Translocation Tragedies: Are We Really “Rescuing” Snakes?

by **Sahas Barve**

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A preliminary study on translocation of “rescued” King Cobras

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As effective conservation actions lead to increasing wildlife populations, they often come into conflict with burgeoning human populations with which they share space. Resolving human-wildlife conflict has thus become an important aspect of conservation science especially in biologically rich and densely populated countries like India. However, most research in this sphere concerns large, charismatic organisms, which are restricted to small regions in a vast country. Human-snake conflict on the other hand is not restricted to pockets of natural habitats and is probably the most common and the most widespread form of such conflict in India occurring in both remote villages and densely populated cities.

An estimated 0.8 million snake bites result in 50,000 deaths and tens of thousands of amputations every year in the country. On the flip side, habitat destruction, hunting, fear and ignorance likely result in thousands of snakes being killed each year. While land-use changes destroy habitat for a number of habitat specialist snake species, conversion of natural habitats to agriculture increases rodent pest populations, leading to some snake species like the rat snake (*Ptyas mucosa*) persisting or even thriving in human dominated landscapes.

In general, snakes that persist in human-modified habitats like the rat snake and the spectacled cobra (*Naja naja*) come most often into contact with humans as they enter backyards and houses, where they are often killed. However, the last decade has seen a consistent rise in the number of “snake enthusiasts” in small towns and cities, who often volunteer to take snakes out of people’s houses. The number of “rescue” calls has undoubtedly risen steadily across the country but reliable data documenting this increase are scant. The most common practice for such “rescues” is to translocate the

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snake to the closest natural habitat, often more than 15 km away. Translocation is thus used as a quick fix to mitigate “nuisance snakes”. Each year activists translocate thousands of snakes often more than 20 km away from their site of capture with scores of individuals from the same species being released often at the same spot.

Snake “rescues” are done with the best intentions and rescuers often educate local people about many aspects of snake ecology. Although this effort is laudable, with the large magnitude of snake translocation occurring in India, it is imperative that snake rescuers become aware of the impacts of translocation on individual snakes.

In India, there has been almost no effort to document the fate of such translocated snakes, and their survival in the wild has not been studied. The King Cobra Telemetry Project, initiated at the Agumbe Rainforest Research Station (ARRS), Karnataka is the first project to use radio telemetry on free ranging snakes in India. A case study investigating the ranging patterns and habitat use of one translocated and two non-translocated king cobras (*Ophiophagus hannah*), has also brought to light preliminary information on the deleterious effects of translocation in these snakes in a recent paper (attached for download).

The two non-translocated snakes had compact home ranges (~25 sq km) and showed exceptional spatial memory of their home ranges. They often revisited sites and re-used burrows after gaps of up to 6 months. In contrast, the translocated king cobra on the other hand showed no particular habitat preference and moved over large area (91 sq km) without re-visiting specific sites.

The results of this study are congruent with a number of studies on other snake species many of which are ecologically similar to common Indian species like the rat snake and spectacled cobra. Most snakes have fixed home ranges. Many species also have an extraordinary memory of important burrows in their home range, which are crucial for thermoregulation and predator avoidance. Hence, moving an individual into a new territory not only puts it in competition with other resident snakes but also decreases its chance of survival as it cannot find secure areas during vulnerable periods, e.g. when it is shedding its skin (ecdysis), digesting a large meal or when thermoregulating. In addition, its difficult to imagine the effect of releasing many efficient serpent predators has on their prey populations in that area. This suggests that translocation of a snake into new areas might not only unsettle the individual snake, but have a larger impact, affecting the whole community of organisms that it interacts with. Because long-distance translocation can disrupt a snake’s lifestyle drastically, studies have shown that individuals which moved short distances often return to their original territory, reinstating conflict with humans and possibly increasing the animosity of people towards snakes, making it an impractical alternative.

Unfortunately, a solution to this vast problem is not yet apparent but acknowledging its significance is crucial. Further research on optimal distances for translocation of snakes is greatly needed. Some scientists believe that humanely culling “problem individuals” may offer the best solutions, especially in densely populated towns. Translocation might prove most useful in conserving species through establishing new populations in areas

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that have had local extinctions of snake species. However translocation can also enhance human-wildlife conflict if not conducted appropriately. Equally importantly, the ecological communities into which snakes are translocated might also be severely disturbed. Future research on translocation of common tropical snake species is essential for finding ways to mitigate this widespread conflict so as to maximize human safety and minimize its detrimental effects on snake ecology.

Dealing with snake calls in Agumbe — a note from Romulus Whitaker

At Agumbe, where the telemetry project was carried out, a unique, systematic education programme amongst the local people has been underway for the past year and a half by staff of the Agumbe Rainforest Research Station (ARRS). This is an area with an unusually high population of king cobras and most of the 'snake calls' received by our staff there are about king cobras which happen to wander into farms, gardens and even houses, cowsheds etc.

We started out, in 2005, by capturing and translocating snakes up to a kilometre away from the site of capture, mainly to reassure the people that the snake was being taken to the 'forest', when in fact these ophiophagus snakes seem to find plenty of snake prey in and around human habitations and agricultural fields.

Now the staff have taken this a step further in answering snake calls. They go to the residence, garden or field where the snake has been seen, ascertain the species and if it is a king cobra they spend time convincing the residents that the snake is only there temporarily and will move on, usually within 24 hours. Our staff volunteer to stay there until the snake moves on, which it invariably does (unless shedding skin or digesting a big meal, in which case it could stay for several days). This approach has seen an increase in awareness about the king cobra in particular (needless to say it helps that the snake is worshipped here), and in about 75% of the 'rescue calls' the residents have agreed to leave the snake be. During the time ARRS staff are on site they continue to talk about snakes and conservation in general. One important aspect they touch upon, with photographic evidence, is to describe how king cobras feed on other snakes include cobras, Russell's vipers and pit vipers, all species which cause large numbers of bites, the former two cause thousands of human deaths.

There is no easy solution to snakes in cities, but as has been alluded to, it is our propensity to encourage rodents to live with us, thanks to our filthy habits, and increasing prey to such unbelievable numbers which is an important reason why we have to deal with so many snakes in our midst!

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ecology and evolutionary biology of avian and non-avian reptiles.

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