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Abstract: We surveyed for the endangered Fishing cat (*Prionailurus viverrinus*) in human dominated landscapes in two districts, Howrah and Hooghly of West Bengal. Our work also involved the local communities whom we requested to help us collect scats and set up camera traps in their locality. We found evidence of this nocturnal, rare and elusive cat in the marshlands in the region. We surveyed a total of 34 villages from November, 2010 to March, 2011 for direct and indirect signs of Fishing cats. One hundred and ninety seven villagers were interviewed to obtain information on the presence of the species, document incidents of poaching, and sighting. Forty seven scats were collected and sent to the National Centre for Biological Sciences, Bangalore for molecular identification. From March 2011, we made use of 10 analogue camera traps. In the entire survey efforts, local people and village youth were involved to foster a sense of responsibility.

STATUS SURVEY OF FISHING CATS  
(*Prionailurus viverrinus*)  
in  
Howrah and Hooghly, W. Bengal.



INTERMEDIATE REPORT

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Tiasa Adhya  
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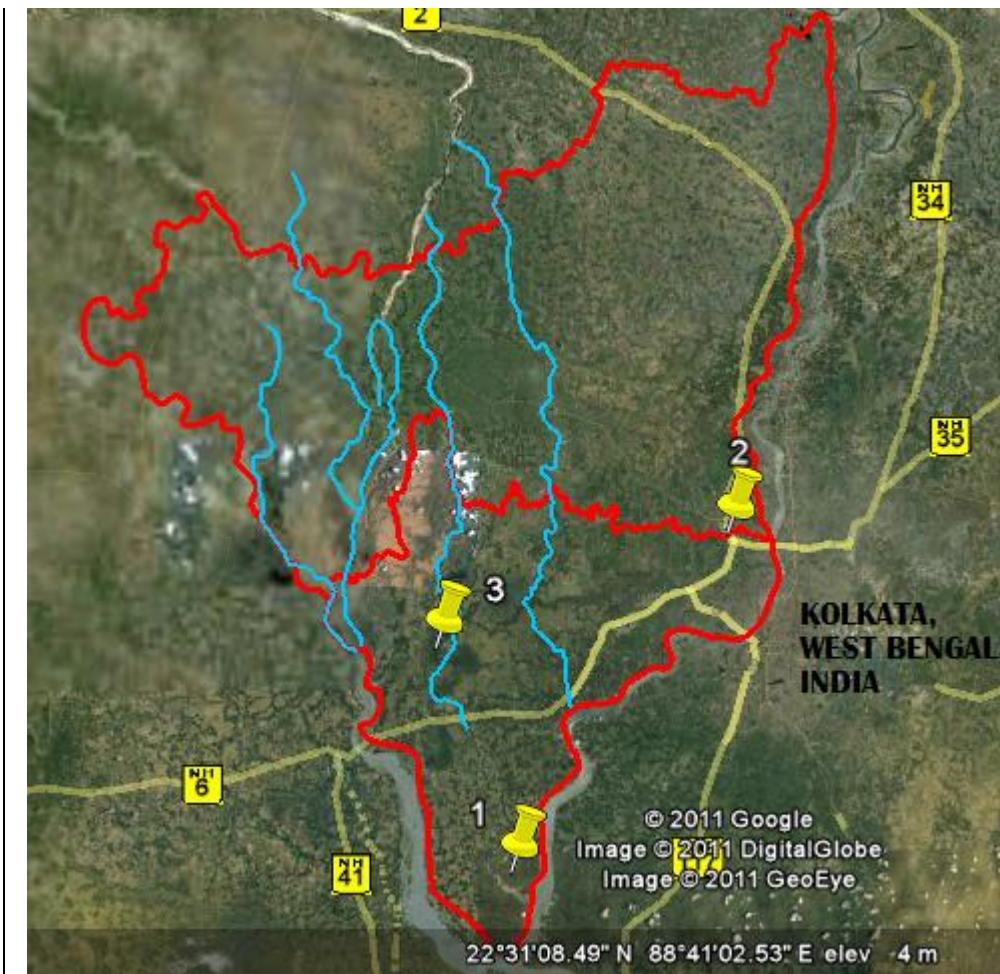
## 1. ABSTRACT

We surveyed for the endangered Fishing cat (*Prionailurus viverrinus*) in human dominated landscapes in two districts, Howrah and Hooghly of West Bengal. Our work also involved the local communities whom we requested to help us collect scats and set up camera traps in their locality. We found evidence of this nocturnal, rare and elusive cat in the marshlands in the region. We surveyed a total of 34 villages from November, 2010 to March, 2011 for direct and indirect signs of Fishing cats. One hundred and ninety seven villagers were interviewed to obtain information on the presence of the species, document incidents of poaching, and sighting. Forty seven scats were collected and sent to the National Centre for Biological Sciences, Bangalore for molecular identification. From March 2011, we made use of 10 analogue camera traps. In the entire survey efforts, local people and village youth were involved to foster a sense of responsibility.

India being a signatory to the Ramsar Convention for the conservation of wetlands has several laws for wetland protection (Prasad et al. 2002). However, the legal status of the majority of these marshlands is not well defined and they are often subjected to habitat conversion, degradation and fragmentation. The human densities in the two study districts are very high (2913 per sq km for Howrah and 1601 per sq km for Hooghly) and the marshlands are either natural as in Dankuni or man-made as in Kushberia. This leads to the presence of fishing cats among high human density populations where it has been reported to prey on goats and take fish from the numerous home-side ponds that dot the landscape. In our study we came across six instances of depredation on goats and 18 instances where fishing nets were torn by the fishing cats. We also recorded 15 instances of retaliation where fishing cats were found strangulated, poisoned and trapped.

