



Rescue of distressed elephants in Southern India, A case studies of threats to wild elephants caused by human development activities and intervention

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Abstract:

Elephas maximus indicus, an endangered herbivore is a single extant species in India with a vital role in any ecosystem in which it survives. Conservation of elephants in India is the need of the hour as they are the keystone species capable to stop the progression of grassland to woodlands or thicket by weeding out the trees and shrubs. The size of the herbivore makes it difficult for the conservation management issues like human-elephant conflict or rescue operations in case of distressed elephants. In this paper we have reported four case studies in which rescue operations has yielded success by the appropriate sequence of physical methods. Though there are notable difference in the situations, effective planning and execution of the rescue operation based on the elephant in distress and the topology has made each rescue case a unique operation and hence we have discussed the specific determinants in each case and the operational procedure which would give success in each cases.

Key words: Elephant, Endangered, Rescue, Conservation, Western Ghat, India

Introduction

Many people don't understand the vital role that Elephant play in the forest ecosystems and are considered as a keystone species in the forest landscape. That means elephants play a key role in maintaining the balance of different plant species. But human-induced activities and intervention in wildlife habitat has always been a threat to wild animals including elephants. Unlike ruminants, elephants have a distinguished spends about 16-18 hours a day for feeding which includes grazing and browsing. Elephant are capable to in habitat different types of habitat so the diet of an elephant varies from habitat to habitat to habitat and on a seasonal basis. Due to the heavy feeding behavior, elephants need a large amount of habitat to live in therefore humans have become their competitors for living space due to increasing population of India.

Megaherbivores (Owen-Smith, 1988; Kumaraguru, 2006) such as the elephant range over large areas. At present their ranging is limited to protected National parks and Wildlife Sanctuaries. Since fragmentation and deterioration of wildlife habitat due to illegal fuel wood collection, cattle grazing, fire and weed invasion have forced not only elephants all the wild animals out of their normal ranging. Depletion of forest lands has enhanced the chances of conflict between elephant and humans, as crop field rampages across villages, demolition of homes, etc as elephant herds follow their traditional migratory routes now fragmented by anthropogenic pressures. Once they become habituated to crop raiding they become habitual crop raiders preferring to feed on crops due to their high nutritive and content and palatability (Sukumar, 1989a). It is inevitable thus that elephants show very

different ecological responses (e.g. diet composition, movement patterns, social behaviour) and play hugely variable roles as seed dispersers in different environments, both between and within elephant taxa (Campos-Arceiz, 2011) .

When elephants come out of the forest and into human habitation, they often end up in dangerous situations from which they are not able to get out themselves. Since elephants are one of the most important agents influencing the dynamics of a forest ecosystem, and their activities generally increase the overall biological diversity of a region, conserving elephants, becomes much more than an issue about how to protect a single great species. Hence, various rescue operations in several elephant landscapes were performed with a view to conserve one of the forces that shapes ecosystems and helps sustain the wealth of wildlife (*Douglas 1992*) . In this paper we describe four cases of elephants being rescued on the fringe areas of Mudumalai Tiger Reserve.

Case 1:

The Masinagudi village located at the outskirts of Mudumalai Tiger Reserve, Tamil Nadu, India, contain several old abandoned grain storage pits that were dug out before hundred years still existing and are transitory to wild animals, elephants in particular. A sub adult elephant passing through the area had accidentally fallen into a pit on 17th August, 2004. The pit was roughly 15 m deep. The animal had struggled for about three days, and the distress calls were later heard by the nearby villagers. The concerned forest officers were informed, and formed a team with forest veterinarian who was summoned to carry out the rescue. The animal was found in a weakened state, therefore no drugs or sedatives could be given to the elephant and other strategies were devised.

Having prior experience and knowledge, the Forest Veterinarian & Biologist devised alternative plans and divided the workers into two teams and made three alternative plans. The first team was responsible for the first plan and i.e. for filling the pit with soil and raise the ground level, and the second team was responsible for providing water to the badly dehydrated elephant. The second plan was to arrange for an earth mover or JCB Backhoe Loader to open out the pit and create a ramp, thus the elephant can walk out. The third plan was to use Kumkies (trained elephants trained to capture and tame wild elephants) to be brought from Mudumalai elephant camp. The first attempt to provide water to the elephant was failed, but on consecutive attempts it began to accept buckets lowered for a drink to quench its thirst. The oral rehydration salts mixed with the water was supplied to elephants.

Earth mover backhoe Loader had been used to enlarge the hole and created a ramp for the elephant to walk outside. The elephant was completely exhausted due to heat and had laid down on the soft soil and was unable to make any attempt to stand . One of the elephant keepers (elephant caretaker), tapped and made the elephant to up with a start a few minutes later. As the elephant had responded to the attempt, it was provided water by lowering more buckets of water with oral rehydration salts and slowly it walked out of the pit after 6 hours of rescue operation. This pit was then closed so as to avoid a future incident. A similar pit nearby was also closed.

