



# 10

**years of camera-trapping  
in Pakke Tiger Reserve**

**[ 2006-2016 ]**







*Attack*

12/26/2012 12:36 PM

**Cuddeback**  
Digital

A camera trap image of Tayem babu the next day after Christmas in 2012. Two years later he was taken away from us forever.

## DEDICATION

Karo Tayem was the first prize winner for the first-ever camera trap photograph competition we started in 2013. On Christmas day in 2014, Karo Tayem who was camp in-charge brought some meat and vegetables to give his camp staff. On the same day, while he was returning with his wife, he encountered a wild elephant. We were shocked that this would be fatal to our 'Tayem babu', as we fondly called him.

*This book is dedicated to our Tayem babu who can never be forgotten.*



Karo Tayem receiving his prize from Tana Tapi and Nandini Velho.





**NO.CWL/2016/100**

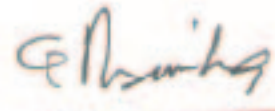
**Dated 25<sup>th</sup> April, 2016**

**FOREWORD**

I am happy to note that Shri Tana Tapi, Divisional Forest Officer (Wildlife), Pakke Tiger Reserve has prepared this report on camera tapping in Pakke Tiger Reserve for a duration of 10 years. The diversity of species and behavior of wild animals photo captured by him and his team is quite impressive and endearing. Some of the images contained in this publication may not only be first in Pakke, Arunachal Pradesh but also in India and the world too.

This publication bears ample testimony to the tireless efforts of officers and staff of Pakke Tiger Reserve towards their commitment to protection of our national heritage. I am, therefore, particularly proud of the success story of conservation in Pakke Tiger Reserve. The inspiring story of its dramatic turnaround may be emulated by other Park Managers in Arunachal Pradesh.

I congratulate Shri Tana Tapi, DFO (Wildlife) and all forest staff in doing excellent work of conservation in Pakke Tiger Reserve and in bringing out this publication.

  
\_\_\_\_\_  
(G.N. Sinha)



# THE CAMERA-TRAPPING PROGRESS OF PAKKE...



Photo courtesy: Subhamoy Bhattacharjee

I am happy to bring out this report on ten years of camera trapping in Pakke. In this report, you will see that we have made progress stage-wise in terms of capacity building and we now do camera trapping on our own. We started camera trapping for the first time in 2006. Then Trailmaster TM with a customized 35mm film roll camera was used. As we had no anti-poaching camps, I personally camped on the river bed with the Wildlife Institute of India team, deep inside the forests of Pakke. We were excited to get the first black-panther and tiger photographs on our camera traps. Since 2009 we started camera trapping annually but we didn't have our own camera traps. We then started using Moultrie, Cuddeback and Reconyx digital camera traps. But by then we had built a patrolling road and many anti-poaching camps, so we didn't have to stay on the river bed. During that period WWF-India and several other researchers helped my staff in camera trapping. In 2012-2013, we recruited a field biologist for the department and bought camera traps of our own. From 2013 onwards we have been conducting camera trapping departmentally with our own cameras. The excitement and anticipation of what each year of camera trapping holds keeps all of us excited.

A handwritten signature in black ink, appearing to be 'Tana Tapi'.

Tana Tapi  
30<sup>th</sup> April 2016

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# STAFF IN THE FIELD



Tana Tapi helping set up camera traps in the field.

*Attack*

12/5/2013 4:43 PM



Tana Tapi explaining grids.



DFO taking part in sign surveys in 2012.

We provide a glimpse of my staff at work: training, doing sign surveys, setting up camera traps and finally winning prizes. We have had some moments that brought a smile to our face. There were reports of cattle kills from the lower eastern boundary of Pakke. I constituted a team to monitor these incidents and soon we got the first image of a tigress with cubs. There were no retaliatory killings thanks to the unfailing efforts of my field staff.



Kimo Ramba, Range Forest Officer of Tippi, helping set up camera traps with his team.



PB Rana, Range Forest Officer of Sejosa, taking part in camera trapping.





Jimmy Borah conducting training in 2012.



Staff conducting sign survey in Dena in 2015.



Jo'n Tana and Tinku Kino monitoring camera traps.



Lakhinur Kunglani and Moneswar Doimary checking camera traps.