Our short study conducted between November and March identified three zones in the human dominated landscape where in the mosaic of villages and large marshland patches, our preliminary interview surveys yielded encouraging results. We therefore concentrated on the following three areas for our survey and conservation efforts–

- ZONE I – Gorchumuk – Aima – Bargram - Goalberia (alongside river Damodar)
- ZONE II - Dankuni wetlands (extending from Northern Howrah into southern Hooghly),
- ZONE III - Kushberia – Tajpur – Sonamui – Sardah – Mahishamuri – Kachida (also along Damodar).



## 2. INTRODUCTION

### 2.1. BACKGROUND

The status of this nocturnal, rare and elusive cat was recently upgraded from vulnerable to endangered (IUCN Red List, 2010). In India, it is accorded the highest protection by being placed in Schedule I of the Indian Wildlife Protection Act (Anon. 1972). Fishing cats exist in patches throughout their range (Nowell and Jackson 1996, Sunquist and Sunquist 2002) which spans India, Sri Lanka and Nepal through western India and Burma to Thailand and Indochina. Their habitat is mostly brush or scrub near water (Lekagul and McNeely 1977). They feed on fish, crabs, rodents, birds, hard-shelled freshwater molluscs, and any other animals they can catch (Lekagul and McNeely 1977). The Fishing cat associates itself strongly with marshy wetlands and swamps. However, wetland habitats are threatened with settlement, degradation and conversion. Over 45% of protected wetlands and 94% of globally significant wetlands in Southeast Asia are considered threatened (Dugan 1993). Seventy percent of the total wetland area in India is under paddy cultivation (Prasad et al. 2002). Within India, Fishing cats are mainly reported from protected areas (Nowell and Jackson, 1996). The species definitely exists outside the protected areas but this is not backed by any concrete evidence except from occasional anecdotal references. In West Bengal, the districts

of Howrah and Hooghly, inspite of being industrial areas, have reports of Fishing cat occurrences. However no study has been carried out to confirm the presence of this cat, to map its distribution and to document the current conservation threats from these human dominated landscapes in West Bengal

### 3. LITERATURE SURVEY

The oldest record on Fishing cat presence in West Bengal outside Protected Areas is by Sclater (1891) from Calcutta district. Inglis et al. (1919) has recorded Fishing cats from Howrah and Jalpaiguri districts and O'Malley (1924) recorded them from North and South 24 Parganas. Pocock (1939), gives a description of the distribution of the species from reed beds near Calcutta and the area east of the Bay of Bengal. Fishing cats are common in the Sunderbans, South 24 Paraganas (Sanyal 1989) but rare in other parts of the state, due to destruction of their habitat. His latter papers go on to say that the Shyampur and Panchla block of Howrah district are rich habitats of Fishing cats (Sanyal & Roy 1986, Sanyal 1992). T. Bhattacharya (1988), reports killing of two cats on 3<sup>rd</sup> Jun 1988 in the Village Melo of Howrah under Panchla PS, Jalabiswanathapur Panchayat. More recently, H. Nandy (2007) has documented the killing of a pair of Fishing cats in Panchla block of Howrah district.

### 4. OBJECTIVES OF THE STUDY

- 1) To determine the presence of the Fishing cats in the human dominated areas of Howrah and Hooghly districts of West Bengal using scat analysis and camera trapping
- 2) To present a distribution map of Fishing cats along with areas of importance
- 3) To document the existing conservation threats of Fishing cats in the selected study sites
- 4) To organize awareness camps, distribute posters and charts amongst the human community in Fishing cat habitat to foster conservation.
- 5) To sustain the spirit of the project in the form of “Nature Guards”

### 5. STUDY AREA

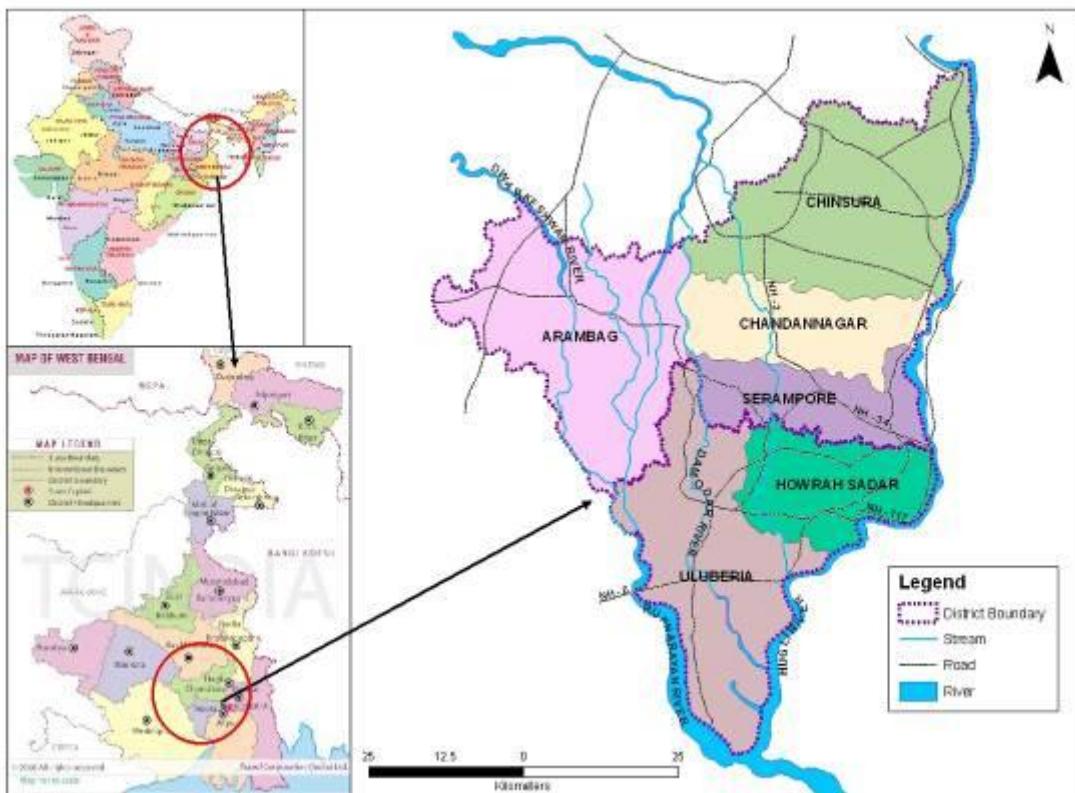
We focussed on the Howrah and Hooghly districts of West Bengal