Elephant trapped in old abandoned the grain pit



Earth mover making side earthen ramp



Watering with re- hydration salt

Case 2:

In a coffee plantation at Thrissur Kerala, India, a three year old elephant calf had fallen into an abandoned about 10 m depth with about two feet of water without any parapet wall. The evidence of what around the bore clearly indicated the attempts made by the herd to rescue the calf. The herd was then chased by the coffee plantation workers across the river which separates the forest and plantation. Due to heavy rain and sudden increase of water level in the river, the herd could not revert back, thus abandoned the calf. The condition of the calf was pathetic, thus sedatives could not be used to lift the calf. The terrain and location had made the access of earthmover to the site more difficult.

The possible way for saving the elephant calf was identified to fill the bore with soil and nearby and then elevate the well height, thus reducing the ground height. Then the elephant is it appropriate were began to make a noose to fit around the calf's neck with a locking system so as not to strangle the elephant. While stretching its trunk, the noose was slipped around the elephants' neck and a second noose around its hind foot. With this nose the elephant was pulled out of the pit as the well was partially tilled and a with ramp had been created . The elephant was then treated for minor injuries.



Elephant trapped in deep abandoned well



Closing pit with vegetation with surrounding vegetation and soil to reduce the depth



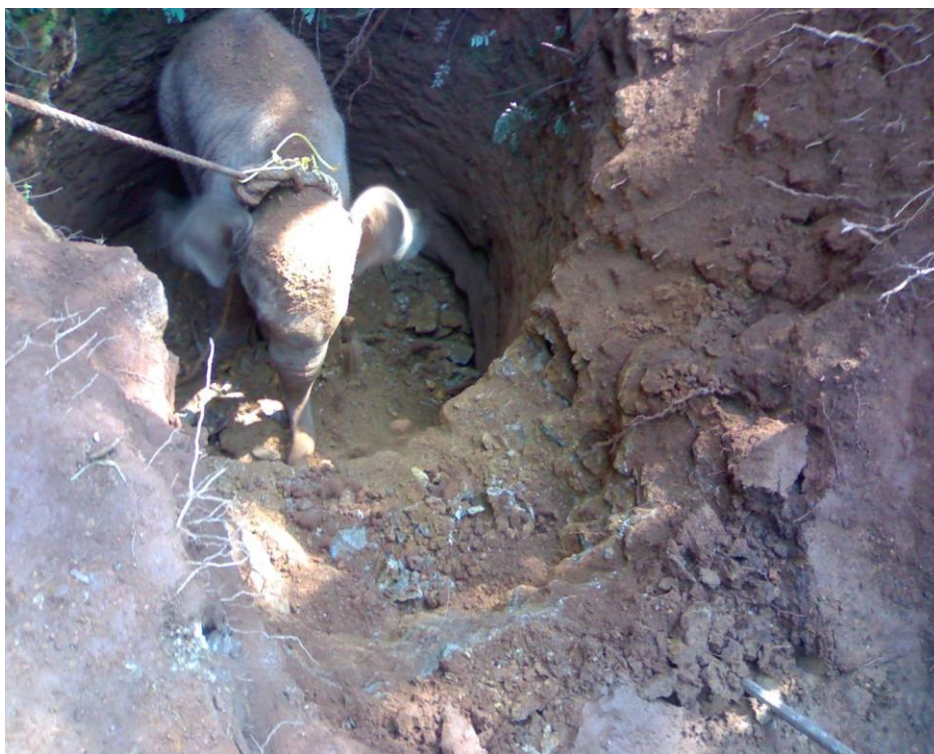
Making side earthen ramp to open out well



Snoozing with caution-traditional method



Securing noose- traditional approach



Calf ready to come out

Case 3:

The third elephant rescue operation was executed in Mudumalai Tiger Reserve, Tamil Nadu, India, considered as home to a large population of Asian elephant. A concrete drain pipe with a was laid across the road to drain water to the waterhole. An young tusker, of around 15 years with tusks measuring about 2 feet in length, had come to drink water and wallow in the mud pool. But unfortunately while drinking water its head got wedged between the concrete wall and one tusk wedged between a partly dug out root making any attempt to free itself futile. Struggling only made its situation worse until the elephant could no longer move. Its head was lowered in the left lateral recumbence position which is extremely dangerous to an elephant making it incapable of breathing and was made impossible to use any sedatives. The forest officials made a decision to use kumkie

elephants for rescue operation. The Kumkies placed at a distance standing to safe guard the workers as well as to reassure the distressed elephant, which the workers broke the wall and released the head of victim elephant. Once the head was released, the elephant moved its tusk, and did not make any attempt to get up. Being a large tusker, it was not possible for the people to lift the elephant. Therefore a kumkie was used to nudge and lift the elephant successfully. The tusker then stood for about 5 minutes before being able to and driven away by the kumkies in to the jungle.



Tusker wedged between concrete wall and root



Tusker trapped in the concrete wall near waterhole



Cement wall being removed for rescue



Kumkies lifting to get up from the pit

Case 4:

The staffs who were patrolling the core area of Mudumalai Tiger Reserve reported an injured tusker aged about 12 years old. The staffs found that the left front leg (Use medical term, hind limb, forelimb etc...) below the knee joint was swollen heavily, but after the closer inspection done by the Forest Veterinary Surgeon and Biologist they revealed that it was a bullet injury and that had lead to swell and infection. This made the tusker helpless and was unable to go far from the crop fields in search of food. It was found moving for few meters by hobbling on three legs with greater difficulty, then laid down and taken rest.

