The outcome of an elephant translocation from Isiolo to Tsavo East National Park, Kenya

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Abstract

This management piece documents the outcome of an elephant translocation from Isiolo to Tsavo East National Park, Kenya in November 2021. The translocation aimed to reduce human-elephant conflict in the area and to prevent any retaliation toward the elephants. This was achieved by removing the 'problem elephant group', however the aim of resettling the elephants in Tsavo was not achieved, as the group fragmented and some swiftly moved far outside the release site. Two elephants, which we were able to monitor through satellite collars, exhibited homing behaviour and both left Tsavo East National Park within 1–7 weeks of being released. If translocation continues to be the method of choice for problem elephants, there is a need for thorough planning and sound science to inform future operations, which should include collaring of each individual. Trained personnel and substantial budgeting for post release monitoring, and any potential conflict-reduction interventions, are therefore key management considerations for ensuring the health and wellbeing of translocated elephants in the future. In the long-term, focusing mitigation management on a larger number of habitual crop-raiders will have more impact and be a more effective approach for elephant managers. This could involve better spatial land-use planning, maintenance of corridors between protected areas, negative conditioning tactics and maintenance and upgrading of barriers.

Résumé

Ce document relatif à la gestion des éléphants rend compte du bilan de la translocation de plusieurs sujets depuis Isiolo jusqu'au parc national de Tsavo Est au Kenya en novembre 2021. L'objectif était de réduire les conflits humains-éléphants dans la zone et d'éviter toute forme de représailles de la part des habitants. Les « éléphants problématiques » ont donc été délocalisés, mais l'ambition initiale de les établir dans Tsavo Est n'a pu être finalisée du fait de la fragmentation du groupe après la remise en liberté et de certains éléments s'étant rapidement déplacés loin du site de lâcher. Deux sujets, que nous avons pu suivre grâce à leur collier GPS, ont montré un comportement instinctif de retour vers leur habitat précédent et tous deux ont quitté le parc national de Tsavo Est dans les sept semaines suivant leur introduction. Si la méthode de la translocation continue d'être privilégiée pour les éléphants problématiques, il sera nécessaire de s'appuyer sur une planification rigoureuse et des données scientifiques solides pour les prochaines opérations, ainsi que sur la mise en place de colliers émetteurs sur chacun des individus. Du personnel formé et un budget substantiel, pour la post-introduction des animaux et les interventions potentielles de réduction des conflits, sont donc les clefs pour une gestion de qualité et pour assurer le bien-être et la bonne santé des éléphants transférés à l'avenir. À long terme, il convient d'accentuer les interventions d'atténuation envers un plus grand nombre

d'éléphants habitués à piller les cultures, afin d'avoir un réel impact et une approche plus efficace pour les personnes chargées de leur gestion. Cela peut se traduire par une meilleure planification de l'usage des terres, l'entretien des couloirs biologiques entre les zones protégées, des tactiques de conditionnement négatif et la maintenance ou l'amélioration des barrières.

Introduction

Translocation is a management tool involving relocation of wild animals from one part of their range to another. It is often used to re-establish or boost a population that is considered too small. Elephant translocations are also used to reduce the population in small areas and to mitigate human-elephant conflict (HEC), when a small number of individual elephants are responsible for many conflict incidents (IUCN 1998). Translocations are challenging and often fail or see limited success, documented in a number of case studies from Asia and Africa (Fernando et al. 2012; Pinter-Wollman 2009; Tiller et al. 2022). The success of translocating animals depends on the ability of the individual to survive by finding key resources, avoiding predation and human settlement, and later on reproducing in an unfamiliar environment (Berger-Tal et al. 2020).

In East Africa, elephant translocations are still relatively rare compared to South Africa, where the first translocation was in the 1970's and, since then, has been fairly common practice because of the large number of small, highly managed populations (Dublin and Niskanen 2003). The first translocation in Kenya took place in September 1995 when Kenya Wildlife Service (KWS) moved 26 elephants during five different operations from Mwea National Reserve (NR) to Tsavo East National Park (TENP), a largely unfenced area. Since then, TENP has become the main release site for other elephant translocations in Kenya (Table 1).

During the first translocations in Kenya in 1995 and 1996, five of the elephants died (three during immobilisation and two a few days after release). Monitoring of the remaining 21 elephants was not undertaken and so the success of the operation post-release remains unclear (Njumbi et al. 1996). Since then, there have been at least 18 other elephant translocation events in Kenya, with release sites of seven being Tsavo East NP (Table 1). Most of these translocations were a response to overpopulations of elephants in certain areas and to HEC.