#### LOCATION

- **Howrah** is a district of the West Bengal state in eastern India that lies between **22°48' N and 22°12' N latitudes** and between **88°23' E and 87°50' E longitudes**. It is bounded by the Hooghly River and the North and South 24 Parganas districts on the east, on the north by the Hooghly district and on the south by the Midnapore East district. On the west, Howrah district is bordered by Midnapore West district, and partly by the Arambagh sub-division of Hooghly district to the north-west and the Tamluk sub-division of the Midnapore East district to the south-west.

<i>Annual maximum rainfall</i>	<i>1461 millimeter per year</i>
<i>Annual maximum temperature</i>	<i>32-39°C</i>
<i>Annual minimum temperature</i>	<i>8-10°C</i>
<i>Total population</i>	<i>4,273,099 as per census 2001 records</i>

Howrah is drained by **rivers Rupnarayan** in the west and south-west, and by the **Bhagirathi – Hooghly** in east and south-eastern side. The Bally Canal is present in the north-east and the **Damodar river** in the north-west.



**Fig.1 LOCATION MAP SHOWING STUDY AREA**

Hooghly is another district of West Bengal in Eastern India that lies adjacent and to the north of Howrah. It lies between **North-- 23° 0' 01" 20"N South--22° 0' 39" 32"N** **East--88° 0' 30" 20"E West--87° 0' 30" 15"N**, with an area of **3149 sq km**. It is bounded by the Howrah District to the south, Bardhaman District to the north, and to the east by the River Hooghly. Bankura District lies to the north-west, with Medinipur District to the south-west.

<i>Average annual total rainfall</i>	1,500 mm
<i>Annual maximum temperature</i>	38-39°C
<i>Annual minimum temperature</i>	8-10°C
<i>Total population</i>	5,041,976 as per census 2001 records
<i>Population density</i>	1601 per sq km

It is drained by the rivers - **Hooghly** in east and **Damodar** to the west.

## 6. METHODS

Howrah and Hooghly were chosen as study sites because of sporadic reports in newspapers and magazines that spoke of the killing of these cats by people in these two districts.

From the previous reference literature as well as from interviewing poachers, we came to know that the Fishing cats were strongly associated with marshy lands predominated by tall reed beds. Howrah and Hooghly, being primarily marshy lowlands, our survey team mainly looked for vast stretches of these reed beds, or atleast places where these reed beds still exist in patches. We also surveyed places in between, i.e., places where reed beds were previously present but now has been wiped out due to habitat degradation. According to our observation, the Fishing cat usually does not exist where the land is devoyed of Nol (*Phragmites vallatoria*), Hogla (*Typha elephantina*, *T. domingensis*), Khor ( *Saccharum narenga*), Khagra (*Saccharum spontaneum*), or scrubby and / or dense vegetation, even if the place might have a large pond.

When reports of the endangered cat's sighting were confirmed by villagers, we looked for indirect and direct evidence of their presence, that included night walking with spotlights, pugmark tracing and scat analysis. Because, our study sites involved areas in and around villages, often pugmark finding and scat collection became difficult tasks. The cat shares its space with human and cattle. Therefore, it is highly likely that scats and pugmarks might get trampled.

## 6.1. INTERVIEW SURVEY



### INTERVIEWING LOCALS

We initially surveyed villages from 14 blocks of Howrah and Hooghly (except Arambagh sub-division) to assess if fishing cats do occur in the landscape. We generally interviewed people within the age range of 45 to 60 years (Interview questionnaire has been attached separately). In order to reduce the chances of confusion in identification of the the different species of wild carnivores, we showed the interviewees five pictures – Jungle cat, Small Indian civet, Otter, Fishing cat and Palm civet. In maximum instances, the locals confused between the Small Indian civet (which they locally call Machbarkosh”) and the Fishing cat. An accompanying comparative description generally helped.

The questionnaire was divided into four sections and aimed to study about the

- a) Habits of the Fishing cat
- b) Habitat
- c) Threats
- d) The problem that fishing cat causes to their property

The succeeding questions were asked to understand how often they were sighted within the last one year and then in the last 6 months.

We also questioned the people of whether they were aware that the Fishing cats were protected by law since they are Schedule I species (WLPA 1972) and like the tiger, killing them is illegal.

We also asked the people to give us an idea of their perception of the [trend](#) of the Fishing cat population, i.e., whether they thought if their numbers are increasing or decreasing. We also

asked them if they would stop killing Fishing cats if they received compensation for livestock killing.

We interviewed seven poachers and trappers. Out of the seven poachers that we interviewed, five were part of nomadic tribal groups who hunted small mammals for meat and skin. Such information was gained from local villagers who told us of these nomadic tribes. We interviewed two professional trappers in villages – Jamdanda and Ulughata, who trap small mammals for meat.

## 6.2. PUGMARK TRACING

We searched for tracks of fishing cats at the edge of tall reed beds and along banks of ponds after the local directed us to the areas and we also requested them to accompany us.. Only when our finding of pugmarks coincided with the claims of sighting within the span of 2 days at the location, did we proceed to trace the pugmarks on glasses and measure them.



## PUGMARK TRACING

## 6.3. SCAT ANALYSIS

Forty seven – scats have been collected from Howrah and Hooghly altogether and sent to the National Centre for Biological Sciences, Bangalore for their identification.