Field biologists Chandan Ri and Nilmani Rabha lead the sign survey around Nameri anti-poaching camp in 2015.



Kandra Brah checking camera traps.



Camera trap set up on the river bank of Dihi.





> In 2006 when camera trapping had first started we photo-captured four individuals. The sampled area was 347 km<sup>2</sup>. Of the four individuals, Koro Tayem's tiger is still being photo-captured (until 2016). With time, the sampled area has also increased to the upper reaches - in the hills and also areas like Elephant Flat & Kimi. We have expanded our sampling area to 424 sq km (data from 2014-2015).

> From 2006 to 2016 we have got 19 individual tigers (8 females, 6 males and 5 individuals whose sex we do not know). Tigers have unique stripe patterns like human finger prints. Here we catalogue every tiger we have photo-captured since 2006.

> Deciphering our tiger code: Eg: PTR<sub>3</sub>M: PTR – Pakke Tiger Reserve; 3 – Serial number of the tiger based on the first time of its capture; M – Sex of the individual (Male); F – (Female); UN – (gender unknown)

**PTR<sub>1</sub>UN** – This individual was first photo-captured in 2006. We have only one image of the left flank.



**PTR<sub>2</sub>UN** – This individual was also first photo-captured in 2006 and sex could not be identified.





**PTR3F** – This was the first tigress to be photo-captured in PTR.



**PTR4M** – Karo Tayem's growing tiger was first photo-captured in 2006. This is the longest living male tiger in Pakke. This prize-winning individual was photo-captured while growling at the camera. The next year the team that got this tiger won a prize again.





**PTR5F** – She was first photo-captured in 2009–2010. We found that she was lactating but we did not get her cubs as we had few camera traps then.



**PTR6F** – She was first photo-captured in 2009–2010. She is the longest living tigress in Pakke. In 2015-2016 this individual was captured along with two other individuals (probably one sub adult and a cub).



**PTR7M** – He is our Santa Claus tiger for he was photo-captured on 24<sup>th</sup> December 2013. He is the largest of all the tigers. This individual in particular moves over a large area from Tippi to Nameri (east).

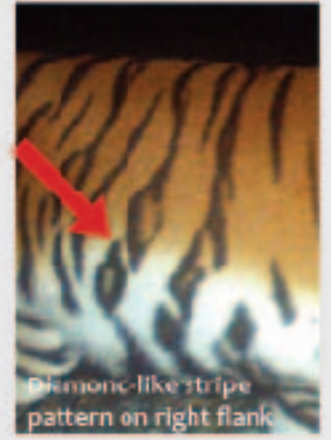




**PTR7M**, the Santa Claus tiger.



**PTR&F** – She was first photo-captured in the 2010–2011.



**PTR5M** – He was first photo-trapped in 2010–2011. He was last captured in the 2011–2012 in the trapping conducted by WWF – India. It was also misidentified as PTR5M.



**PTR10F** – She was first photo-trapped in 2012–2013. This individual is the only tigress photo-trapped along the lower eastern boundary of Pakke. She has the lowest recapture rate of all tigers in Pakke.





PTR10F, which has the lowest recapture rate of all tigers in Pakke.



PTR11F – She was one of the two individuals captured just one hour after the installment of the camera. She stood in front of the camera and was found sniffing on the ground.



The NamerI team won the first prize in 2013-2014 for the close-up image of this tiger. It is identified by its hook-like pattern on the left flank, and an angled-straight line on its right.





**PTR12M** – This is our poster tiger. He was first captured in the 2012 – 2013 trapping session; he was photo-captured for the first and last time in Pakke but then found in Nameri Tiger Reserve.



**PTR13UN** – Captured along with PTR14F.



There are only two images of the right flank and one video clip making it difficult to identify.



**PTR14F** – She was first photo-captured from Nameri Tiger Reserve in 2012–2013. She was photo-trapped not very far from the park headquarters in 2014-2015. The next year we noticed that she was lactating.



**PTR15F** – She was first camera trapped in 2014–2015 and brought a smile to us. There were numerous cattle kills reported from the fringe villages in the lower eastern boundary of Pakke. We formed a team of Range Forest Officer, Forest Guards, STPF's (Special Tiger Protection Force) and mahouts with camp elephants to monitor this situation and avoid any retaliatory killings. After a long-wait of 8 months we got a mother & her two cubs for the first time in Pakke. One cub was a male and the sex of the other could not be identified.





