangladesh occurs in the Sundarbans since there are no reports of human-fishing cat conflicts from this protected area.

We suspect that the human-fishing cat conflicts have primarily occurred due to the degradation of wetland habitat and human encroachments. Shrinking habitat and food shortage has possibly driven these cats to move into human settlements, which compel the local community to react and kill fishing cats. However, during an annual hunting festival by the Santals, three fishing cats and three jungle cats were killed on the 24th of February 2012 in Khoksa upazila, Kushtia by a group of 15 men of the tribal community. Santal's principal home in Bangladesh is in Rajshahi division but during the hunting festival some members migrate to different parts of Bangladesh for a week (possibly in February) to hunt wildlife (Banglapedia 2006). In several of the fishing cat news articles, reporters mentioned additional inci-

Fig. 2. Fishing cat photographed at Baikka Beel, Sreemangal March 2011 (Photo S. U. Chowdhury).

Fig. 3. Fishing cats killed by indigenous hunters in Khoksa upazila, February 2012 (Photo The Daily Star).

dences but due to the absence of evidence we considered these reports inconclusive and did not include these in our results. For instance, 12 fishing cats were captured and released by Bangladesh Forest Department in 2012 from different villages of Gangni sub-district of Khula division, and 22 fishing cats were killed in different sub-districts of Jhenaidah, of which seven deaths were in Kotchandpur, five were in Shoilkopa upazila, four in Kaliganj, three in Horinakunjo, and three in the town of Jhenaidah.

Rescue, release and unknown status

A total of 13 fishing cats including kittens were rescued from Moulovibazar district and all of them were released in Lawachara National Park by Bangladesh Forest Department (T. Khan pers. comm.). This 1,250 ha tropical semi-evergreen forest may not be the ideal habitat for fishing cats since they are strongly associated with wetlands (IPAC 2012, Mukherjee et al. 2010). Translocation of wild animals back into suitable habitat is a complicated activity requiring considerable planning (Letty et al. 2000). The reason behind not releasing the rescued fishing cats in the wetlands from where they were originally captured is unclear. We presume that the release of these cats in potentially unsuitable habitat by the authorities is due to the lack of knowledge on the ecology of the fishing cat. These releases in areas away from capture sites could result in the death of the released animals (Letty et al. 2000).

Conservation implications

We observed a notable increase in fishing cat incidences from 2010 to 2012; this could also suggest an increase in human-fishing cat conflicts, jeopardizing the future of the fishing cat in Bangladesh. Moreover, since many incidences are likely to have gone unnoticed and unreported, the decline in fishing cat numbers due to human-fishing cat conflict could probably be a lot higher than our results indicate.

Nearly 45% of the national wetlands of Bangladesh have been converted and the remaining ones are undergoing considerable degradation due to intensifying anthropogenic influences (Islam 2010). Human-fishing cat conflicts are most likely to be correlated with habitat loss and an increase in anthropogenic developments; both of which severely threaten the survival of fishing cats in Bangladesh. Therefore, urgent measures are needed to protect fishing cats and their habitat in Bangladesh.

First, we recommend surveys to identify sizeable populations of fishing cats inside and outside protected areas throughout Bangladesh. Second, large-scale education programs are needed to target local communities in promoting their knowledge about the ecology and global significance of the fishing cat and its wetland habitat.

Third, mechanisms by which villagers living near wetlands can help reduce the risk of possible conflicts with fishing cats and enable villagers to report fishing cat occurrence to wildlife authorities and local conservationists to take necessary actions is much needed. For example, reducing depredation of poultry by setting up better husbandry practices or relocating fishing cats to other sites from conflict areas could be direct community-managed conservation interventions.

In addition, incorporating training in wildlife ecology and management practices, such as systematic and prompt rescue and release operations can improve the management of

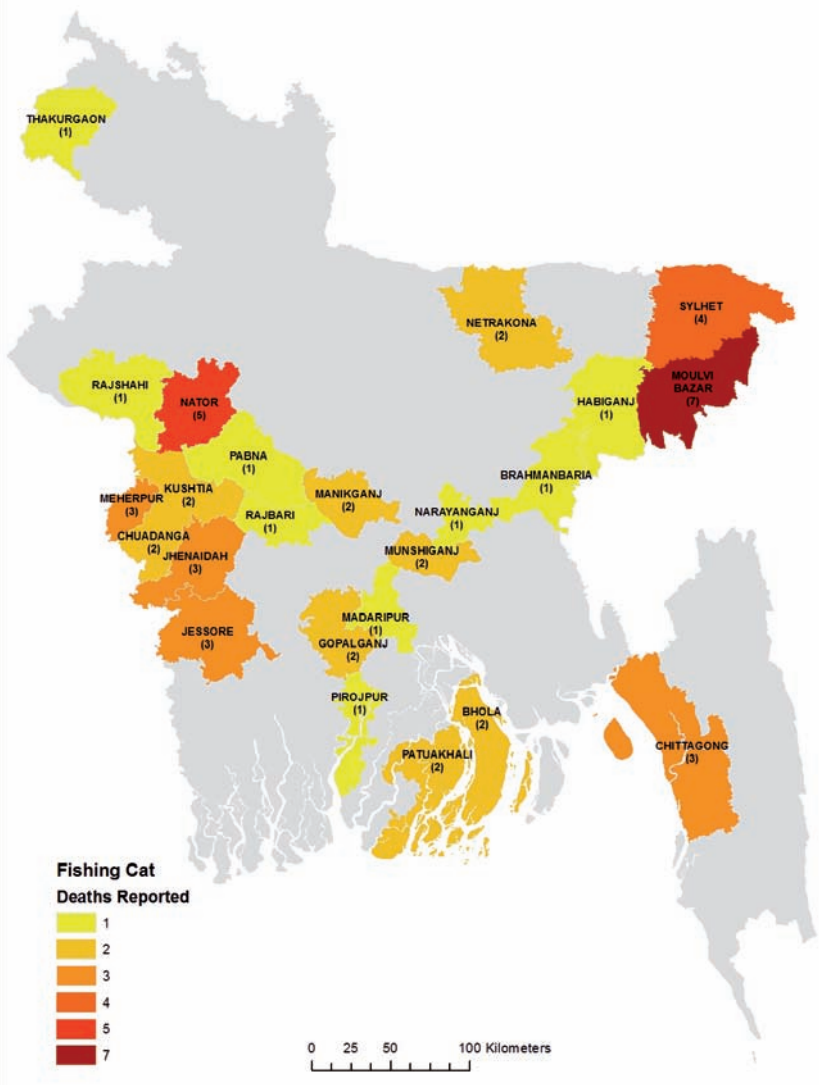

Fig. 4. Distribution of fishing cat in Bangladesh based on media reports between January 2010 and March 2013.

the fishing cat in Bangladesh. For better co-existence among humans and fishing cats, conservation authorities such as Bangladesh Forest Department need to be proactive in controlling direct threats to fishing cats such as retaliatory killing. Finally, due to the dearth of information on the ecology of the fishing cat (Nowell & Jackson 1996), Bangladesh's wetlands can be ideal to conduct short and long-term ecological studies on this species.

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Supporting Online Material SOM Figures F1-F3 are available at www.catsg.org

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