### SCAT COLLECTION

The technique involves the following steps:-

1. Collection of scats with GPS reading of locations.
2. Extraction of DNA from samples
3. Through a technique called Polymerase Chain Reaction (PCR), several copies of genes are xeroxed in a short time

4. PCR-RFLP is then used for identification of species followed by sequencing/fragment analysis
5. Analysis of data using various software

#### **6.4. CAMERA TRAPPING**

Since ten camera traps were also available with our team, we used them for a total of 30 days in Zone I, II, III. 6 camera traps x 30 days = 180 trap nights.



TEACHING LOCALS HOW TO HANDLE CAMERA TRAPS



LOCALS SET UP CAMERA TRAPS

### **6.5. DIRECT EVIDENCE FROM DEAD FISHING CATS**

When we interviewed locals, we often asked if they had taken pictures of dead Fishing cats. Sometimes, in our field surveys, we came across carcass of dead fishing cats, killed by people.

## **7. RESULTS AND DISCUSSION**

Through our preliminary surveys, our subjective observations were that the landscape differed between Howrah and Hooghly. Howrah appeared to have more low-lying areas adjacent to river beds. Hooghly, on the other hand, appears to have more open agricultural fields. Lowlands in Hooghly are restricted to the south, an extension of Zone II in Howrah and some in the west. This observation was also concordant with the interview results where the interviewed people stated that Fishing cats prefer typical marshland vegetation for its shelter. Hence, for collecting data for our ground survey, we chose to concentrate our efforts in zones with good marshland habitat. However, we also realise that this could be an artefact and more long term studies are required to assess if this is indeed the case.

PLACES WITHOUT ADEQUATE VEGETATION COVER	FISHING CAT ABSENT / PRESENT	NUMBER OF PEOPLE INTERVIEWED	PERCENTAGE OF PEOPLE CLAIMING CAT TO BE ABSENT	PERCENTAGE OF PEOPLE UNSURE OF CAT'S ABSENCE/PRESENCE
Akuni asthana, Hooghly	Absent	9	77.77	22.22
Baidyabati Khal, Hooghly	Absent	3	100	0
Dekol Beel, Hooghly	Absent	4	100	0
Kol Beel, Hooghly	Absent	3	100	0
Hashmarir Char	Absent	2	100	0

PLACES WITH ADEQUATE VEGETATION COVER	FISHING CAT ABSENT / PRESENT	NUMBER OF PEOPLE INTERVIEWED	PERCENTAGE OF PEOPLE CLAIMING CAT TO BE PRESENT	PERCENTAGE OF PEOPLE UNSURE OF CAT'S ABSENCE/PRESENCE
Aima, Bargram, Goalberia, Zone I, Howrah	Present	51	92.16	7.84
Dankuni wetlands, Zone II, Howrah extending into Hooghly	Present	14	85.7	14.285
Kusheberia, Sonamui, Sardah, Mahishamuri, Zone III, Howrah	Present	53	100	0

**ANALYSIS OF INTERVIEWS** - The Fishing cat has a lot of Bengali names – the most common name being “Baghrul”. It is also called “Mach bagha” (Mach = fish , Bagha = like a tiger), meaning that it looks like a small tiger which preys on fish. It is also called “Go bagha” (Go = calf) meaning that it takes away little calves and goats.

The succeeding questions were asked to understand how often they were sighted within the last one year and then in the last 6 months.

The time of their sighting by 160 villagers out of 197 villagers interviewed, were noted to understand the time of activity preferred by them. It was as follows:-

Number of individuals	Time when sighted
8 individuals	4 a.m. to 5 a.m.
24 individuals	4 p.m. to 5 p.m.
128 individuals	After 8 p.m.

The view of the locals in both the districts was that the Fishing cat is found inside tall reed beds – **Hogla** (*Typha elephantina*, *T. domingensis*), **Nol** (*Phragmites vallatoria*), **Khagra** (*Saccharum spontaneum*), **Khori** (*Saccharum narenga*) etc. However this was based on subjective questioning. The villagers also mentioned that cubs are seen with the mother. In Gorchumuk, a village which falls within Zone I, the locals mentioned that the the Fishing cat has been observed to be living inside burial grounds where possibly the level of disturbance could be low..

We would like to stress here that we began our survey knowing that the Fishing cats exist around wetlands but did not have any idea about the vegetative cover that they might prefer. For example, when we undertook surveys in Hooghly, we started off with two big wetlands – Kol Beel and Dekol. Beel (both are big lakes). But the surrounding vegetation was very thin and not dense. Locals confirmed not having sighted the cat in 20 years. Older villagers also spoke about dense vegetation and tall reed beds, when Fishing cats were around.

### Threat to FC

#### Direct killings

Direct persecution of Fishing cats along with rapid habitat destruction throughout its range in the study sites might be a threat to Fishing cats.

People were asked if the cats were poached and the causes of them being poached. The primary reason of killing Fishing cats seems to be out of revenge for its habit of livestock predation and also preying on fish from ponds. Of course, it must also be kept in mind that the Fishing cat, in most instances, has many co-predators – jackals, civets, otter and jungle cats to name the most common, and these are also to blame for livestock losses. In conflicts between people and carnivores, the perceived impacts often exceed the actual evidence (Conover 2001 ; Chavez et al. 2005 ; Sillero – Zubiri et al. 2007). [\\_](#)

#### Killing because of perception

However, the ultimate motivation of such persecution, in many cases, are not due to the actual impact of Fishing cats on livestock, but rather a social intolerance. We have come across instances of Fishing cats being killed just because the villagers thought that they looked like tigers. In the literature survey, Heerak Nandy and Tathagata Bhattacharya, reports the same occurrence. In other cases, we came across people who have trap cages and the cats, if captured, are killed for meat. A local market even sells the cat meat for Rs 60 per kg.