**PTR16M** – This sub-adult male was photo-trapped a minute after PTR15F was photo-captured.



Tong-like pattern on right flank



**PTR17UN** – This is smallest individual of all the three tigers that were photo-captured. There were no images of the cub due to its fast movement in front of the camera, but it was recorded in the video.



Thick diamond pattern of left flank

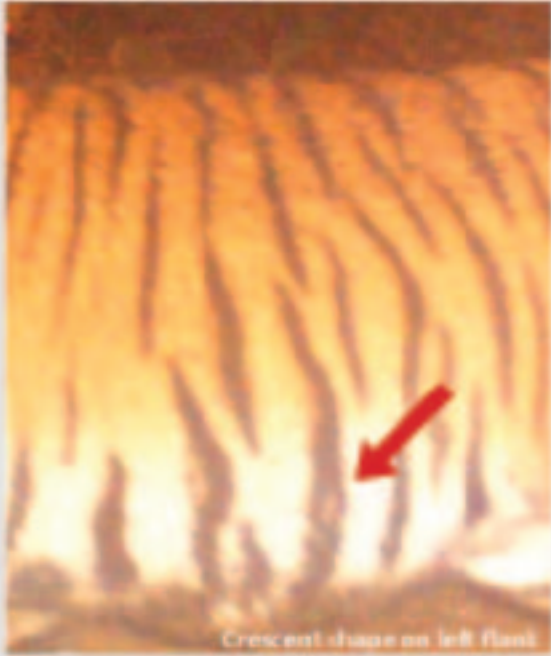


**PTR18M** – A new sub-adult tiger was photo-captured for the first time in the middle of Tippi range in 2015-2016. We suspect that he is the offspring of PTR6F, our longest living tigress.





**PTR19UN** – Photo-captured (in 2015-2016) for the first time in the middle of Tippi range. This un-sexed individual is probably the other cub of PTR6F.



**PTR20M**: A new male was first photo-captured from a ridge in the middle of Tippi range and the next image captured from the edge of Seijosa range.





**PTR21M:** We got only one image of this individual. A video shows this tiger marking its territory by spraying on a rock near kachua matha (a rock shaped like a tortoise head).

