

# Re- Accessing and Identifying the Conservation needs of Fishing Cat in Bankalwa, Sunsari, Nepal

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## Prepared By

Sagar Dahal  
Angie Appel  
Suchita Shrestha  
Dibya Raj Dahal  
Sabita Gurung

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Cover Picture: Fishing Cat video graphed at Prakashpur, Sunsari

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# 1. Introduction

The highest number of Fishing cat study in Nepal is concentrated in Koshi Tappu Wildlife Reserve (KTWR). Pandey and Kaspal (2011) did the survey in Koshi Tappu and its buffer zone and recorded that the Fishing cat are regular visitor to the local fish ponds. The work was followed by Taylor et al. (2015) and described the conservation status with perceived threats to the Fishing cat in KTWR. The same study believed records of human persecution of Fishing to occur based on the questionnaire survey to the local community. But the record of Fishing cat in the area goes back nearly to 100 years in 1919 when a male Fishing cat was recorded from the Bankalwa, Morang (Hinton And Fry 1923). The history goes back as the envoy of British Empire Lt. Colonel R.L. Kennion collects the different specimen of wild animals from Kathmandu and eastern Terai. N. A. Baptista who was the assistant of the Bombay Natural History Society collected the specimen from the Terai and the work was published by Hinton and Fry in 1923. The actual collection took place during August 1920 to March 1921. The publisher got the reference from the collection of Brian Hodgson deposited in the natural history museum of Zoological Society of London.

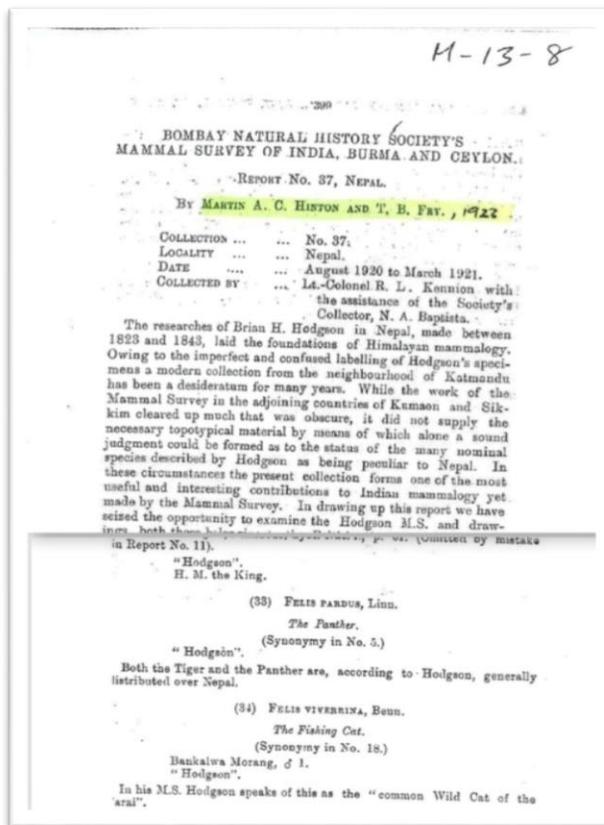


Figure 1 Fishing Cat recorded in Bankalwa in 1922 (Hinton and Fry 1922)

The exact location Bankalwa is located around 13 km east from the current Koshi Tappu Wildlife Reserve. It is a small village with dense human settlement located at 10 km north of east-west highway in Sunsari district near Dumraha VDC in eastern Terai. The area

was settled around 1960s when the barrage was built in Koshi River. Koshi River is at the west of Bankalwa. Tharu and Madhesi community are the major group of people. Their main occupation is farming, petty business (cycle repairing, small teashops, small shops, etc.) and teaching in the local schools. There are different villages near Bankalwa. They are Hasanpur, Lalpur, Ekrahi, Manpur, Singhiya, Budhnagar, Kalijhoda, Kunyahi, Mainbari, Dhamaura and many others. Sunsari River, Seraha River passes through Ramdhuni forest. Ramdhuni is a small patch of remaining forest in the middle of human dominated landscape. It's a religious forest and there is temple in the middle of forest. The forest is a secondary growth forest with very few old trees. Ramdhuni Ban is around 2 km north of Bankalwa.

During the expedition to the Bankalwa we recorded a place called "Belayati Chowk" (translated as British Chowk) around 3 km east from the modern day Bankalwa village which could be the camping site for the then expedition of British researcher. When we tried to find out the reason behind the name of the place nobody could give any satisfactory answer for naming the place as Belayati Chowk.

After the collection of Fishing cat specimen from unknown region of Nepal by Brian Hodgson in 1836 the next publishable record must be that of Hinton and Fry from Bankalwa as we could not get any record in between the time period of 84 years still 1919.

