

Can a Wild Asian Elephant Change Its Interaction Patterns with Humans?

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Rivaldo has become an iconic Asian elephant (*Elephas maximus*) in the Sigur Region, Nilgiris Biosphere Reserve, India (Fig. 1). Rivaldo is featured on panels of the Tamil Nadu Forest Department (Fig. 2) and his romanticized adventures have appeared several times in national newspapers. He was named after the world famous Brazilian footballer Rivaldo because he enjoys, like many other elephants, to kick around old tires. We noted his presence for more than 15 years ago when he was wild and shy.

Feeding wild elephants is prohibited, but Rivaldo became habituated to being fed with fruits (jackfruits, coconuts, watermelons, etc.) and sugarcane from around 2008. With time, tourists, local people and even high-ranking administrative officials insisted on offering food to the elephant. In January 2013 Rivaldo lost 30 cm of his trunk, by a country bomb set out to kill wild boar in a nearby field, according to local sources.

Because Rivaldo was familiar with humans, he was easy to handle. He got veterinary treatment at the premises of a conservation trust (or Trust later in the text) without him being restrained. Even though the Trust does not have barriers and the elephant was free to move, he never wandered far and followed Forest Department guards to receive his food and treatment from the Trust's veranda. In the beginning he was given fodder tied to a pole, but later could be hand-fed by a veterinary assistant. He was provided over 100 kg of fodder per day, sugarcane and fruits with concealed antibiotics. It was not sure at that time, whether the elephant could recover.

Not only was Rivaldo seriously handicapped, he could also turn rowdy when food was not forthcoming. Fearing that he would be taken

into captivity because of his behaviour, we asked Dame Daphne Sheldrick, who is one of the top elephant rehabilitation experts, for her opinion. Her answer was grim: In Africa, elephants fed by humans are considered a permanent irreversible danger and are killed.

After his trunk healed, Rivaldo was a constant visitor to the Trust's premises. He waited every afternoon for the jeep that came around 4:00 pm with fodder. At some point, the veterinary assistant decided he was fit to survive on his own, and developed a plan to wean him from his daily rations by feeding him occasionally far from the house. Then the feeding stopped completely. The elephant would spend up to five hours around the house, presumably waiting for any motor rumbling that could signal the promise of a free meal. The now rare visitors coming by vehicle would invariably be greeted by Rivaldo. He eventually figured that cars contained food and could be ripped open if needed.