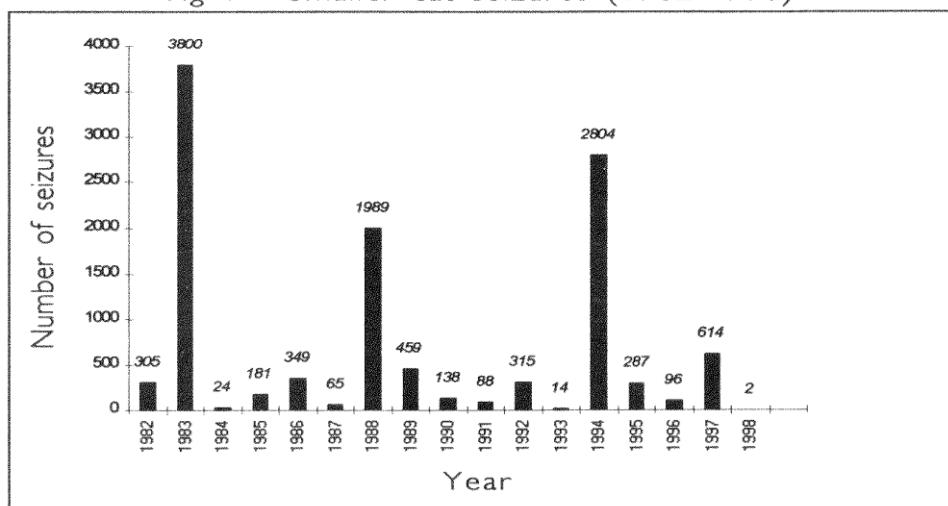


### FISHING CATS BETAIN TO DEATH

The most prominent cause of their decline, according to locals, is due to the shrinkage of wetland expanse throughout Howrah and Hooghly, marshyland, to be more precise. According to them, gradual urbanisation is eating into the reed beds, which the cat prefers for its shelter. Brick factories, coming up along river beds, have resulted in the maximum destruction of vegetation. The loss of shelter has resulted into the cat being sighted more often and killed.

An additional threat seems to be the traditional hunting practice of small mammals, for both skin and meat, by tribals. Needless to say, the Fishing cat does not escape this practice. These tribals are of two types – those who work as labourers in brick factories and others who are nomadic in nature and migrate from place to place. While they feast on the meat, the tribal people, when interviewed, also confessed the fact of illegally selling Fishing cat skins for Rs 1000. In this regard, we would also like to refer to Dr Pranabesh Sanyal's paper "Small cats get less" which was published in Envis 1998.

Fig 1 - Smaller cat seizures (1982-1998)



Note : The year-to-year variation in data is because there is no formal data collection mechanism for wildlife crimes.

According to the paper, “the story behind the decline of lesser cats only goes to show how a weak implementation of the law can undermine the protection of these creatures, already endangered or vulnerable.....from the trade data gathered by the Wildlife Protection Society of India on illegal trade of small cats, it has been noted that the most vulnerable are the Jungle cat. Leopard cat and the Fishing cat, which together account for 90 % of the total small cat seizures in 1979.”

According to some aged villagers in Zone I, the main diet of the Fishing cat comprised jeol fish which hatch out of their eggs during the monsoon months, when rainwater accumulates in the agricultural fields. But, due to the excessive use of pesticides, the jeol fish population has diminished considerably. This might have resulted in loss of prey for Fishing cats. This is again a perception. . In addition, people who are into carp cultivation, also lose fish to both otters and Fishing cats. Thereby, they often leave fish laced with poison by pond sides, consumption of which leads to death.

However, this is just anecdotal information and needs further scientific studies for diet analysis of Fishing cats from all three zones. As in Zone III, despite a very good habitat and ponds around, there is considerable livestock killing. The main livelihood for people in Zone III is rotational cultivation of Khor (a type of reed bed, also the cat's habitat) and agriculture. Therefore, about 50 % of the interviewees want to stop keeping poultry and goats. This tolerance is not shown in Zone I and indeed in other villages which lie outside the purview of all three zones. Here despite agriculture and fisheries being the main livelihoods, livestock cultivation is a very important supplementary livelihood.

Out of all the 200 villagers interviewed, only 3 people reported of being attacked by the Fishing cat, and that too, in situations where the cat was cornered. So, attacks on people by Fishing cat is definitely not a major concern, although, based on villager's opinions, the cat is aggressive by nature.

We had also asked people if they would stop killing Fishing cats if they received compensation for livestock killing. To this, one local asked us what would happen if a pregnant goat got killed, would they receive extra compensation. These views were reverberated in other instances as well. When we went for carrying out ground surveys, many started enquiring about when they would start getting the money. There was a marked rise in their antagonistic attitude towards the cat. Compensation systems could therefore decrease the people's tolerance towards the cat, alienating it more. Following this realization, we stopped asking this question in other villages.

PUGMARK TRACING - In one case, the Fishing cat stepped on cow dung in Zone II. It is only in this case that we saw a clear claw mark in the pugmark. In most of the other pugmarks which were collected from semi – soft and hard mud, we did not get clear claw marks. Fishing cats also have webbed paws but the web did not show on tracks. In Zone II, we found the pugmarks of two adult Fishing cats (one distinctively bigger than the other) which were followed by tracks of kittens. This is substantiated by the fact that on the night before the finding, a local who stayed up all night guarding a fishery, reported seeing two Fishing cats, which looked like young tigers, with two kittens, on the banks of the fishery – pond.



#### SCAT ANALYSIS –

The scats that we collected were mainly found at crossroads, uplifted mounds on the ground or on railway tracks, as if they were deliberately left on places that are prominently detected. I accompanied Dr Shomita Mukherjee to Henry's island, Sunderbans where she taught us scat collection and identification techniques. Even in Henry's island, we found scats on raised platforms like tanks, culverts etc (see pic above) and they seemed to defecate repeatedly in one area. This is backed by the an observation at Bharatpur (Shomita Mukherjee pers. comm.). The scats were collected along with GPS readings and the place where they were collected were also noted. The results are due in May and we will be able to give the scat analysis report then.