The attempt was made for searching the Fishing cat and Bankalwa in the eastern Terai during this project. Also, we tried to record the threats to the Fishing cat from the area.

## **2. Objectives**

The main objectives of the project was to:

- re-access the Fishing cat in Bankalwa after 1919
- conduct awareness campaign to the school children and local community
- identify the status if threats to the Fishing cat

## **3. Methods and Materials**

### **3.1. Study Area**

#### **3.1.1 Sunsari District (write about the fish ponds of Sunsari district)**

Sunsari (translated as like gold) district is located in southern part in the eastern Terai of Nepal. The political boundary is connected with India in south and lies at the eastern bank of Koshi River. Sunsari is a major site for agriculture production. The district has very fertile soil and hub of agriculture product like maize, paddy, wheat, mustard, sunflower, sugarcane and many others. Some areas near the bank of Koshi like Prakashour, Madhuban, Haripur, Paschim Kusaha always remains inundated and those areas are major fish farming sites. There are many hundreds commercial fish ponds in those areas which are also major Fishing cat habitat.

### 3.1.2 Ramdhuni Ban

Ramdhuni is a religious forest with the sacred Hindu temple at the centre. The area of Ramdhuni forest is nearly 20.4 sq. km. nearly 10 km east of Koshi River. Saal *Shorea robusta* is main tree in the area. The core area still has the primary forest but at the periphery secondary growth can be seen. Settlements are along the periphery of the forest. People generally use the forest recreational centre. Sunsari River, Seraha River flows crossing the forest.

### 3.1.3 Prakashpur (write about the fish ponds of Prakashpur)

Prakashpur is a major fish farming pocket area in Sunsari. Almost every household has a fishponds at the backyard. According to District forest Office the annual growth of new fish ponds was by 10 hector and five during 2014/15 and 2015/16. The long stretch of around 24 km at the bank of Koshi River is the major fish farming pocket area in Sunsari. Prakashpur is one such area.

## 3.2. Identify survey sites

Reconnaissance survey was conducted to identify the Bankalwa village and study sites nearby. Ramdhuni forest and Prakashpur area near Bankalwa was chosen for the camera trap survey.

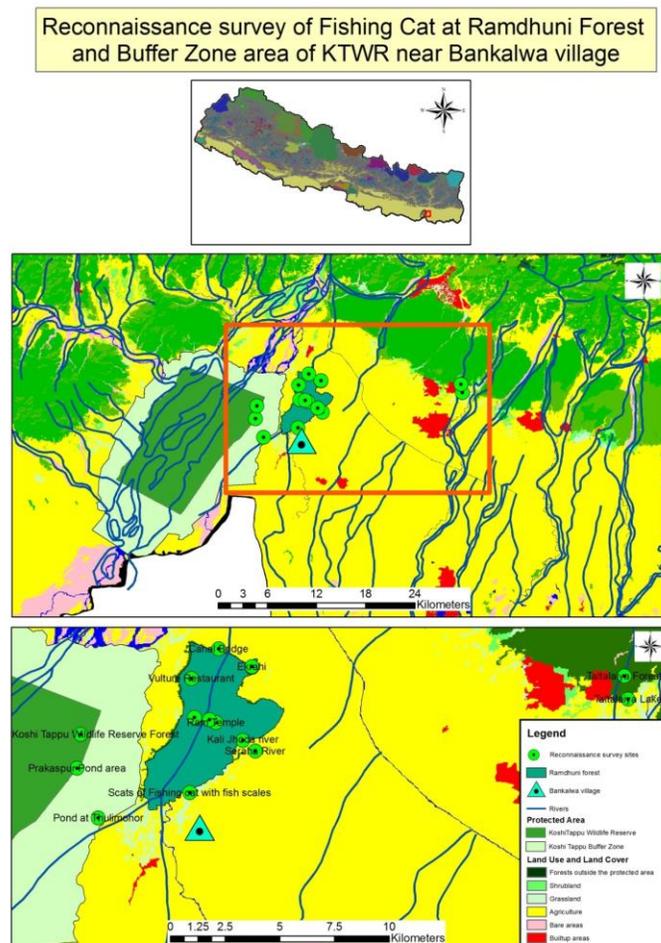


Figure 2 Reconnaissance survey sites of Fishing cat near Bankalwa village

### 3.3 Camera Trapping

Altogether 10 Camera Traps were used for the survey in Ramdhuni Ban Prakashpur area. The cameras were also installed in the fish ponds beyond these two sites. Camera were installed at the bank of Sunsari River in Ramdhuni forest and at the bank of Fish ponds in Prakashppur area.