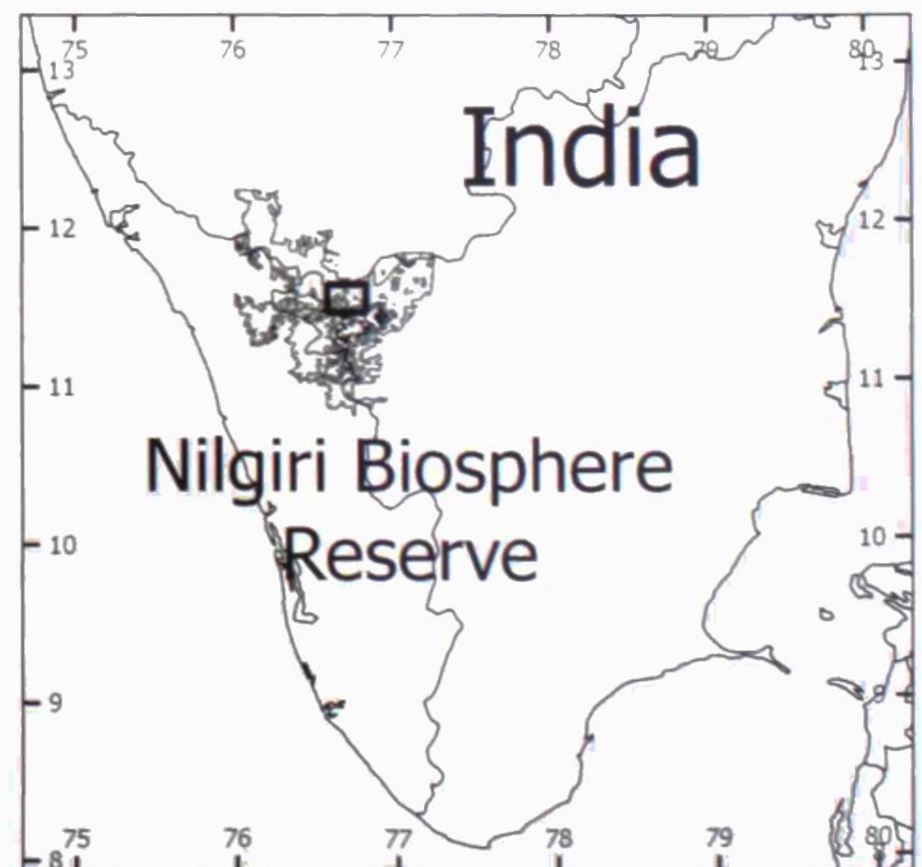


Figure 1. Study location.



Figure 2. Rivaldo, the emblematic elephant before his trunk was severed.

During the period when no food was provided and natural fodder was limited because of the dry season, he would shake the roof of the Trust's veranda probably to get attention. As no attention was provided, he would stand still and silent two meters away from the house, ears spread and looking inside whenever a shutter was open. Any human noise would provoke a hit to the roof. For six months, silence had to be maintained whenever Rivaldo was around and his visits were accompanied by some loud knocks on the roof. Little by little his behaviour started to change. His stopovers became less frequent

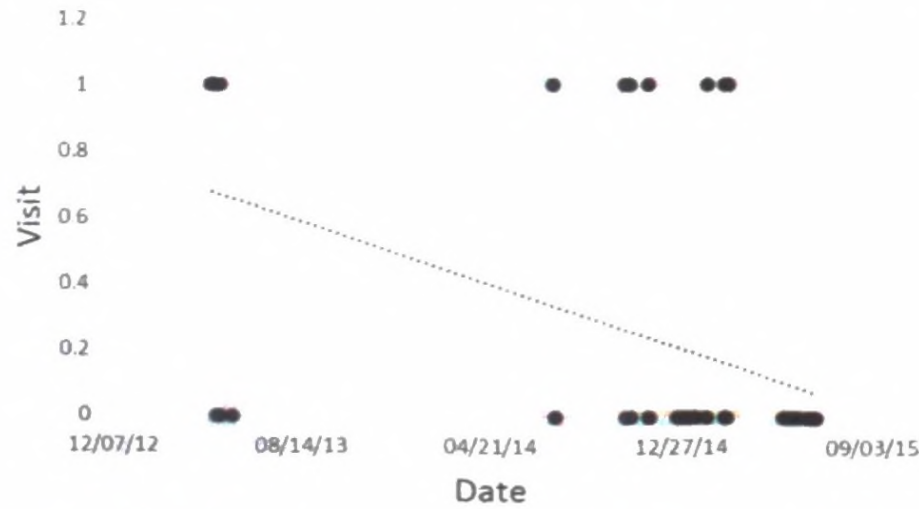


Figure 3. Linear regression line through observations from 20th April 2013 to 23rd June 2015.

and shorter. When he visited, he just checked the surroundings. Rivaldo would stay for a few minutes and leave.

We noted Rivaldo's visits from the 20th April 2013 to the 23rd June 2015, a time when his interactions with humans considerably diminished. We were not present every day and the observations were made on an ad-hoc basis for a total of 76 days. We ran a linear model through the observations (Fig. 3) and a non-parametric smoother (Fig. 4) through successive days of observation. The linear model had no other purpose than to highlight a trend, with no attempt to predict elephant behaviour. In the same manner, smoothers are useful for detecting humps when no particular statistical model can be applied.

In both cases, the frequency of visits diminished with time. Visits intrinsically display temporal autocorrelation. The smoother shows a plateau at the start and humps whenever the elephant tended to be in the vicinity. In June 2015, his visits had become rarer, shorter and his behaviour was no longer persistent.