**DIRECT EVIDENCE FROM DEAD FISHING CATS-** In a particular instance, Dipak Mondal, owner of a fishery in Zone II, who is also one of the local volunteers, showed us the picture of a dead Fishing cat which was killed after being hit by a goods train. Sometimes, in our field surveys, we came across carcass of dead fishing cats, killed by people. Ovee Thorat, who volunteered for 1 day, photographed a dead Fishing cat, which was poisoned and strangulated to death in Aima of Zone I.



**FISHING CAT DEAD AFTER BEING HIT BY GOODS TRAIN**

The number of Fishing cat deaths in the last 1 year is given:-

DATE	METHOD OF KILLING	NUMBER OF CATS KILLED	VILLAGE	ZONE
September, 2010	Poisoning	1	Kumargarh	I
September, 2010	Trap-cage killing	1	Mirzapur	I
September, 2010	Trap-cage killing	1	Morhal	I
April, 2010	Poisoning	3	Wadipur	I
October, 2010	Tribal Poaching	2	Deulpur	I
November, 2010	Poisoning	1	Deulpur	I
January, 2011	Poisoning	2	Deulpur	I
August, 2010	Tribal Poaching	3	Jamdanda	I
April, 2010	Trap-cage killing	1	Kashipur	I
December, 2010	Poisoning	3	Kashipur	I
March, 2011	Poisoning	1	Bargram	I
April, 2010	Strangulation	1	Aima	I
July, 2010	Trampling	1	Gorchumuk	I
February, 2011	Poisoning	1	Ulughata	I
March, 2011	Hit by train	1	Dankuni	II
April, 2010	Poisoning	1	Kushberia	III
June, 2010	Poisoning	1	Tajpur	III
March, 2011	Poisoning	1	Mahishamuri	III
March, 2011	Poisoning	1	Nuntia	Hooghly

\*Please note – this data has been given by local villagers and also collected by our survey team during their field visits. Actual Fishing cat death might have been more.

In Howrah, as is written above, we found three zones.

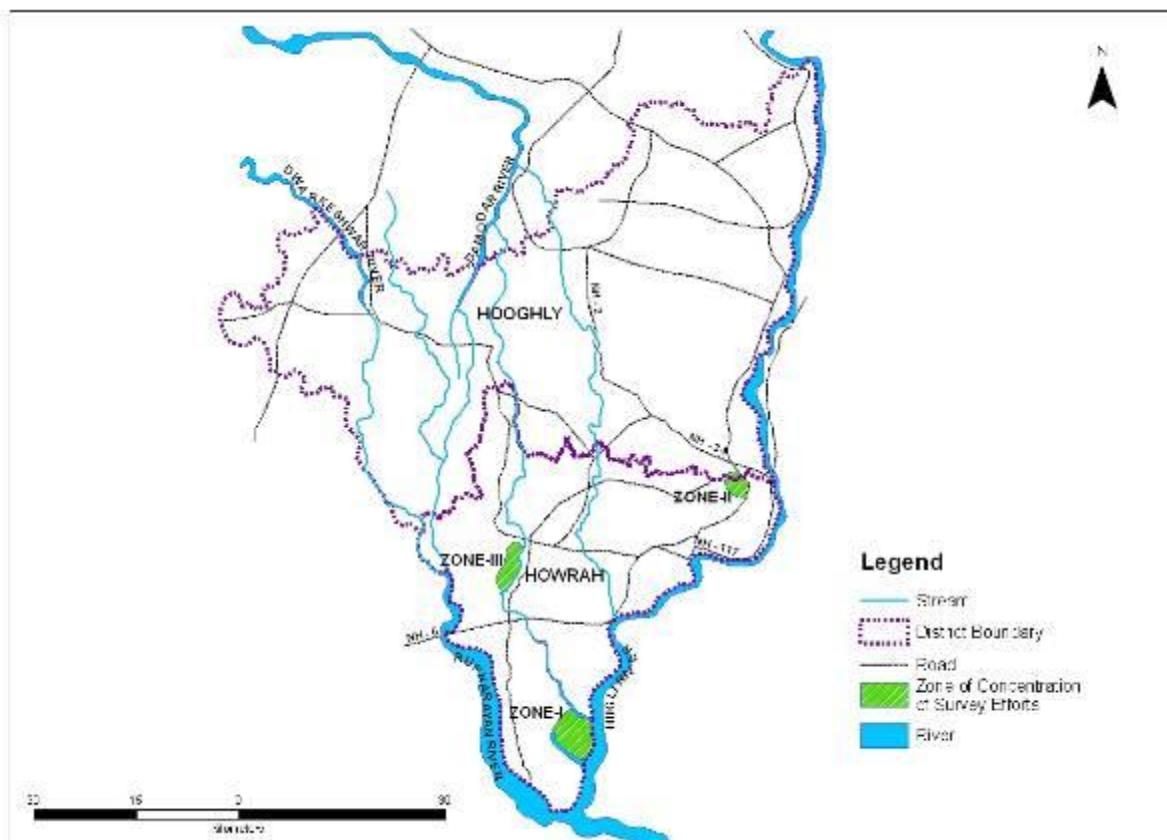


Fig.3 MAP SHOWING THREE ZONES

These are unique in their threat levels. A description of these three zones are given below :-

### **ZONE I – GORCHUMUK – AIMA – BARGRAM - GOALBERIA**

These 3 villages occur along the banks of the river Damodar.

The zone was very rich in terms of stretches of Hogla. But the last 3 years saw a rapid spurt in the coming up of brick fields and a consequent destruction of the natural habitat. According to locals, 9 brick factories will come up in Gorchumuk itself.