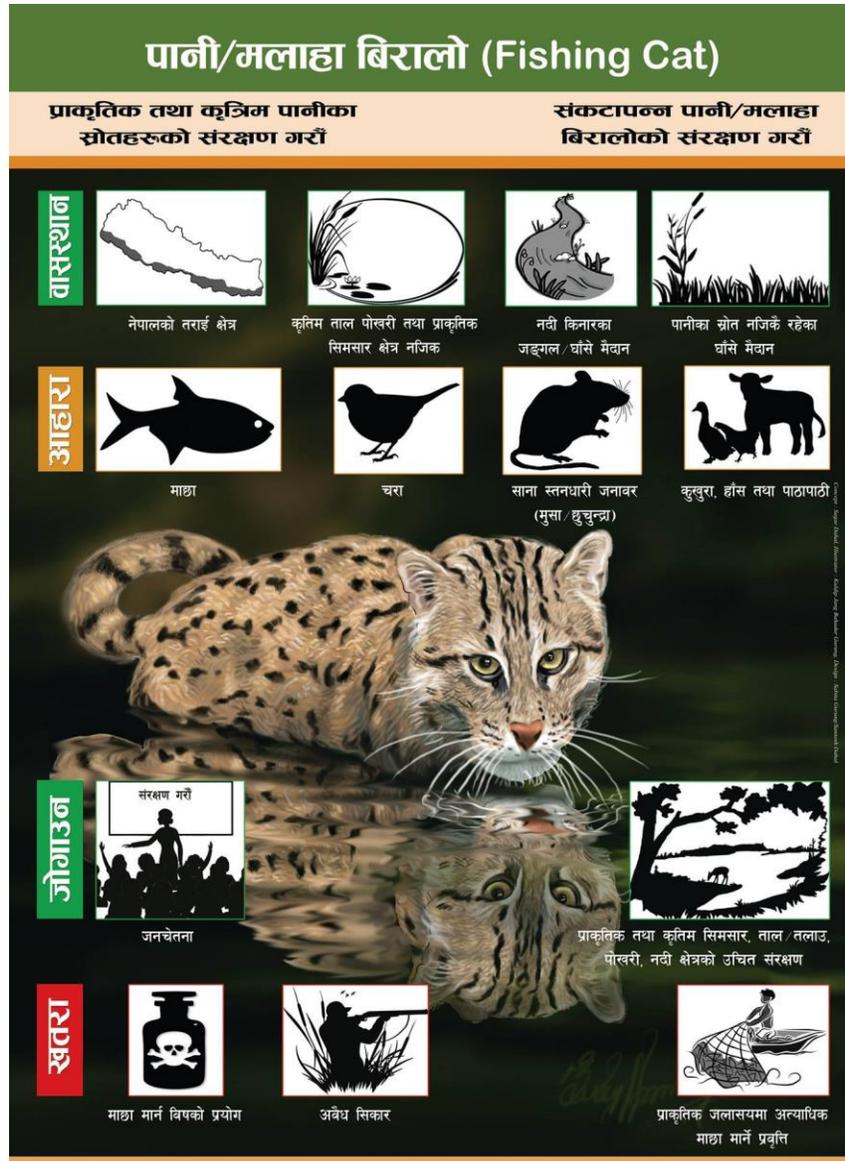
Figure 3 Camera Trapping at the bank of Sunsari River, in Ramdhuni forest



Figure 4 Camera Trap locations

### 3.4 Production of outreach materials

Four thousand copies of multicolor posters on Fishing cat conservation were produced to distribute during the conservation activities.



पानी बिरालो भेटिएमा कृपया जानकारी गराइदिनुहोला । ९८४१५०८४९४ (साना स्तनधारी प्राणी संरक्षण तथा अनुसन्धान फाउण्डेसन)

Figure 5 Posters prepared for the conservation awareness program

### 3.5 Conducting awareness campaign

Awareness campaigns to school children, fish farmers, officials of District Forest Officials and local communities were conducted.

## 4. Results

### 4.1 Ramdhuni Ban

We conducted the reconnaissance survey of potential Fishing cat habitat in and around the Sunsari River within Ramdhuni forest which is 2 km from the Bankalwa. The site was chosen based on the nearest possible place for the survey from Bankalwa because of the Sunsari river flowing and with good cover inside the forest. Also, there were many private fish ponds for commercially producing fish. We recorded the Fishing cat in a community fish pond at the place called Ekrahi in Lalpur at the vicinity of Ramdhuni forest. The area was little market place where the cat was captured with humans were dwelling most of the time in the day time. However, in the night by 7 o'clock people stay within their home. While talking to the local community they told us that the water of the fish ponds gets splashed in the night but they were not sure what it was. And most of the time there would be scales of fish in distance of 100/200 m from the pond. We captured the video footage of the Fishing cat patrolling the fish pond which confirmed its presence and was also the known eastern most record of Fishing cat in Nepal.

