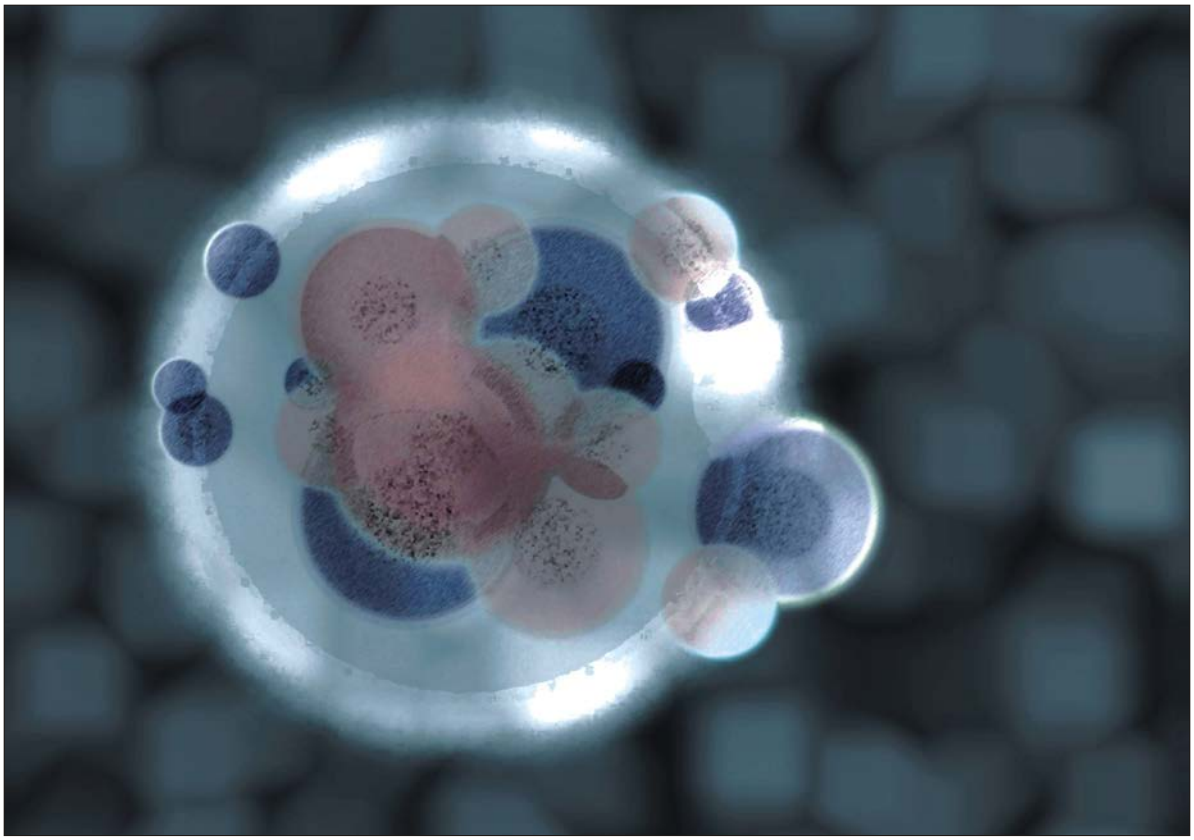

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Study on Human Royal Bengal Tiger Interaction of *in situ* and *ex situ* in Bangladesh

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Abstract: Study was conducted to gain a better understanding on the impact of tiger attacks on people by tigers from the Sundarbans as well as different zoo in Bangladesh. From the study it was observed that the highest number of tiger attacks occurred in Shatkhira and lowest in Khulna range, the largest concentration (94%) of attacks took place between 10-12 AM and least (10%) at 9 PM to 3 AM as well as it is clear that people in the age group 15-29 are the least vulnerable, while people that are 60 or over are much vulnerable to tiger attacks, where as Mawalis are the most (51%) as well as Bawalis are the second most (20%) vulnerable to tiger attacks. From the study it also appears that 52% of the victim's are attacked during collecting fuel wood, timber or other raw materials and around 20% of the victim's are found during fishing, among them 68% of the victim's suffered from their decrease income and expenditure and around 28% of the victim's suffered from stopping their income source. From the study it is concluded that an awareness campaign and motivation is needed as well as diversified income stability to create for the victim's in the Sundarbans.