Sedatives were not advisable because the elephant was already in a debilitated state. Since two Kumkie elephants were used for physical control, which was available nearby, the Hence, best strategy would be to use kumkies as a shield to approach and treat the wild tusker and rehabilitate it in the jungle itself.

A 100mg of Xylazine Hcl was administered for mild sedation considering the handlers safety. The Veterinarian used a probe to locate the bullet, and the blood clot was broken. Fortunately for the elephant, the wound was not further infected with. The wound was in a posterior aspect of pastern joint of the front leg through the meta-tarsal bone at an angle. This made removing the bullet impossible as it was quite deep. Having inserted the probe, there was heavy bleeding but this was controlled by local and systemic hemostats. The wound was cleaned with antiseptic solution and dressed with anti-biotic ointments. The treatment continued for four days with anti-inflammatory and long acting penicillin along with a supplement of vitamins. External hot fomentation, counter irritant ointment and external anti-inflammatory gel were also applied. By the fourth day, the swelling had reduced and the wound lumen size reduced by granulating tissues. The posture and gait of the elephant had improved. It was then decided that the elephant was safe to be released. The following day it was located about 5 km away from the release site. One year later it was again sighted walking normally.



Injured sub-adult tusker captured by snoosing



Elephant restrained in between two kumkies for the treatment



Bullet wound with inflammatory swelling on palmar aspect of pastern joint being probed in search of bullet

Discussion:

Rescue of wild animals is always a risk to both the animal in distress and the handlers. The success of the operation depends on proper planning, precaution and selection of suitable restraint methods, without this the operation will end up in uncertainty. As in our study approach and planning has to be based on type of animal, nature of plight, natural type of combat of animal and personal safety. More precisely considering physiological and behavioral characters, position and health condition of the elephant mostly physical methods were selected.

Considering health condition and nature of plight in first two cases chemical immobilization was avoided. The awkward position in the third case excluded the possibility of usage of tranquilizers. Head down side position, sternum and thorax directly

pressing again the ground is dangerous for its life because lungs are directly attached to thoracic wall and in addition relative lung size of elephant is small to its body weight (Michael, 2006). Immobilization of elephant which are in the deep well and its lift to the surface needs more force and enormous hence use of machineries,. Immobilizing elephants which are in narrow deep pit is dangerous as it increases the chances of the trunk being crushed under the body or collapse of the elephant in the wrong position. To avoid such situation in cases 1 & 2 physical method was selected.

All four cases were recorded in the fringe areas of the elephant habitat. The sub optimal habitat in the human dominated fringe areas forces the elephant to come out from its normal range (Balasubramaniam, 1995) and this paves way for elephant getting trapped in man-made structures constructed but not completed secret for wild animals.

But the advance fact in All the above cases that were described were caused by human developmental activities in wildlife habitat. Elephants range over large areas in search of their varied diet in order to satisfy their nutritional requirements (Balasubramaniam, 1995). Hence this had increased the conflict in the comely where the bullet wound might be done by a farmer as a consequence of crop raiding. To protect themselves and their fields, poor farmers tend to resort to other methods such as using illegal electric fences that cause the death of any animal that comes into contact with it. In this century human-elephant conflict is exacerbated by habitat deterioration even in the reserves (Balasubramaniam, 1995), since wide ranging behaviour their search for the of elephants in search daily requirements, they often come into conflict with people which leads to a tragic end for both man and elephant. But, human have to understand the vital role of elephants in an ecosystem to perceive the necessity to conserve them.

Elephants pull down trees and break up thorny bushes, which help to create grasslands for other animals to survive. They create salt licks that are rich in nutrients for other animals. They dig waterholes in dry river beds and their foot prints create deep holes that water can collect in. Other animals including humans are depend on these waterholes they dig. Elephant dung (droppings) is important to the environment as well. Baboons and birds pick through dung for undigested seeds and nuts, and dung beetles reproduce in these deposits. The nutrient-rich manure replenishes depleted soils so that humans can have a nutrient rich soil to plant crops in. Elephant Droppings are also a vehicle for seed dispersal. Some seeds will not germinate unless they have passed through an elephant's digestive system. Unfortunately to conserve there are number of factors that restrict the ability to conduct research that will benefit elephants in the wild such as different physical and psychological ailments, different stressors in each environment. In addition to that, veterinary developments and techniques will be difficult to apply to wild situations, as most elephant range countries do not have the capacity to intervene in this way and some jurisdictions maintain a more or less "hands off" approach to wildlife management. We therefore have used alternative and traditional methods to rescue and rehabilitate wild elephant. Impite of the suceses in our as operation we suggest that often rescue and free ranging wild animal restraint carried out in remote and inhospitable terrain, team work and professionalism are vital ingredients for success.

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