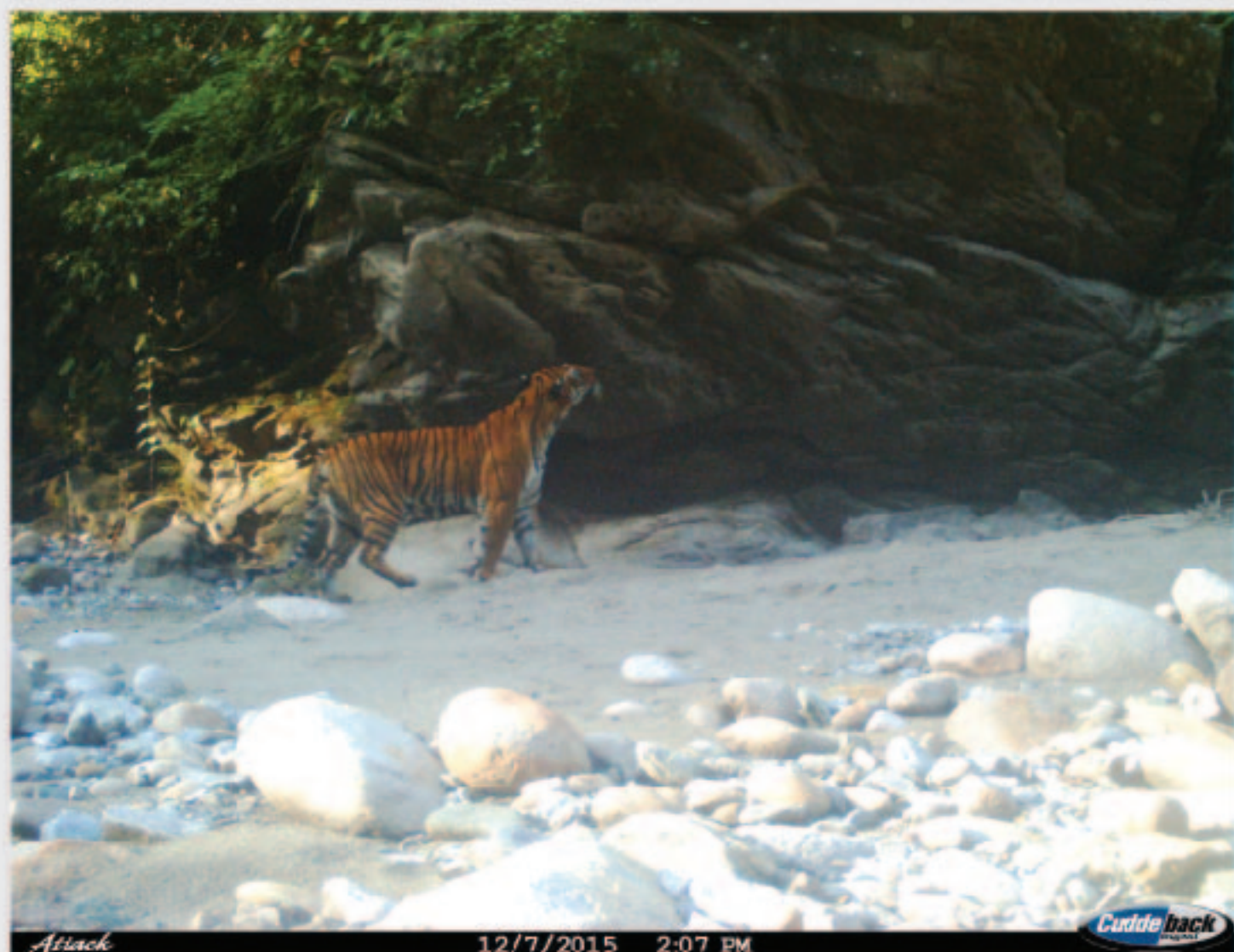


Table 1: Camera-trap histories of tigers in Pakke. The New Tiger ID's are what the department uses presently according to the tiger's that were captured and named year-wise. The Old Tiger ID's are what were given by WII and WWF-India.

Sl.No.	New Tiger ID	2006	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	Old Tiger ID
1	PTR1UN	✓	0	0	0	0	0	0	0	PTR1UN
2	PTR2UN	✓	0	0	0	0	0	0	0	PTR2UN
3	PTR3F	✓	✓	✓	✓	0	0	0	0	PTR1F
4	PTR5F	0	✓	✓	0	0	0	0	0	PTR2F
5	PTR4M	✓	✓	✓	✓	✓	✓	✓	✓	PTR3M
6	PTR5F	0	✓	0	✓	✓	✓	✓	✓	PTR8F
7	PTR7M	0	✓	✓	✓	✓	✓	✓	0	PTR9M
8	PTR9M	0	0	0	✓	0	✓	✓	0	PTR5M
9	PTR8F	0	✓	0	✓	✓	0	0	0	PTR11F
10	PTR10F	0	0	0	0	✓	✓	0	0	PTR12F
11	PTR11F	0	0	0	0	✓	0	0	✓	PTR13F
12	PTR12M	0	0	0	0	✓	0	0	0	PTR13M
13	PTR13UN	0	0	0	0	0	✓	0	0	PTR13UN1
14	PTR14F	0	0	0	0	0	0	✓	✓	PTR14F
15	PTR15F	0	0	0	0	0	0	✓	0	PTR14UN1F
16	PTR16M	0	0	0	0	0	0	✓	0	PTR14UN2M
17	PTR17UN	0	0	0	0	0	0	✓	0	PTR14UN3
18	PTR18M	0	0	0	0	0	0	0	✓	PTR15UN1M
19	PTR19UN	0	0	0	0	0	0	0	✓	PTR15UN
20	PTR20M	0	0	0	0	0	0	0	✓	NA
21	PTR21M	0	0	0	0	0	0	0	✓	NA



# NOT JUST TIGERS THAT WIN AWARDS...



Rare behavior of a Himalayan brown goral and barking deer in the same frame.