Key words: Human, Royal Bengal Tiger, Sundarbans, *in situ*, *ex situ*, Mawalis and Bawalis

INTRODUCTION

Bangladesh's wildlife resources is enriched with 840 varieties species, over there 578 bird species, 119 mammal species, 124 reptile species and 19 species Amphibian among them extinct, critically endangered and endangered species number are 17, 19, 32 (bird) species, respectively. In Sundarbans there are about 550 individuals Royal Bengal Tiger as well as Chittagong Hill Tracts, Coxe's bazar, Sylhet, Nijum Deep 80,000 spotted deer and Coxe's bazar, Teknaf and Chittagong Hill Tracts forest 400 wild elephant. In Sundarbans there are spotted deer, monkey and wild pig population as 80,000, 40,000 and 20,000, respectively[1]. In Sundarbans there are about spotted deer, barking deer, monkey and wild pig as 90537, 29148, 40000 and 45269, respectively[2]. According to the forest department, they reported that in Sundarbans there have 100000-50000 spotted deer, above the reports there is no shortage of preying species of tiger, but why they attach in local areas.

Nearly all reports that exist on wildlife and tigers in the Sundarbans mention the large number of tiger attacks and discuss the possible root causes[2-5]. Only a few studies however have attempted to study the conflict in some detail with the aim of producing factual information that could help for developing initiatives to lessen the number of attacks occurring each year[1,6].

However there is a lot of scope for diversified information on the impact of tiger attacks of *in situ* and *ex situ* in Bangladesh. Therefore the present study was undertaken with the following objectives:

I) To gain a better understanding on the impact of tiger attacks on people by tigers from the Sundarbans as well as different zoo in Bangladesh
ii) To make recommendations that could lessen the vulnerability of people to attacks in future

MATERIALS AND METHODS

Collecting base information: To learn the information related to the legal status, description, range, habitat, diet, social organization, past occurrence, distribution, present population and threats of survival of Royal Bengal Tiger, a number of information centers were visited and all most all the available literature was studied. The centers visited are: Forest Department, Center for Sustainable Development, Community Development Library, Society for Environment and Human Development library, Dhaka University Zoology Library, National Museum, Dhaka Zoo, Forest Department Library, Bangladesh Agricultural Research Council, Forest Research Institute and IUCN Library.

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Study area: The study sites are Sundarbans and different Zoo of Bangladesh.

Preparation of questionnaires: Questionnaires were made for interviewing the witness for tiger attacks on people.

Data collection: Data were collected by identifying and interviewing victims of Royal Bengal Tiger (*Panthera tigris*) disturbances and/or witnesses and family members thereof over a 20-30 day period and also held with forest department personnel, community people, witnesses of the attack, family members of the victims and local NGOs.

Data analysis: Databases were prepared using SPSS (Statistical Package for Social Analysis) for easy analysis of findings from the survey questionnaires.

RESULTS AND DISCUSSION

Location of attacks

Attacks at compartmental level: It was observed (Table 1) that the highest number of tiger attacks occurred in Shatkhira (i.e. Northern and western boundaries of the Bangladesh Sundarbans and most probably lowest in Khulna range which is reported earlier[7] that the frequency of attacks in compartments along the northern boundary and near Dubla Char seems to suggest that there is a direct relation between the number of attacks and the number of people accessing these areas.

Attacks by range and home district of the victim: It is clear that In Shatkhira range has the highest concentration of attacks between (1999-2001) (Table 2) and accounted for 56-63% of all attacks occurred each year[7] explained the reason why most attacks has been occurred at Shatkhira range, they reported that best quality honey, Goran stock, Golpata, Oyster shell collectors as well as many shrimp fry collectors are found in this range.

It appears that around 90% of the people from Shatkhira were attacked in Shatkhira range and this range is the most dangerous range in the Sundarbans for tiger attacks and lowest attacks are found in Bagerhat.

Table 1: The ten compartments with the highest concentration of attacks (1999-2001)

Compartment	Range	Number of attacks	Attacks per sq km
48	Shatkhira	18	0.22
47	Shatkhira	19	0.18
35	Khulna	11	0.17
49	Shatkhira	17	0.15
40	Khulna	5	0.12
53	Shatkhira	10	0.12
55	Shatkhira	17	0.11
518	Shatkhira	6	0.10
36	Khulna	6	0.08
46	Shatkhira	8	0.07

Table 2: Concentration of attacks per range for (1999-2001)

Range	Land area (sq km)	No. of attacks	Attacks per sq km
Shatkhira	1214.66	89	0.073
Khulna	1144.5	38	0.033
Sharankhola	923.23	10	0.011
Chandpai	829.95	8	0.010

Table 3: Cross-tabulation of the victim's home district and the range where the attack occurred (1999-March 2002)

Home	Range				
District	Shatkhira	Khulna	Chandpai	Sharankhola	Total
Shatkhira	93	6	1	2	102
Khulna	18	29	2	2	51
Bagerhat	2	6	6	8	22
Total	113	41	9	12	175

Table 4: Trend in number of attacks by the time of day

Time of day (h)	Percentage of attacks
1-3	>10
4-6	>10
7-9	<70
10-12	<100
13-15	>45
16-18	<70
19-21	>10
22-24	0

