

# 'It is important to study human-elephant conflict, but it is also important to understand elephants' backgrounds and society'

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## 'It is important to study human-elephant conflict, but it is also important to understand elephants' backgrounds and society' Premium

The talk was a part of 'Kaapi with Kuriosity', a monthly public lecture series organised by the International Centre for Theoretical Sciences (ICTS-TIFR) in collaboration with the Jawaharlal Nehru Planetarium and other educational institutions in Bengaluru

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Preeti Zachariah

'Elephant behaviour varies, in areas where there's a lot of disturbance, elephants behave very aggressively, whereas, in places where elephants realise people are not a threat, they are not so aggressive,' says Vidya. | Photo Credit: Special arrangement

"Elephants are a good system for studying socio-ecological predictions," says ecologist T.N.C. Vidya at a recent talk titled *Understanding Animal Societies* held at the Jawaharlal Nehru Planetarium in Bengaluru. Vidya is referring specifically to Asian elephants, which she studies because they live in a wide range of habitats and are highly social. Females lead their complex

societies, while males disperse out of the herd when they are 10 years old, she points out. The males may temporarily associate with males and females from other herds, but they are alone the rest of the time, unlike female elephants, who continue to spend their lives in these herds.



Vidya at the ICTS event at the planetarium. | Photo Credit: ICTS

This talk, part of 'Kaapi with Kuriosity', a monthly public lecture series organised by the International Centre for Theoretical Sciences (ICTS-TIFR) in collaboration with the Jawaharlal Nehru Planetarium and other educational institutions in Bengaluru, also revealed fascinating insights about Asian elephants and other social animals. In her talk, Vidya, a scientist specialising in social behaviour in animals and the evolution of sociality at the Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, delved into the advantages of being social, the degrees of sociality, types of social organisations, socioecological theory, the importance of studying sociality and the Kabini Elephant Project.

**🗨️ One of the things that constantly comes up is the way that humans have been destroying elephant corridors, their habitats, and feeding spaces in the name of development. Does this impact how elephant societies function, and how?**

**🗨️** When discussing human disturbance and how they (elephants) react, that depends significantly on what the disturbance is. Intense disturbance can, of course, impact elephant societies. For instance, in Vietnam, the size of the wild elephant population dramatically declined after the wars. In a study we did on elephants there, we found that a single social group of nine individuals had three different maternal lineages. This means that members of several groups have been exterminated, and the survivors have formed a group, even if they are not related.

When elephant habitats are destroyed, and elephants are pushed into restricted spaces, they may interact differently with one another socially. There is not much work on this.

In terms of behaviour, there are differences in how elephants behave towards people. In areas where there's a lot of disturbance, elephants behave very aggressively, whereas in places where elephants realise people are not a threat, they are not so aggressive. So, there is considerable variation in behaviour depending on the disturbance.

**🗨️ You spoke a lot about the Asian elephant and the fusion-fission sort of society, which is very different from the African bush elephant, where the herd is larger and more cohesive. Could you tell us more?**

**🗨️** The African bush or savanna elephant has a multi-tiered fusion-fission society among females, meaning there are different levels of organisation. So, you can have a family group or a second-tier unit with a few adult females and their dependent offspring (together, the first tier). Some of these family groups can associate together temporarily to form bond groups, or kinship groups, or third-tier

units. Then, some of these bond groups can associate together temporarily to form another level, the clan or fourth-tier unit. Therefore, it is a hierarchical, multi-tiered society.


Hierarchical multi-tiered societies are easily detected if there is not much variability across social units at each level of social structure. For instance, in the case of the African savanna elephant, there might not be much variation if you look at how much time adult females spend with others in the family group and look at multiple such family groups. Similarly, see how much time multiple family groups associate with each other in the form of a bond group and what the variability in this is across bond groups; there should not be much variability. If you had such a system, it would have a more hierarchical, rigid society.

In the case of the Asian elephant, however, there may be more variability within a social level - there may be one family group in which adult females are tightly knit and, say, spend 80% of their time as a family group. There may be another family group in which they're not so tightly knit and spend only 30% of their time together. And then maybe they occasionally associate with each other to form the equivalent of a bond group.