When we give prizes we also take into consideration good placement of camera traps, interesting species behaviour, profile shots of species or just nice composition.



In Sukhanallah -3 a well-placed location on the ridge yielded a clouded leopard, common leopard and a pair of marbled cats.



A profile photograph of a wild-pig won the third prize.  
Photo: Marka Tachang



# CO-PREDATORS: COMMON LEOPARD



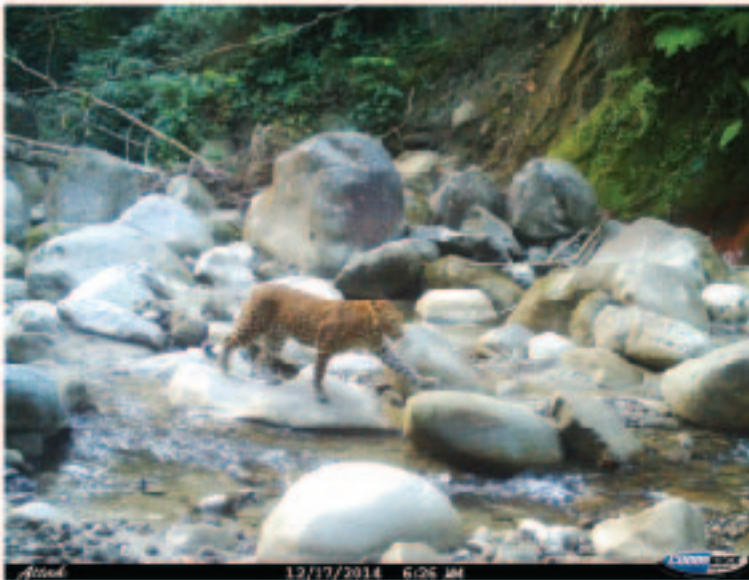
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12/3/2012 3:22 PM

Cuddles back

In 2012-2013, we first recorded a melanistic leopard and a normally-patterned leopard together. In 2015-2016 we got another photograph of the same.

We have got many captures of leopards from all across Pakke. A study that primarily focused on wild-dogs (Muthamizh et al. 2012) estimated that there were  $9_{\pm 3.5}$  in Pakke. We are yet to estimate the number of leopards in Pakke.



Attack 12/17/2014 6:26 AM

At 6:20 am on the 27<sup>th</sup> of December, 2014 a leopard walks by.



Attack 12/27/2014 10:53 AM

About four hours later our staff Lakhiram Rongham takes almost the same steps.



Attack 2/12/2015 11:33 AM



# CO-PREDATORS: ASIATIC WILD DOG OR Dhole



A study done on dholes found average pack-size to be 3. Subsequently, we have found pack-size to be bigger. We are beginning to get some interesting biological insights on this species. On 20<sup>th</sup> January, 2014 we got a video of wild-dogs mating.



A record of a pregnant wild dog on 13<sup>th</sup> January, 2016.



# CO-PREDATORS: ASIATIC BLACK BEAR



Attack

1/8/2014 11:31 AM



A mother and two cubs photo-captured for the first time on 8<sup>th</sup> January, 2014.

Pakke Tiger Reserve remains an important strong-hold for Asiatic black bears. This species is poached for their gall bladders in many other parts of the state. There is a rehabilitation program in Pakke where orphaned bear cubs from all over Arunachal are homed back into the wild.



Attack

1/21/2015 4:26 PM



Attack

1/20/2015 8:18 PM



Attack

1/13/2012 7:20 PM





# PREY

Sambar & rodents were the principal prey of leopards. The biomass of gaur & sambar contributed 77% to the tiger's diet. Wild pig & sambar were the major prey species for dholes.



Barking deer with fawn



Indian gaur with calf



Adult wild pigs with piglets



Sambar deer



Himalayan serow



A camera-trap photograph of a Himalayan serow.



Hog deer are photo-trapped mostly in grasslands.