The trend we report here needs to be validated with further studies. It nevertheless carries the hope that Asian elephants are adaptable enough to change their behaviour and go back to their natural feeding patterns after having been fed by humans.

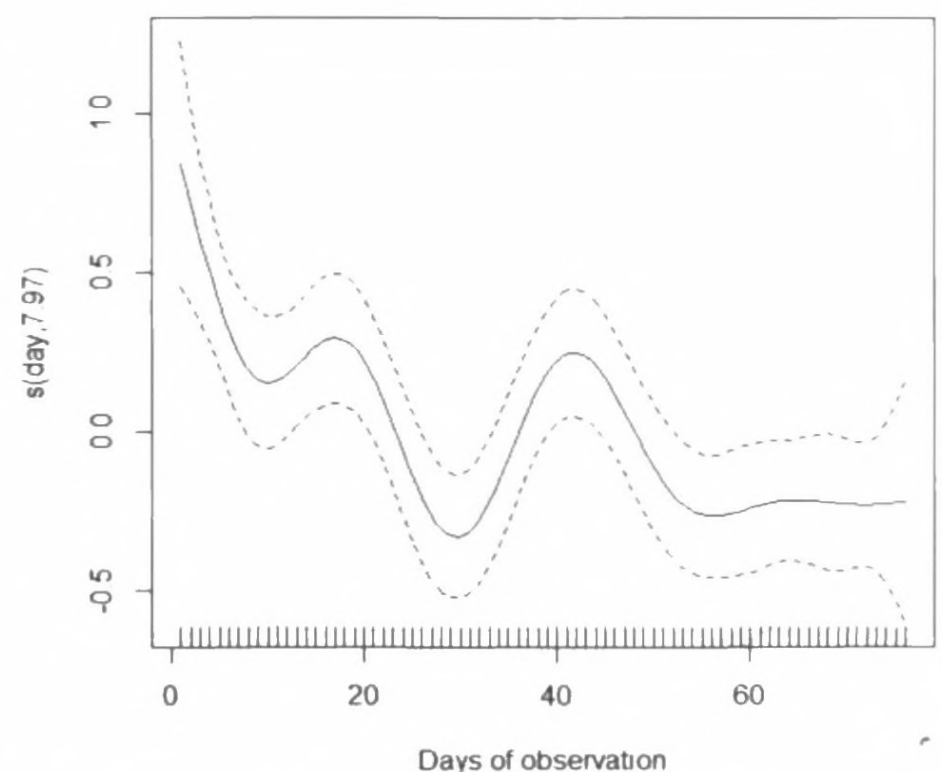


Figure 4. Non-parametric smoother through successive days of observations.



Figure 5. Rivaldo being treated.

Rivaldo got injured again in August 2015 by a wild tusker. He had four open and septic wounds and was treated again in the Trust's property by the Tamil Nadu Forest Department (Fig. 5). He would come daily at around 4:00 pm or alternatively, the forest guards would bring him to the house from the nearby jungle. The veterinary assistant and forest service's personnel cleaned his wounds for a month in September 2015 without restraining him in any way. Daily, the elephant was mostly given sugar cane and cereal balls with jaggery (unrefined sugar) to divert his attention during the procedures.

Rivaldo was fed by people for years, which enabled the Forest Department personnel to provide medical care without having to restrain him. Being fed by the Forest Department did not add much to habituation but probably helped save his life. The elephant did not create problems except for damage to the Trust's roof, and we are not aware of anyone in the region suffering from Rivaldo's presence. On the whole, Rivaldo's behaviour remained mild and particularly tolerant of humans.

After being treated for his trunk injury, we hoped that Rivaldo would go back to the wild, which he almost did. However, weak implementation of the law regarding the ban on feeding wildlife

and motives such as profit, superstition and sensationalism has resulted in continued feeding, encouraging Rivaldo and some of his companions to venture into village interiors. From the forest check posts, wastelands, resorts to village interiors, Rivaldo was till recently, given rice, bread and sweets. We heard from several sources that some local people even climbed on his back to cut leafy branches from trees. Rivaldo had become a solid source of revenue that provoked internecine rivalries between vested interests, which even led to the murder of a forest guard.