Table 5: Number of people in the direct vicinity at the time of tiger attack

Number of people	Frequency	Percent
0	6	3.3
1	34	18.8
2	64	35.4
3	39	21.5
4ormore	38	21.0

Table 6: Selection of victims by age

Age Range	No. of victims	Fraction observed (o)	No. of people	Fraction expected (E)	Vulnerability index (o-E)*100
0-14	2	0.01	3664	0.03	-1.99
15-29	46	0.25	35707	0.30	-4.75
30-44	73	0.40	47993	0.41	-0.21
45-59	39	0.22	23285	0.20	1.88
60+	21	0.12	7739	0.07	5.07

Table 7: Percentage of total population attacked per occupation type

Occupation	Fisherman	Bawali (woodcutter)	Mawali (honey collector)
Total population	81128.00	16188.00	1556.00
No. of victims	98.00	33.00	8.00
Percentage of total	0.12%	0.20%	0.51%

Table 8: Frequency of activities at the time of attack

Activity	Frequency	Percentage of total
Extracting timber/fuel wood/golpata/goran	93	52
Fishing	43	24
Stationary activity	18	10
Extracting honey	13	7
General movement through the forest	11	6
Intervening in attack	1	1

Table 9: Impact on the family of the victims

Type of impact on the family of victims	Frequency	Percentage
Decrease income and expenditure	126	68.1
Income source has stopped	52	28.1
Financial loss because of treatment	4	2.2
Had to sell everything	2	1.1
Victim's mother became mentally ill	1	0.5

Table 10: Average monetary impact on households for the different categories of attack

Main group	Sub group	Indicator of compensation required
Human fatality or injury so	Fatality	6 months average monthly income
that the affected person is	Permanently incapable of work	3 months average monthly income + average cost of treatment for serious injury
unable to work (male/female/child)	Temporarily incapable of work	Average cost of treatment for moderate injury
Injured, but still capable of work	Non affected injury	Average cost of treatment for minor injury
Loss of Livestock	Cow	Half of average selling price
	Goat	Half of average selling price
	Pig	Half of average selling price

Vulnerability to attacks:

Time of attack: It appears that the number of attacks increased during the morning, peaking at midday, followed by second peak in the late afternoon. The largest concentration (94%) of attacks took place between 10-12 AM and least (10%) attacks at 9 PM-3 AM (Table 4).

People around the victim: It is assumed that the tiger would be aware of the presence of other people and at this may influence a decision to attack or not. It seems that many tigers are confident enough of their strength and stealth to attack a person when others are nearby (Table 5).

It is clear that people in the age group 15-29 are the least vulnerable, while people that are 60 or over are much more vulnerable to tiger attacks (Table 6).

Occupation of the victim: It appears that Mawalis are the most (51%) as well as where as Bawalis are the second most (20%) vulnerable to tiger attacks where as least attacks occurred at fisherman (Table 7).

Activity of the victim at the time of attack: It appears that 52% of the victim's are attacked during collecting fuel wood, timber or other raw materials and around 24% of the victim's are found during fishing (Table 8).

Impact of tiger attacks on family households: It shows that above 68% of the victim's suffered from their decrease income and expenditure and around 28% of the victim's suffered from stopping their income source (Table 9).

It appears that most of the victim's losses working capability as well as fatal injuries and their livestock (Table 10).

REFERENCES

1. Hendricks, 1975. The status of the tiger (*Panthera tigris*) in the Sundarbans Mangrove Forest (Bay of Bengal). Saugetierkundliche Mitteilungen, 23: 161-199.
2. Tamang, K.M., 1993. Wildlife management report for the Sundarban Reserved Forest. Integrated Resource Development of the Sundarban Reserved Forest. FAO/UNDP Project, BGD/84/056.
3. Blower, J.H., 1985. Wildlife conservation in the Sundarbans Forest Inventory Project. ODA: PR 151.
4. Reza, A.M.A., M.M. Chowdhury and C. Santiapillai, 2000. Tiger conservation in Bangladesh. Tigerpaper, 27: 55-61.
5. Salter, R.E., 1984. Status and utilization of wildlife. Integrated Resource Development of the Sundarban Reserved Forest. FAO/UNDP Project, TCP/BGD/2309.
6. Gani, M.O., 2002. A study on the loss of Bengal Tiger (*Panthera tigris*) in five years (1996-2000) from Bangladesh Sundarbans. Tigerpaper, pp: 6-11.
7. KU and JJS., 2003. Gender participation and market chain analysis of selected forest products from the Sundarban Reserved Forest. Report written by Khulna University and Jagrata Juba Shangha for the SBCP, pp: 72-86.