Khaleej pheasant



Grey-peacock pheasants are also heard on transects



Indian gaur



Red junglefowl



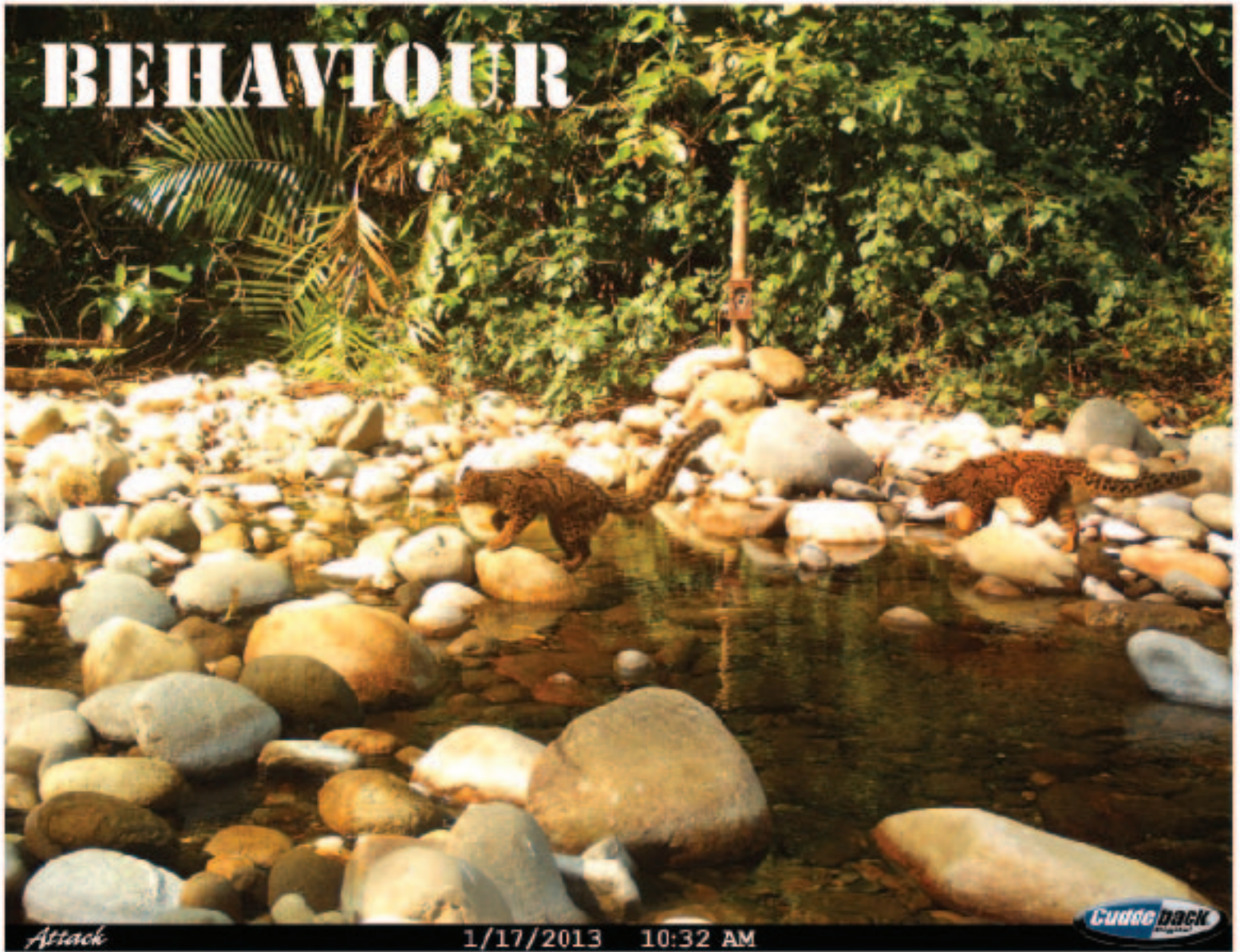
Himalayan brown gorals are usually photo-trapped in rocky areas.

Table 2: Density estimation of prey species in Pakke Tiger Reserve

Sr No.	Year	Prey species	Density <sub>±SE</sub> (sq km)
1	2012-2013	Sambar	12.89 <sub>±2.6</sub>
		Barking deer	5.53 <sub>±1.1</sub>
2	2013-2014	Sambar	13.50 <sub>±5.0</sub>
		Barking deer	7.48 <sub>±1.6</sub>
		Gaur	5.54 <sub>±3.3</sub>
		Wild pig	1.25 <sub>±0.5</sub>



# BEHAVIOUR



Marbled cat pair.