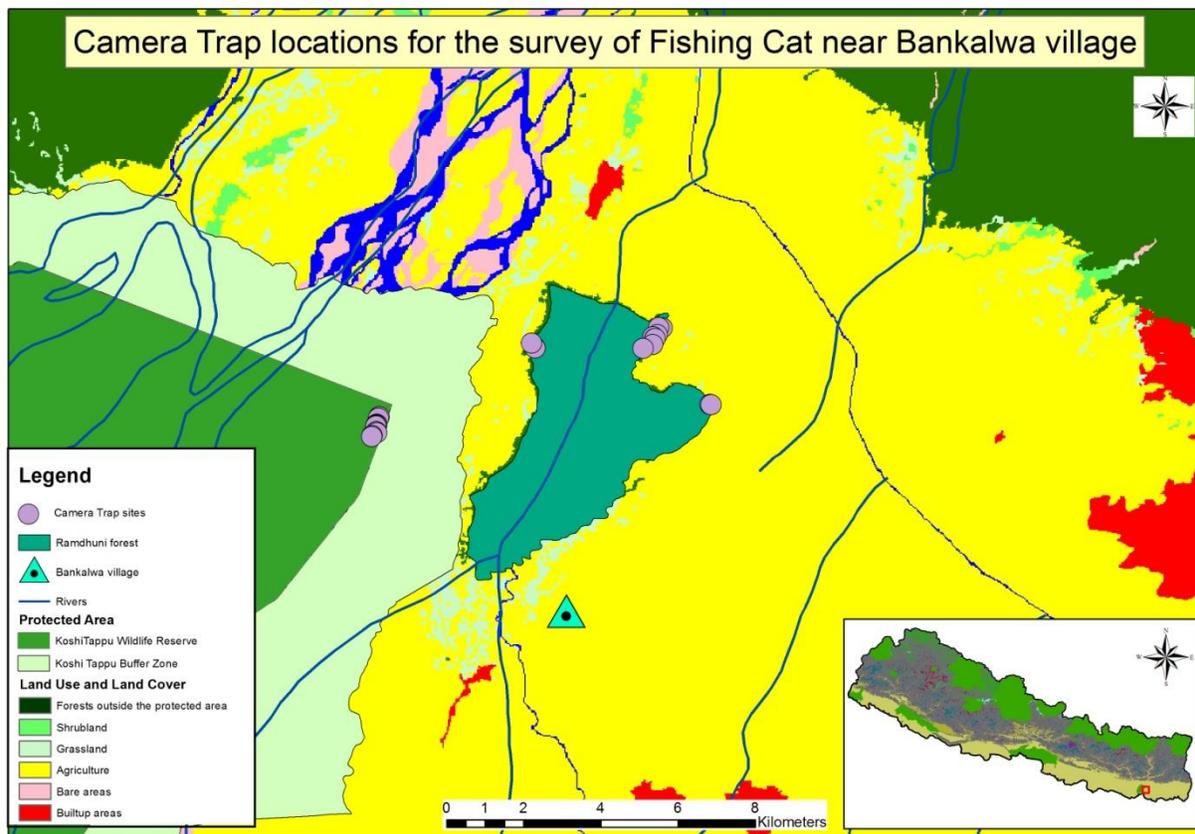


Figure 6 Camera rapping sites near Bankala Village for the assessment of Fishing cat

## 4.2 Prakashpur

According to locals who has frequently seen Fishing cat in their fish ponds said that it sometimes arrive in groups of 3 to 4 cats and take away the fish. The cats are highly routine and patrol the fish ponds for the opportunity of fishing. Due to their routine nature they are very much predictable cats and hence vulnerable for being hunted down. We did a series of camera trapping at the fish ponds of local villagers in the Prakashpur and recorded Fishing cat from two ponds nearly 300m apart. The live footage of Fishing cat was recorded on 3<sup>rd</sup> February 2016 at Prakashpur.