In case of any incident involving Rivaldo resulting in injury or death of humans, the elephant would be taken into captivity and another statistic would be added to the growing database of 'attacks by elephants'. Thus, in this instance, we are basically in a potential human-elephant conflict situation, with the onus of its resolution being entirely with the people.

Acknowledgements

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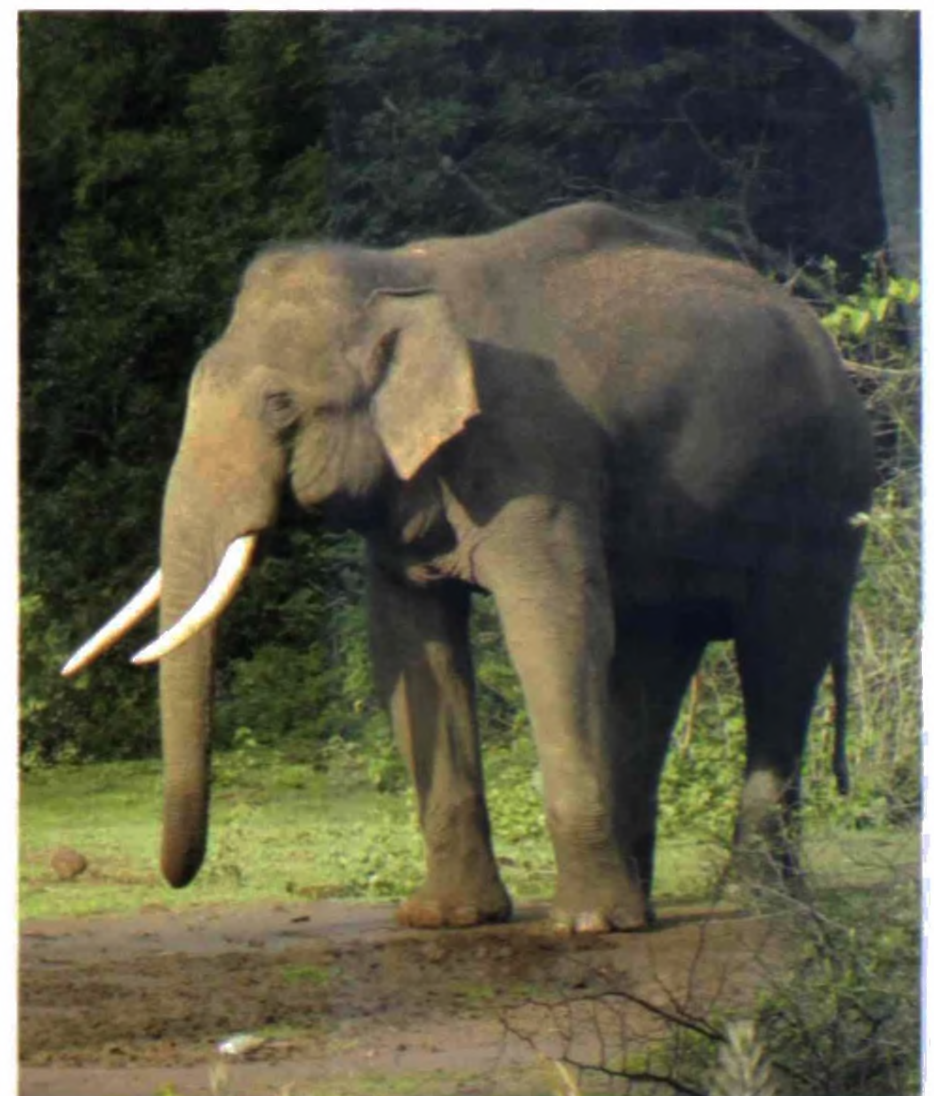


Figure 6. Rivaldo after his trunk was severed.