Camera traps can give us important information on species behavior. A pair of marbled cats was photo-captured on 17<sup>th</sup> January, 2013. Two years and two days later (19/1/2015) there was another image of a marbled cat pair from a different location. We also got the first day picture of a clouded leopard from Pakke. Most pictures of this species are at dusk or at night.



First day picture of a clouded leopard.



This and the photo above might give us clues about the breeding season of marbled cats.





A male sambar checking the receptivity of the female.



A red-jungle fowl and melanistic leopard in the same frame.



A Large Indian civet with a carcass.



Love, war and fun with Pakke's elephants: Two males fighting.



A calf suckling.



Kicking a camera trap.



# WE ARE FAMILY



For the first time in Pakke, three leopards together.

Sambar and other prey seem to be recovering as well as recruiting.



We have several photographs of elephant calves. They are often very curious about our cameras.



At Pakke we feel particularly happy when we see young one or animal families together. It means that we are protecting Pakke well.



Himalayan crestless porcupines with baby.



# RARITIES



A melanistic leopard – with a melanistic cub and a normally patterned cub.

We have got some very rare and prized captures such as the Chinese pangolin and different morphs of golden cats (including a completely melanistic form).

## Different morphs of Golden cats:



## The first record from Pakke of a completely melanistic Golden cat:







Attack

1/10/2014 10:09 PM



Two tuskers together – a sign of reduced hunting pressure. Pakke has a count of 259 elephants and 13 tuskers.

Two photographic records of the endangered Chinese pangolin:



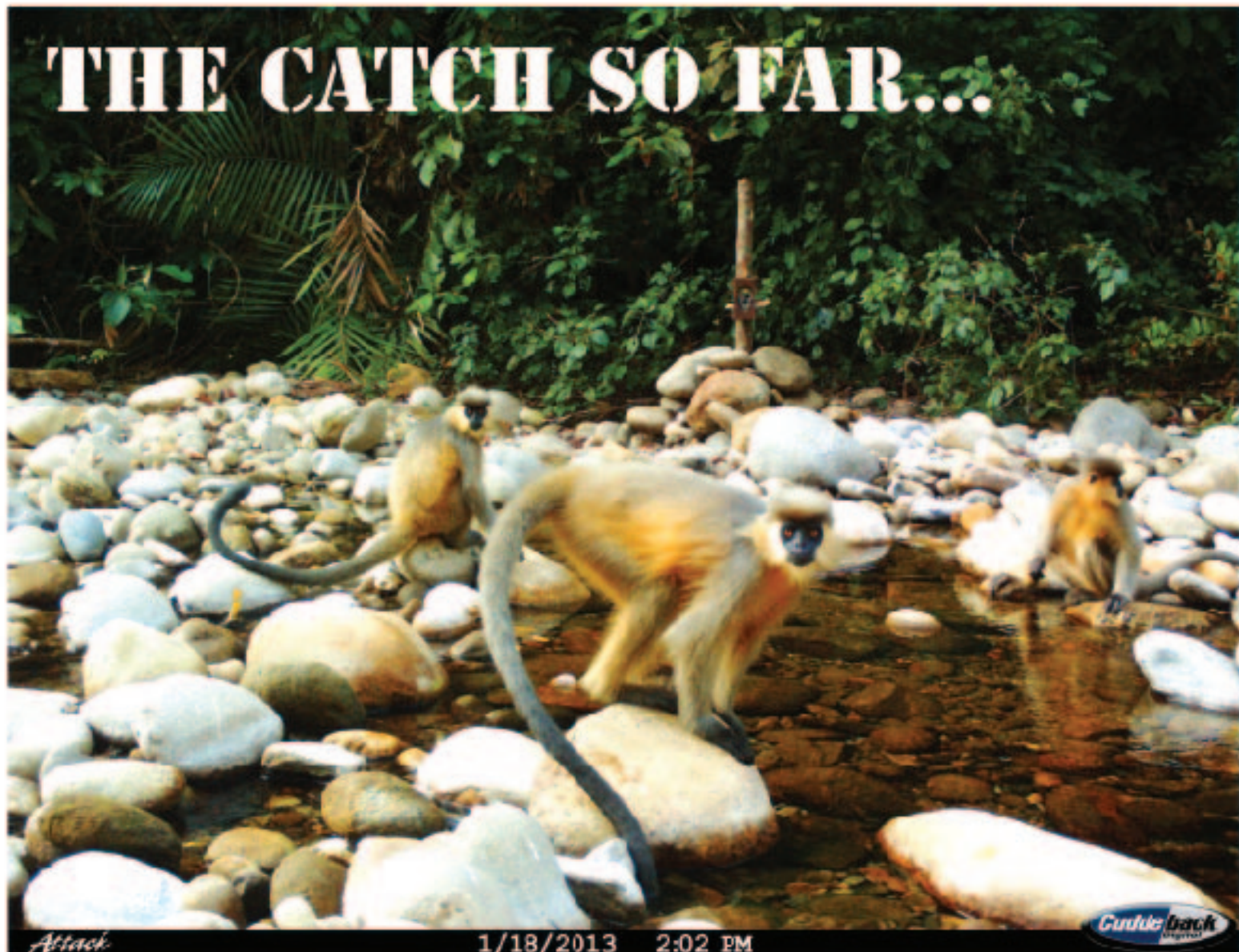
1/11/2015 9:29 PM



2/19/2017 9:05 AM



# THE CATCH SO FAR...



Attack

1/18/2013 2:02 PM



Capped langur

Besides the species above, we also have got many other species in our camera traps. Here is a glimpse of a few:



Attack

1/15/2013 10:34 PM



Black-naped hare



3/07/2011 10:00 PM



Himalayan crestless porcupine



Attack

12/28/2012 12:51 PM



Wild pig



Attack

12/17/2012 11:46 AM



Barking deer





Attack

1/18/2015 12:59 PM

An Asian elephant tusker in the sunlight



Attack

1/17/2012 3:07 PM

Assamese macaque



2/28/2011 7:41 PM

Small-clawed otter



6/24

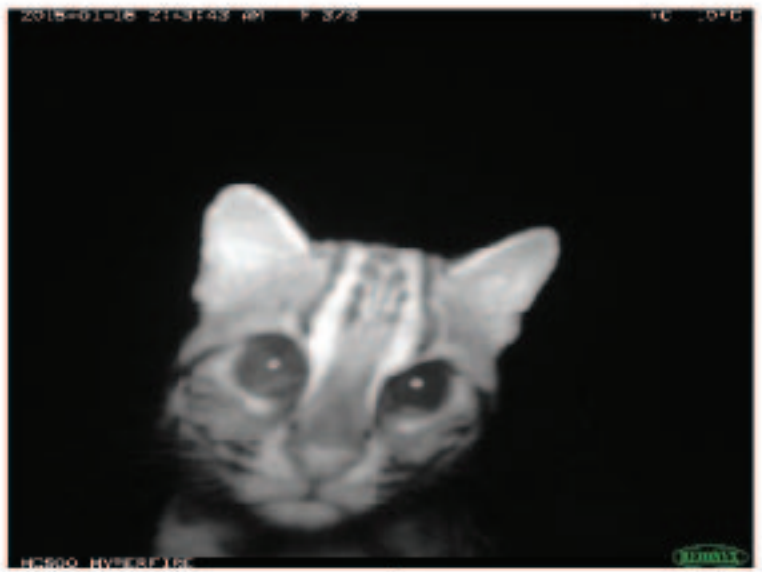
1/27/2011 3:15 PM

Yellow-throated marten





Leopard cat



Leopard cat



Small Indian civet



Crab-eating mongoose



Large Indian civet



Common palm civet



Melanistic leopard





Crested serpent eagle



Oriental Pied Hornbill



Black stork



Himalayan thrush



Small blue kingfisher





## WATCH

two films with footage from our camera trapping work in Pakke (by Felis creations and Ram Alluri).

## READ

our article on camera trapping *Camera's don't lie the return of Pakke*. Also refer to Conservation India and Saevus.



## FOLLOW

our Pakke Tiger Reserve Facebook page for updates on camera trapping.

Special thanks: Chandan Ri, Nandini Velho and Aathira Perinchery

Looking forward to know, discover and protect Pakke.

- Tana Tapi