**BRICK FACTORY**



**HABITAT AT AIMA**

The main source of livelihood for people here is mainly agriculture. Livestock rearing – domestic fowl and goats - is also an important supporting livelihood. As a result of weak coops and cauldrons, jungle cats and fishing cats find it easy to break them open and prey on livestock. A high level of man – animal conflict due to livestock preying and habitat destruction is thus present in Zone I. People have a high intolerance for the cat.



#### **WEAK CHICKEN COUPS**

Inspite of this, our field team has regularly sighted the cats at night (please give a table with date of sighting and time of sighting). One of our members, Ushnish Das, rescued a Fishing cat cub from tribals. We have, so far recorded the maximum killing of cats from this zone .



#### **FISHING CAT RESCUED**

#### **ZONE II – DANKUNI WETLANDS**



This extends from northern Howrah into southern Hooghly.

The area is approximately 3 sq km in area, out of which 1 sq km belongs to the railways. The part that falls within the railways is traversed by three railway tracks with fisheries that are given leases and accompanying marshlands within.



The part that falls outside the railways are legally *shali lands*, i.e., lowlands that are people's properties and they can change the nature of the land as they wish. Part of these lands are owned by private companies, who have not yet started any kinds of construction. There is also a protest amongst locals against filling up of the wetlands for any construction work. We have plans to approach the railways specifically to talk about the importance of conserving these wetlands in sustaining Fishing cats.



Fishing cats are sighted here by the locals regularly, often with cubs.

The predominant reed beds present here comprises Nol (*Phragmites vallatoria*), Hogla (*Typha elephantine*, *T. domingensis*). With the help of a local volunteer, we discovered a track of the Fishing cat which seemed to come out of a Hogla reed bed, cross the freight corridor of the railways and walk around a particular fishery, presumably to prey on fish.



**FISHERY**

**TRACKING PUGMARKS**

Molluscs are also present in plenty. There are villages on the fringe of the wetlands. The villagers, whom we interviewed, did not complain much about livestock killing, but admitted that sighting of Fishing cats have lessened recently.



#### **HABITAT FRAGMENTATION**

In another fishery, which lies at the side of a railway track, the owner showed us the photograph of a dead Fishing cat which was hit by a train in December, 2010, when we interviewed him, which negatively proves the presence of Fishing cats in that area.

#### **ZONE III – KUSHBERIA, TAJPUR, SONAMUI, MAHISHAMURI, SARDAH, NAYAPARA**

The Zone occurs alongside river Damodar.

These villages are scattered amongst vast Khoris (*Saccharum narenga*) stretches in Zone III. These Khoris stretches are dotted with big ponds. The whole zone being a lowland, more than half of it is inundated in water during monsoon. The main livelihood of people here are the cultivation of Khoris which has many uses. A small population of people in these villages also tend to agriculture. According to the local people, Khoris is so profit-making, that many have converted from rice – cultivation to Khoris cultivation, which is cultivated just once a year and

does not require any tending to. While cutting the Khori, locals employ labourers. According to them, Fishing cats live inside these Khori vegetation, like leopards living inside tea gardens. Also, locals do not cut away all the Khori at one go. They cut it one portion at a time.



**KHORI PLANTATION**



**HABITAT AT KUSHBERIA**

In spite of a very good habitat, almost all the villagers we have interviewed, reports livestock killing by the cats. A woman has lost 8 goats in Sonamui within the span of 1.5 months. Another local, who has also volunteered for this survey, has lost 4 goats in 3 months. There are, but very few reports of Fishing cat killing, due to poisoning by locals.

We would also like to present a comparison of the level of threats present in the three zones :-

According to us, the level of threat can be determined by the habitat condition and level of poaching present.

A) THREAT = 1) SUSTAINABILITY OF HABITAT + 2) POACHING

Again, the habitat condition can be determined by its vulnerability, i.e., how vulnerable is it in terms of its destruction, as well as the presence of marshy level cover.

1) SUSTAINABILITY OF HABITAT = a) VULNERABILITY + b) PRESENCE OF MARSHY LAND COVER

Vulnerability, can again be determined by both the severity of the threat present as well as the timing of the threat, i.e., when the threat will occur and cause damage. A score has been given accordingly to the timing of the threat as well as the severity of the threat.

a) VULNERABILITY = i) TIMING OF THREAT + ii) SEVERITY OF THREAT

i) TIMING OF THREAT TIMING SCORE

<i>HAPPENING NOW</i>	3
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<i>LIKELY IN A SHORT TIME</i>	2
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(1 TO 2 YEARS)	
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<i>LIKELY IN A SHORT TIME</i>	1
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(> 2 YEARS)	
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ii) SEVERITY OF THREAT SEVERITY SCORE

<i>RAPID DETERIORATION</i>	3
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(>50 % OVER 5 YEARS)	
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<i>MODERATE DETERIORATION</i>	2
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(> 30% OVER 5 YEARS)	
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<i>LOW DETERIORATION</i>	1
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(>10 % OVER 5 YEARS)	
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HENCE, HIGH VULNERABILITY = 4 TO 6
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LOW VULNERABILITY = 1 TO 3

<u>PRESENCE OF MARSHY LAND</u>	<u>HABITAT CONDITION SCORE</u>
DEGRADED AND FRAGMENTED STATE	2
MODERATE COVER	1
CONTINUOUS GOOD STRETCH	0

HENCE, SUSTAINABILITY OF HABITAT IS POOR WHEN SCORE IS 4 TO 8

SUSTAINABILITY OF HABITAT IS GOOD WHEN SCORE IS 1 TO 3

## 2) POACHING

PRESENT = 1

ABSENT = 0

HENCE,

HIGH THREAT = 5 TO 9

LOW THREAT = 1 TO 4

For ZONE I.