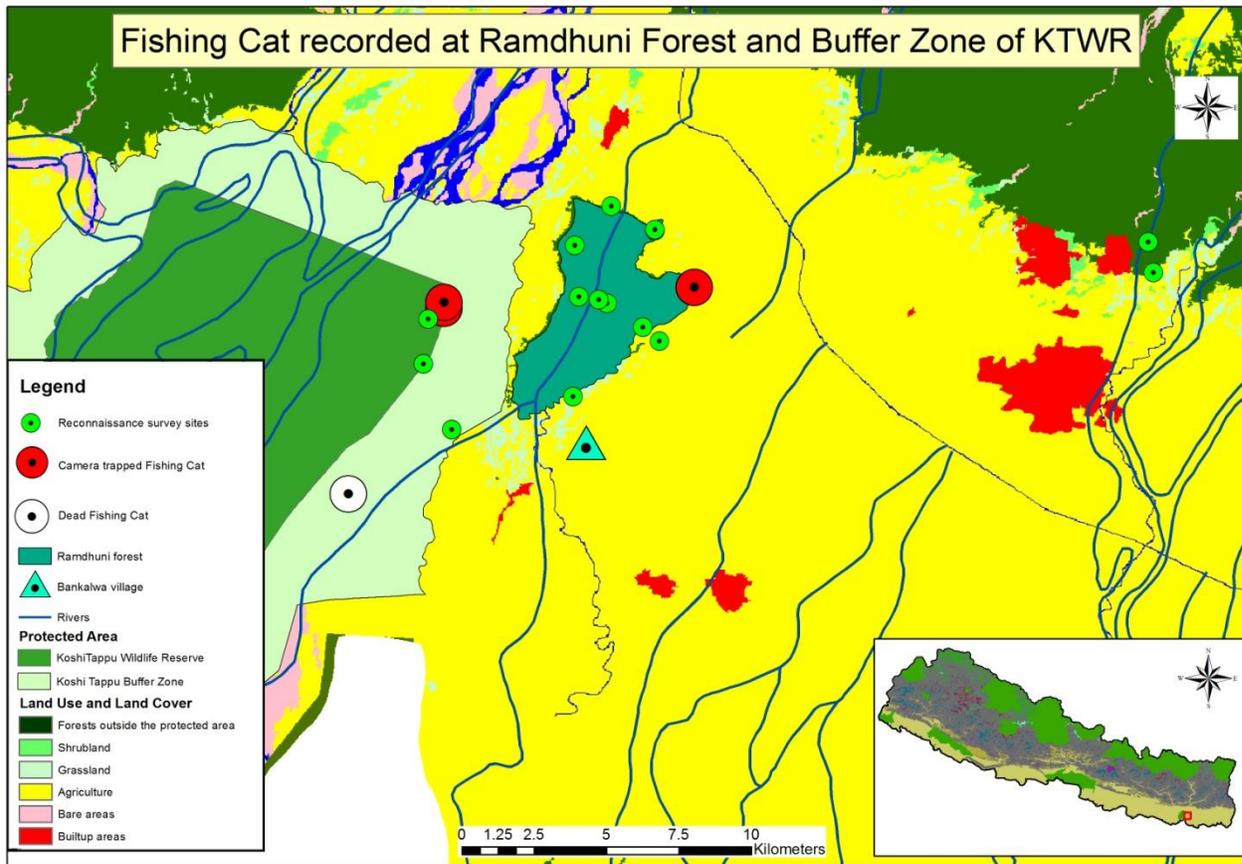


Figure 7 Sites of Fishing cat record during the survey

*Fishing cat captured in a video*

*3 Feb 2016*

*7: 04 PM – we went to stay by the pond in the blind*

*We (me and Angie) were searching for the Fishing Cat since a week and tried night outing since 26 January 2016. I had lost hope of getting the footage of Fishing Cat as we were approaching towards our departure to Biratnagar. We had found the pugmark, scats, dead specimen and the camera trapped photo but our effort to take the live footage of Fishing cat did not seem to be true. On 3rd February we decided to maximize our effort by staying night at the bank of fish pond. We made a blind in*

Bhisma Adhikari's pond. Angie and I had our own separate blind. We decided to sit by the pond because we had seen moving fish in the pond in the night and fish and frogs making the splashing sound once in a while. We built our blind afternoon with the help of Prem Adhikari (place where we are staying) and went to install the two more cameras in Salbandi near vulture restaurant.

We were waiting for the cat to arrive since 7 p.m. at the bank of the pond in our own separate blind. We were continuously surveying with the help of flash light and our cameras were ready. After patience of 90 minutes I sensed something moving from the bush and I waited for few minutes and switched the flash light on. The point I focused the light I saw an adult Fishing Cat at 8: 39 pm at the bank of river just above our blind. It was around 10 m away from my blind. I tried to remain as quiet as I could but my heart started to beat faster. I saw the cat but I was worried if I could arrange my camera and direct it at that direction of cat without making any rattling sound of switching on the camera. I was not breathing until I focused the camera and fixed my lens to take the video footage of the cat. It was rare moment. The cat did not move for 11 minutes. It yawned few times and quietly left the site.

Again after around 30 minutes a cat was seen at the bank of the pond around 35m away. It walked at the bank of the pond and without any fish moved away from the pond. I focused my light but the cat was very far away and could not take better footage. I don't know if it was the same cat or the other. The full video can be seen at <https://www.youtube.com/watch?v=KbDaojz8jVM>



Figure 8 Fishing cat recorded at the periphery of Ramdhuni ban near Bankalwa village

## 5. Threats to the Fishing cat

Quantifying the direct and indirect threats to the Fishing cat during the study period we assessed following threats to the Fishing cat in the area.