Within these translocation operations in Kenya, there are several documented cases of mortality (Muir 2000; Pinter-Wollman et al. 2009; Tiller et al. 2022), a continuation of 'problem' behaviours such as crop raiding and fence breaking (Pinter-Wollman et al. 2009; Tiller et al. 2022) and 'homing behaviour', where the elephants reject their release site and try to return home to their home location or natal territory, often moving through human dominated landscapes in the process (Muir 2000; Pinter-Wollman et al. 2009).

This short paper documents the outcome of an elephant translocation from Kithima in Isiolo County

Table 1. Elephant translocations in Kenya where the release site was in Tsavo East National Park (NP)

Year	From	To	Total	Source
1995–1996	Mwea NR	Tsavo East NP	16	Njumbi et al. 1996
1999	Mwaluganje Elephant Sanctuary	Tsavo East NP	28	Muir 2000
2000	Shimba Hills NR	Tsavo East NP	4	Litoroh et al. 2001
2005	himba Hills NR	Tsavo East NP	150	Pinter-Wollman 2009
2006	Shimba Hills NR	Tsavo East NP	76	KWS darting protocol
2006	Ngulia, rhino Valley	Tsavo East NP	220	Okita 2008
2016	Chyulu Hills	Tsavo East NP	1	Lala pers. comm. 2022
2018	Borana/Lewa/Solio conservancies	Tsavo East NP	5	Tiller et al .2022

to Tsavo East NP on 26 November 2021. Two elephants were fitted with satellite collars and were part of a group of seven elephants that was designated for translocation. They had been identified as 'problem elephants' by the KWS, based on reported incidents of crop raiding, and had been observed 'roaming' through human settlements. The elephants were also reported walking within the busy town of Isiolo. KWS carried out several mitigation operations to chase away the elephants from the community, but to no avail as the elephants frequently returned. Consequently, community members were becoming angry about the situation and threatened to poison the elephants. Thus, with mounting tensions and the threats the elephants posed to human livelihoods and life, the decision was made to capture and translocate the elephants to Tsavo East NP. The fate of the other five elephants (three that were translocated and two that were not found before the translocation operation) remains unknown.

Methods

Five of seven target elephants (three sub-adult males, one male calf and one female adult) were located, tranquilised from helicopters, loaded into crates, and then transported separately by road to TENP in a journey that took between 12 and 18 hours. Upon arrival in TENP, all five were released immediately on the 28 November 2022. All national protocols on capture and animal handling were followed (KWS 2016). The translocation was to be carried out in two operations due to limited space in the transport vehicles, but upon return for the second phase of the operation the two remaining elephants could not be found. Two of the sub-adult male elephants, named *Isiolo* and *Njoroge*, were fitted with satellite collars (Savannah Tracking GL200 GPS). These collars consisted of a GPS unit, a VHF transmitter beacon and a battery integrated into one unit. The collars were fitted by a team including a veterinarian from the KWS. All the tracking collars were set to acquire GPS fixes at 1–hour intervals. Movement data were projected on the Universal Transverse Mercator (UTM) WGS-84 reference system.

Isiolo was observed twice during a collared elephant aerial monitoring exercise undertaken by the Tsavo Trust, where photos were taken and observations recorded. However, *Njoroge* was not observed whilst in TENP, as he left the park shortly after release.

Results

The sub-adult elephant *Njoroge* was hard-released near Gazi on the eastern side of the Yatta Plateau, north of the Galana river, in TENP. This area at the time had adequate vegetation and is near two rivers, the Galana and the Tiva. As soon as *Njoroge* was released, he exhibited homing behaviour, as he started to travel north-east through the park in the direction of Isiolo. He was observed during this time without any other members of his group or other individuals. Five days after release, *Njoroge* had left TENP. He continued to travel north crossing the Tiva river and three roads, including a main tarmac road (Thika-Garissa highway) before reaching Garissa, an area of historical insecurity challenges. Unfortunately, *Njoroge's* collar stopped reporting on 5 February 2022 when he was approximately 370 km from the release site, 31 km from Kora NP, 38 km from Rahole NR and 100 km from Meru NP (Figure 1). Several attempts have been made to find *Njoroge* and remove or replace his collar, though have so far all have been unsuccessful.

The other sub-adult male, *Isiolo*, was released at the same location as *Njoroge*, and from day one he also exhibited homing behaviour, as he started to travel north-west within TENP. He was observed during this time without any of the members of the group with whom he was translocated. However, his movements north were prevented by an electric fence on the park boundary. He then walked up and down the fence repeatedly until, in early January, he set off south and west of the Yatta Plateau, crossing the Tiva river.

On 7 January 2022, *Isiolo* left the park and entered community farmland in the Ngiluni area. He was initially unable to leave this area, as he could not cross the two-strand electric fence that had been recently erected between the community area and national park. He walked along the fence line trying to find a way back into TENP (Figure 1). On 18 January 2022, there was an attempt by KWS, Tsavo Trust and the Sheldrick Wildlife Trust to push *Isiolo* back into the park using helicopters (Fig. 2). However, this attempt was unsuccessful. *Isiolo* eventually made his way into TENP by crossing back over the Tiva river.