A) THREAT = 1) SUSTAINABILITY OF HABITAT + 2) POACHING

1) SUSTAINABILITY OF HABITAT = a) VULNERABILITY + b) PRESENCE OF MARSHY LAND COVER

a) VULNERABILITY = i) TIMING OF THREAT + ii) SEVERITY OF THREAT  
i) TIMING OF THREAT TIMING SCORE

*HAPPENING NOW*

*Since the threat of habitat destruction due to brick factories is happening now.*



Fig.4 & 5 COMPARATIVE PICTURES FROM 2008 & 2011 SHOWING RAPID GROWTH OF BRICK FACTORIES AT GORCHUMUK

ii) SEVERITY OF THREAT

SEVERITY SCORE

*RAPID DETERIORATION*

3

*(>50 % OVER 5 YEARS)*

*Since the habitat is rapidly deteriorating.*



Fig.6& 7 COMPARATIVE PICTURES FROM 2006 & 2011 SHOWING VANISHING MARSHYLANDS WITH SIMULTANEOUS GROWTH OF BRICK FIELDS

Hence, VULNERABILITY =  $3 + 3 = 6$ , therefore it has a high vulnerability score.

b) PRESENCE OF MARSHY LAND

MODERATE COVER

1

*Inspite of brick factories coming up, Zone I still has good vegetation to sustain Fishing cats, hence we assign a score of 1 for the presence of marshy land.*

Hence, SUSTAINABILITY OF HABITAT =  $6 + 1 = 7$ . Hence, sustainability of habitat is poor.

## 2) POACHING

PRESENT = 1

HENCE, THREAT =  $7 + 1 = 8$ , i.e., the level of threat is high.

*For ZONE II,*

### A) THREAT = 1) SUSTAINABILITY OF HABITAT + 2) POACHING

#### 1) SUSTAINABILITY OF HABITAT = a) VULNERABILITY + b) PRESENCE OF MARSHY LAND COVER

##### a) VULNERABILITY = i) TIMING OF THREAT + ii) SEVERITY OF THREAT

i) TIMING OF THREAT TIMING SCORE

*LIKELY IN A SHORT TIME* 2

*(1 TO 2 YEARS)*

*Since the threat of habitat destruction and fragmentation is due in 1 to 2 years due to the possibility of factories coming up*



Fig. 8& 9 COMPARATIVE PICTURES FROM 2008 & 2011 SHOWING THE FILLING UP OF MARSHLANDS FOR INDUSTRIALIZATION

\* Please note - The freight corridor has been constructed by filling up canals. This process might be delayed or halted because of a high court order, according to which the marshlands has been legally defined as wetlands, filling up of which is illegal.

ii) <u>SEVERITY OF THREAT</u>	<u>SEVERITY SCORE</u>
<i>MODERATE DETERIORATION</i>	2

(> 30% OVER 5 YEARS)

2

(> 30% OVER 5 YEARS)

*Since the habitat is facing moderate destruction.*

Hence,  $\text{VULNERABILITY} = 2 + 2 = 4$ , therefore it has a high vulnerability score.

**b) PRESENCE OF MARSHY LAND**

## CONTINUOUS GOOD STRETCH 0

Hence, SUSTAINABILITY OF HABITAT =  $4 + 0 = 4$ . Hence, sustainability of habitat is poor.

## 2) POACHING

ABSENT = 0

HENCE, THREAT =  $4 + 0 = 4$ , i.e., the level of threat is low, for the time being.

For ZONE III

#### A) THREAT = 1) SUSTAINABILITY OF HABITAT + 2) POACHING

## 1) SUSTAINABILITY OF HABITAT = a) VULNERABILITY + b) PRESENCE OF MARSHY LAND COVER

## MINIMUM THREAT

Since the threat of habitat destruction is nil for atleast a decade, because people benefit from keeping the habitat as it is, their livelihood being dependent on it.

## *LOW DETERIORATION*

1

(>10 % OVER 5 YEARS)

1

(>10 % OVER 5 YEARS)

*Since the habitat has low levels of deterioration.*

Hence,  $VULNERABILITY = 0 + 1 = 1$ , therefore it has a low vulnerability score.

**b) PRESENCE OF MARSHY LAND**

CONTINUOUS GOOD STRETCH 0

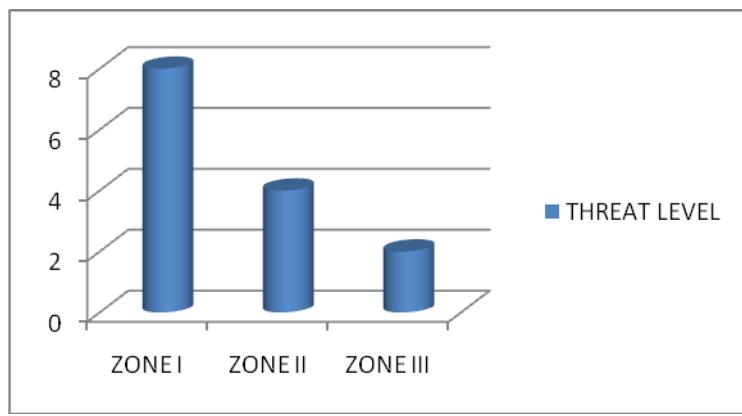
Hence, SUSTAINABILITY OF HABITAT =  $1 + 0 = 1$ . Hence, sustainability of habitat is good.

**2) POACHING**

PRESENT = 1

Poaching, though present is not rampant.

HENCE, THREAT =  $1 + 1 = 2$ , i.e., the level of threat is low.



Zone I and Zone II are highly vulnerable zones, with Zone I being more vulnerable than Zone II whereas Zone III has a much lower threat level

*Our field surveys will continue throughout April till the end of May. We will supplement the intermediate report with the scat analysis report by 10<sup>th</sup> of May. Our camera trapping efforts might continue beyond May, dependent on the start of monsoon. From June onwards, we will begin our workshops, which will be focussed more on highly threatened zones.*