### 5.1 Retaliatory Killing

Talking to the community and local fish farmers we got enough evidences of Fishing cat and other wildlife crossing the KTWR to the buffer zone and human settlements and being the victim of retaliatory killing. Though the reserve administration is very strict regarding any evidences of the killing of the animals either accidentally or intentionally, the community finds its ways to take revenge to the fish stealing birds or Fishing cat. Fishing cats were electrocuted by deploying live wires at the bank of the fish ponds. Sometimes the entire family of cats used to get extirpated and buried to avoid the dismay of the evidences. This is a huge threat to the cat present in the area. Similarly, watch dogs are kept to check the human or animal intruder in the private fish ponds which even killed the Fishing cat. One such evidence of dead Fishing cat was recorded in Madhuban.

### 5.2 Opportunistic Killing

Fishing cat and any other not so normally found animal like Large Indian Civet, Large Indian Hare or Jungle cat if found alone or cornered gets killed by the community for the consumption. Local youths were seen roasting crab got from the Sunsari River in the afternoon near Ramdhuni forest. Talking to the young Tharu boys revealed that they have wiped out the deer species from the Ramdhuni forest and are not hesitant to kill even cats for bush meat. The meat is generally shared among the villagers and skin is kept by the witch doctor.



**Figure 8** Jungle cat killed in retaliation using poison

### 5.3 Pollution in river and poisoning

A group of Tharu women were observed collecting *Unio* from the Sunsari river. They were searching for the fish in the month of January 2015 near our study sites. Besides collecting

### 5.4 Ignorance about the species identification

Fishing cats are habitat specialist animal with patchy distribution within its distribution range countries and are in decreasing population trend with category Vulnerable in IUCN RedList. In Nepal they are recorded from all the protected areas of Terai except Bardia National Park and few sites outside protected areas like Jagadispur Reservoir of Kapilvastu district, Bodhban of Bara district and now Ramdhuni forest of Sunsari district.

All these habitats are equally used by more commonly recorded species like Jungle cat and Leopard cat. All these three species of cats if encountered by local community identify as the same cat and are persecuted indifferently as all three species of cats are known to take away poultry and pigeons. Hence, unlike Jungle cat and Leopard cat, Fishing cat has limited distribution and hence are in more threats due to the ignorance in species identification.

### 5.5 Dilemma of the Fish farmers

Fish farmers of Sunsari district face different problems regarding the fishing practices. During the discussion sessions with the fish farmer community there are following problems related to fish farming in the area.

- Fish is imported from India. The cost of imported fish is cheaper than producing them locally which cause the loss to the fish farmers as they have to compete in the market with lower quality fish from India.
- Fish farmers do not have hatchery and hence are lack of sufficient fish fry. The number of fish fry provided by the government is not enough to distribute among all the fish farmers which results gain in importing the expensive fingerlings from India. The imported fingerlings have to be travelled and are generally in poor health condition and not to the weight mentioned.
- The land prices are growing up and the fish farming practices are getting expensive.
- The subsidy provided by the government is nominal for fish farming. To get the subsidy of \$5000/- from the government farmer has to invest around \$50,000/- to \$70,000/0-
- Similarly, the government policy is also not favorable for the fish farmers. For eg. The maximum land a farmer can occupy is 6.77 hectares.
- The fish pellets are not easily found and is expensive. If the pellets could be made locally by the community of fish farmers the cost of pellets production would decrease.
- As the fish ponds are near by the Koshi Tappu Wildlife Reserve which is known as the paradise of birds and other wetland animals, fish are preyed by otters, birds, snakes and Fishing cat from the fish ponds.

- Due to the conflict with wild animals during fish farming, we have to increase the standard amount of fingerlings rearing in certain ponds by 7 to 8 folds so that even the loss caused by wild animals could be minimize during the yield which dramatically increases the cost of production.

All these problems with fish farming increases the conflict with Fishing cat and other wetland species including birds in the study area.

## 6. Conservation Initiatives

### 6.1 Conservation Awareness Program

One of the objectives of this project is to create conservation awareness program to the local community, school children and fish farmers. We conducted awareness program at different schools of Sunsari district. During the awareness program we distributed posters and booklets to the children to read and observe. Children were asked whether they have heard about the Fishing cat previously or if they have ever seen this cat. While presenting the lecture, we discussed on the distribution, food behavior, ecology, threats and conservation measures of Fishing cat with the children.



Figure 9 Fishing cat awareness program near Ramdhuni forest

Following schools were chosen for the awareness program.

***Unique Academy English Boarding School, Jhumka-5 Sunsari***

Altogether 94 children of grade eight and nine were present during the lecture.