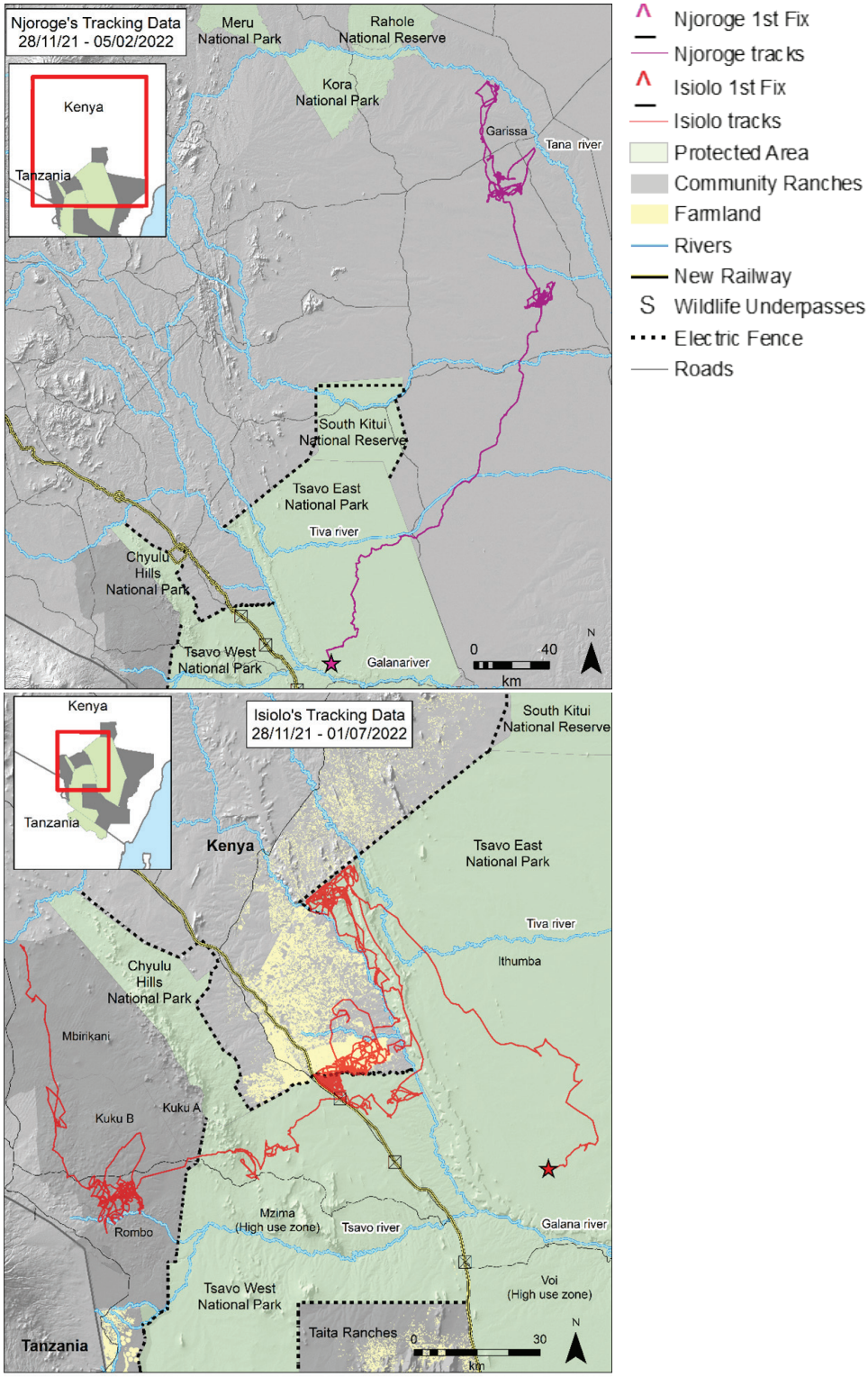

Figure 1. Movement tracks of the two translocated bull elephants, *Isiolo* and *Njoroge*, after translocation from northern Kenya to the Tsavo East National Park. (© *Maps drawn by Lydia Tiller*)

Figure 2. Helicopter trying to push *Isiolo* back into Tsavo East National Park on 18 January 2022. This management intervention attempt was unsuccessful. (© *Image courtesy of Tsavo Trust*)

He then stayed on the west of the Yatta Plateau and travelled west. He spent time close to the Standard Gauge Railway (SGR) and walked up and down, presumably looking for a place to cross. On 18 April 2022 at around 11pm, he crossed under the SGR railway using one of the wildlife underpasses (called Kanga corridor) and also crossed the tarmac of the busy Mombasa highway. He then entered and traversed Tsavo West NP, travelling west before he left the Tsavo West NP on 24 April 2022. He then spent time in the Rombo community grazing area, close to the Tsavo river. He then travelled north again to Mbirikani community area where he stayed in grazing areas, and at times walked close to agricultural land. Here, he was approximately 138 km west from his translocation drop-off location.