But the thing is, because associations within each social level are so variable, you cannot easily clearly identify what the family group is, what a bond group is, and so on. All you can say is that there is a multi-level society, and there are different levels at which they associate. So, we just call the most inclusive social level the clan and don't generally split the clan into sub-levels.

We think that the difference in social organisation between the African savanna and Asian elephants largely arises from differences in group sizes, with group sizes in the former being larger than in the latter. If there is a constraint on feeding together in large groups, females from an entire social level may not be able to associate together. Changes in associations to meet other clan-mates may result in a fluid society.

### **Could you tell us a little about the Kabini Elephant Project, which has studied elephants since 2009?**

 The Kabini Elephant Project was set up to carry out long-term monitoring of known individuals, where you identify individuals and then follow them over time to understand the social organisation of the Asian elephant and test some socioecological predictions. Few details were known about the social organisation of the Asian elephant when the project began and similarity to the African savanna elephant was assumed.

We also wanted to look at demography and what is happening to the population over time... to get better estimates of things like birth and death rates. Otherwise, if you try to estimate these without having identified animals over time, they will be very approximate because many assumptions will have to be made.

Over the course of our work, we have been examining several aspects: female and male social organisation, genetic relatedness, dominance structure and tests of socioecological theory, musth and reproduction in males, allomothering and so on.

**🗨️ You talked about how, when you started, there wasn't enough research available on the social behaviour of elephants. Has this narrative changed in the recent past? Why, in your opinion, is it so essential to understand different animal societies, including elephants?**

**🗨️** I wouldn't say there is a lot of work on the social organisation and behaviour of the Asian elephant even now. Long-term studies on the African savanna elephant have been going on for a long time. For instance, in Amboseli (in Kenya), long-term monitoring has been going on since the 1970s, and in Samburu since the 1990s. There has been long-term elephant monitoring in Uda Walawe, Sri Lanka since the 2000s. It is important to study different animal societies to understand sociality and find out if there are general rules that explain social organisation. We do not have very many studies on the social behaviour of different species in the country. There's a lot of interest in birds and herpetology in the country nowadays, but we tend to be very tiger-centric when it comes to mammals. There is not a lot of work done on herbivores, in general.

Of course, there are many studies on elephants, but the focus is often on the human side of human-elephant conflict. Of course, it is important to study human-elephant conflict, but it is also important to understand the elephants' backgrounds and their society.

For instance, depending on social structure, individuals can learn from others, such as how to break fences or raid crops. When you capture an animal that is coming into contact with humans, and you don't know who else that animal has interacted with, you're often not solving the problem. Similarly, when you translocate animals, if you have a problem animal that is translocated somewhere else, you might be translocating the problem - this was seen in Sri Lanka.

If a dam is built and a new reservoir is formed, you may think that there are more resources now. But this may create more aggression between animals, as we find between elephant clans in Kabini.

Similarly, some recent news was that BBMP (Bruhat Bengaluru Mahanagara Palike) was planning to install feeding stations for dogs to reduce aggression. That's the exact opposite of what you would expect from socioecological theory. According to socioecological theory, when high-quality resources are clumped in one place, there will be more fights over that resource, not fewer fights.

**Today, many new tools, including AI, are being used to understand animal behaviour and for conservation. What are your thoughts on this?**

I am not such a big fan of AI in relation to some aspects because I think in order to understand wild animals, it is important to be out in the field, actually observing them (for the species that are visible) and their habitat. We shouldn't outsource everything to machines.

One big problem with animal behaviour/ecology/conservation research nowadays is that there is not much boots-on-the-ground expertise and, therefore, not a lot of connection with natural history in general. In India, say 25 years ago, if you had a wildlife researcher who was not actually walking the forest and knew different parts of the forest, they would be derided. Today, we want to collect data without spending too much time in the field. But unless you're out there, you could miss out on a lot of stuff.

That said, AI would be very useful for certain kinds of problems. For instance, while it seems to be performing poorly at the moment, it would be useful for individual identification and save us a ton of time if it worked well.

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