***Janata Higher Secondary School, Singhiya-7, Sunsari***

Altogether 75 students of grade nine and ten were present during the lecture.

***Lord Buddha Higher Secondary School, Vhasi-5, Sunsari***

Altogether 88 students of grade nine and ten were present during the lecture.



**Figure 10** Poster distribution during the awareness program

***Amurt Academy, Itahari -5 Sunsari***

Altogether 45 students of grade six and seven were present during the lecture.

***Jyoti Secondary School, Halkora Chowk, Sunsari***

Altogether 39 students of grade six and seven were present during the lecture.

***Nava Kiran School, Jhumka Sunsari***

Altogether 28 students of grade six and seven were present during the lecture.

***Interaction with Fish Farmer regarding Fishing cat Conflict and Awareness Program, Agriculture Development Office, Sunsari***

Altogether 18 leading fish farmers of Sunsari district participated in the program. We discussed about the problems faced by the fish farmers and also the status of Fishing cat.

***Ramdhuni Higher Secondary School***

Altogether 50 students of grade nine were present during the lecture.

***Jay Saptakoshi English Academy***

Altogether 47 students of different grade took part during the conservation awareness program.

***Gyan Jyoti Primary School***

Altogether 21 students of primary level students attended the conservation awareness program.

***Prakashpur Dover School***

Altogether thirty seven students of grade nine and ten took part in the awareness program.

***Garden Academy***

Altogether 29 students of grade nine and ten participated the conservation awareness program

***Prakashpur Higher Secondary School***

Altogether 64 students participated in the awareness program.

***Jana Chetana Primary School***

Altogether 55 students of primary level participated in the awareness program on Fishing cat

***Unique Sagarmatha Educational Academy***

Altogether 38 students participated during the awareness program

***Sehara Primary School***

Altogether 46 students of primary level students took part in the conservation awareness program.

***Awareness Program for the Community***

A general awareness program to the local community which included adult's men women and children in Jhumka, Lalpur, Prakashpur, Thulimohor, Ramdhuni forest area were conducted where more than 300 people joined during the program.



Figure 11 Fishing cat conservation awareness program in school

## 7. Problems of Fish Farmers

Fish farming in the Terai of Nepal is difficult in Nepal due to following reasons:

1. Import of cheap fish from Andhra Pradesh and West Bengal
2. Fish farmers in Sunsari do not get enough fish fry and fingerlings and hence the net production of fish gets decreased.
3. Birds, Crocodiles, Snakes, Otters and Fishing cat regularly take away the fish from the ponds which decrease the net annual yield. Crocodiles, Snakes and Otters are mostly found during rainy season. Similarly, Birds and Fishing cat mostly visit the ponds in winter season.

4. The cost of land has dramatically increased due to which the new fish farmers could not buy the land for new fish ponds. Similarly, the land owning farmers are selling rather than excavating new fish ponds.
5. Government of Nepal provides subsidy to the fish farmers. The maximum amount is \$5000 but to get the subsidy farmer has to invest around \$50,000-\$70,000.
6. Fish pellet is expensive. 2 kg of pellets is needed to grow the fish to 1 kg. The cost of pellet is NPR 60/kg and the cost of fish is NPR 250/kg. In India the pellet costs around NPR12/kg which makes the yield very cheap and hence the fish in Nepal cannot compete with the Indian market.
7. To compensate the loss of fish from different wild animals and birds farmers keep around 6 times more fingerlings in the pond than standard amount which also increases the cost of the yield.

#### *Incidence of Thulimohor, Sunsari*

*Parsuram Karki lives in Thulimohor, Sunsari. He is a farmer and has huge land for agriculture farming. He is also a major fish farmer and has two big fish ponds. We were talking to the man himself regarding the presence of Fishing cat in the area. He had never seen the Fishing cat and told an interesting story about his fish farming.*

*In fish cultivation for the maximum yield different varieties of fish are mixed and grown like Big head, Common Carp, Grass carp, Silver Carp and Rohu. All these fish have their own niche in the ponds. For example Grass Carp and Common carp dwells near the bank of the pond. Grass carp consumes grass grown at the bank of the pond and common Carp are known to puddle the mud in the bank where as Rohu stays at the middle of the pond.*

*He said the Common Carp and Grass Carp are always lost during harvesting period but did not know why this happened. He was expecting human were involved for the lost but after our visit we assumed Fishing cats were taking the fish.*

### **8. Other Species recorded during the survey**

During the camera trap survey we recorded many other species like Large Indian Civet, Golden Jackal, Jungle Cat, Grey Indian Mongoose, Small Indian Mongoose and Rhesus Macaque. We recorded Large Indian Civet almost every day in Sunsari River in Ramdhuni forest.



