

The Dung Case Files

A behind the scenes investigation

A late morning walk with the mahouts of Bannerghatta National Park, to locate and retrieve the captive elephants turned out to be a knowledgeable lesson on indirect observation. We reached a watchtower to try and see whether we could spot the captive elephants and waited there for a while. While we were there we noticed quite a few signs of free ranging elephant activity around us; there were several interesting observations that emerged just by looking at the area, the activity they engaged in and the time which they spent there.



Figure 1: An elephant ‘hot-spot’ in the park.

The niche the elephants chose to rest was extremely interesting- it was a semi-open forest type which bordered the forest on one side and the agricultural lands to another. Were the elephants using this location as a resting stop before raiding crops or had they raided the crops and were on their way back to the forest or were they there for other reasons? When we looked objectively at the evidence before us we came to understand that the elephants had

probably been there in the early hours of the morning; as the dung was still fresh and had quite a bit of moisture indicating that the sun hadn’t dried it completely.

The flattened grass and numerous dung piles around us showed that the elephants spent a considerable amount of time there and not just used this location as a thoroughfare. This evidence was further compounded by the signs of a dust bath indicated by the patterns on the ground made by the sweeping of the trunks. Normally, this activity usually tends to take place when the animal isn’t moving or walking. Elephants usually use the shade of the trees during the day as a protection against the harsh sun-, it can be assumed that this particular activity took place in the early hours of the morning when the sun still hadn’t reached its zenith there was no requirement of the shade. There were no visible signs of feeding- such as grazing or browsing. So what was the attraction to the area?



Figure 2: Evidence of elephant trunk patterns on the ground indicating looping of soil.

We then started to look at what the elephant had probably eaten which would give us an understanding of whether they were crop raiders. When we examined the dung it showed that they had eaten a natural diet which showed no indication of agricultural crops. The



Figure 3: A fresh intact elephant dung pile.

fact that the boluses still retained their shape even after falling from a height (elephants are after all large and tall mammals), showed the efficiency of their digestive system and no unnatural element in their diet. Prying apart the dung was quite difficult and I eventually had to get into the hands on approach as it was quite fibrous and well packed. If there was an unnatural element in their diet the boluses would not have been so firm and intact. This showed that they probably weren't on their way back from raiding crops- but this didn't eliminate the possibility that they used this area before they went on to raid crops.

There were more than 7 dung piles which were present in the area. Were they made by the same individuals in the group or was it a large herd that was there? When we looked closely at the piles there seemed to be a sizeable difference in the boluses. Elephants

usually defecate about 15-20 times a day- and each elimination contains about 4-7 boluses. Observing the piles in question- showed that the elephants in the herd would have defecated their normal expected quantity and individual elephants would not have had to eliminate smaller piles as well. This helped us see that these piles were after all made by different elephants.

The size of the boluses in the different dung piles varied in size- one was much bigger than the others and others were relatively smaller. We could conclude the size of the boluses corresponded to the size of the elephants in question. However, making a general statement like that in the field of science is never a question and sometimes seeing -does often not believe. Therefore we needed to take measurements to make an accurate statement. Here we were in a predicament because we didn't have tape and we had to rely on our creativity and imagination to use tools from the natural environment.



Figure 4: Measuring the elephant dung circumference in the field.

Plucking a tall dry long grass to use as a measuring tape I proceeded to look at a whole boli- never having taken a measurement of elephant dung before I was at a loss. Do I take the length and breadth of it? Do I take the circumference? If so how- the latitudinal or longitudinal? The logical side of me needed much exertion of the grey matter and with much prodding and questioning from Dr Varma I concluded that it had to be the longitudinal circumference. This is because the length of the boli could vary but the

circumferential measurement of the digestive tract is what is unique which could only be attained through the longitudinal circumference.

Taking the circumference of one dung pile was easy as you could just carry the blade of grass back to the center to be compared against a measuring tape. But what was to happen if I had to count over 7 different dung piles I would probably get confused which blade of grass belonged to which dung pile. Once again logic had to take a hold and I had to figure out the best way to take down my measurements without the help of a tape. After taking the measurements, drawing the length of the blade of grass on a piece of paper and assigning a code for each of the different piles was the easiest way to take down all of the required dimensions.

The original question of whether the elephants were there to crop raid wasn't still answered and there was no conclusive evidence pointing to that direction. However through the process of elimination we could assume that it could have been a strong option. Even so with all of the other observations and insights which were learnt that day I didn't go back a poor woman. It just goes to prove that there can never be a dull day spent in the field when you have a variety of nature based crime scenes to evoke the investigator in you.

Story: Sagarika Phalke

Editor: Avinash Krishnan