Figure 12 Jungle cat recorded at Radhuni forest

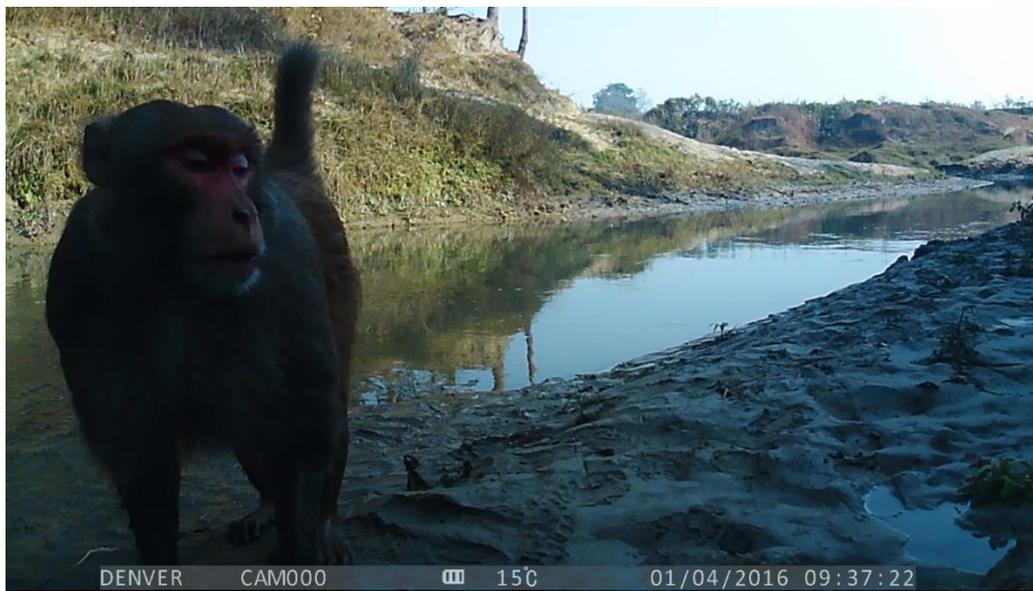


Figure 13 Rhesus macaque recorded at Ramdhuni forest



Figure 14 Large Indian Civet recorded at Ramdhuni forest



Figure 15 Grey Indian Mongoose recorded at the Prakashpur fish pond

## 9. Conclusions

1. The Eastern Terai in and around Koshi Tappu Wildlife Reserve is still a major habitat of Fishing cat. The study in 2012 suggested there are nine individuals of Fishing cat in Prakashpur, Madhuban, Kusaha of Sunsari district (Pandey and Kaspal 2012). There is a long stretch of around 24km where many commercial fish ponds are developed at the buffer zone of KTWR extending from Prakashpur to Kusaha in Sunsari district. The data of District Agriculture Office shows that every year nearly 10 hector area is converted to fish ponds in the district. Hence the population of Fishing cat is in danger from the commercial fish pond but this can also be an opportunity for the conservation community as the hunting ground of Fishing cat is increasing. Hence, proper conservation measures and collaboration with fish farmers must be carried out to safe guard the Fishing cat in this prime habitat.
2. The place Bankalwa was lost in the period of history and very less people knew about its existence in today's time. The old name has also been changed and we had to talk to old ladies to find out the exact location. However, it must have been an old place of settlement in the area. We believe during the biodiversity survey in August 1920 to 1921 by R.L. Kennion and N.A Baptista of Bomaby Natural History Society where they recorded Fishing cat with location named Bankalwa in Morang (Hinton and Fry 1922) should be the place where they must have camped. This is also supported by a chowk named Belayati Chowk (British Chowk) in the area. The hill people of Nepal only started migrating towards Terai during 1950s after the eradication of malaria. Government of Nepal encouraged deforestation to increase the farmland and settlements in Terai after eradication of malaria. Koshi area including whole of Terai was a dense forest and good habitat of wildlife including Tiger, Rhino, Elephants and many other species.
3. Fishing cats are still thriving after nearly 100 years of first survey in the area but the cats are facing many different threats in modern time and immediate conservation measures are warranted to preserve their natural habitat for next 100 years.

## 10. Recommendations

1. The awareness program on Fishing cat's conservation must be continued in all along the Koshi area in Sunsari district.
2. Conservation and survey on Fishing cats are concentrated on the eastern bank of Koshi which must be extended towards western bank. We don't know the information about their presence and threats to them across the river.
3. Fish farmers and local community must be involved during the conservation activities. Awareness campaigns are not enough to conserve the cats when they are in direct conflict with fish farmers. The conservation awareness programs benefiting both fish farmers and Fishing cat must be carried out. Only then the conservation of Fishing cat in long term can be achieved.

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