Discussion

This short paper describes the elephant translocation operation from Isiolo to TENP in Kenya and documents the interesting behaviour displayed by the two translocated elephants, who were collared. The translocation aimed to prevent the local community from taking retaliatory action toward 'problem elephants' and to reduce HEC, which was achieved in terms of removing this elephant group. However, the objectives of the mission in terms of the group settling in the designated area was not achieved. The elephant group separated and two elephants, which we were able to monitor through the satellite collars, exhibited homing behaviour and both left TENP within 1–7 weeks of being released. The elephant *Njoroge* is now many kilometres away from his release site, probably getting closer to his original home territory, but is unable to be monitored due to the collar failing. *Isiolo* also left the park and spent time in the community ranching area of the Amboseli ecosystem. The fate of the other five elephants (three that were translocated and two that were not found before the translocation operation) is unknown.

TENP has been the release site for a majority of the translocations in Kenya, as it constitutes part of the largest conservation area in Kenya, and until recently was considered underpopulated by elephants (Table 1). However, the suitability of this site for future translocations should be reconsidered, due to the homing behaviour documented in this case study and others (Muir 2000; Pinter-Wollman et al. 2009), high

mortality rates (Muir 2000; Pinter-Wollman et al. 2009; Tiller et al. 2022) and the continuation of problem behaviours, such as crop raiding and fence breaking (Pinter-Wollman et al. 2009; Tiller et al. 2022). Additionally, much of TENP to the north and east is unfenced, meaning elephants are able to walk back towards their original range, but often having to traverse community and agricultural areas.

Homing behaviour, seen in these two elephants, has also been documented in other elephant translocations in Kenya (Pinter-Wollman 2009); South Africa (Garai and Car 2001; Viljoen et al. 2015), Sri Lanka (Fernando et al. 2012) and India (Lahiri-Choudhury 1993). In a translocation of 150 elephants from the Shimba Hills NR to TENP, 11 of the elephants left TENP and either returned back to the Shimba Hills or went to other sites (Pinter-Wollman et al. 2009). The elephants *Isiolo* and *Njoroge* showed homing behaviours as it appeared they "collected their thoughts" and then set out in a direction that led towards home. When *Isiolo* encountered physical barriers (electric fence) he made two attempts to cross, and then seemed to give up and embark on an exploratory course that took him to new areas. This has been observed with an elephant named *Lugard* who was captured in an area named Hunter's Lodge in Kenya and translocated to Lugaard's Falls in TENP. He first moved quickly back towards Hunter's Lodge, but after entering dense settlement, he gave up and went on a circuitous route south of the Chyulu Hills and eventually habituated to that area and switched from mainly nocturnal movements to mainly diurnal (Dr. Iain Douglas-Hamilton 2022, pers. Comm.). In *Njoroge's* case, he broke free quite quickly after translocation and made an epic journey of over 370 kilometres towards his original homeland. The longest previously documented homing distance achieved by an elephant was approximately 300 km following translocation in South Africa (Viljoen et al. 2015).

Fortunately, the two elephants in this report survived the first few months after translocation, although we are now only able to monitor one of them. In other elephant translocations to TENP, success rates have been low due to mortality; for example, in 1999, 30 bull elephants were translocated from Mwalugange Elephant Sanctuary (MES) in the Shimba Hills to TENP. Of these elephants, two died from shock and internal injuries during the translocation itself, and one elephant died after leaving the park and walking to a place called Kilifi in coast province, where he got stuck in the mud. The fate of the other elephants is unknown, as only four the elephants were spotted in TENP after the translocation (Muir 2000). Another example of mortality occurring during translocation is of the 150 elephants translocated from the Shimba Hills NR to TENP in 2005. While the operation was considered successful at mitigating HEC in the Shimba Hills vicinity, of the 109 translocated elephants with a known fate over two months, 85 elephants survived while 24 elephants died. This was due to a variety of reasons: one was killed by poaching; two were shot by the KWS; six died during transit; three died from unknown causes; and 12 calves went missing and presumably died. The study also found that, following translocation, bulls and calves were more likely to die than females (Pinter-Wollman et al. 2009). In a 2018 translocation of five elephants from Lewa Conservancy to TENP, three of these elephants were killed (two were poached and one died due to conflict). Two of the elephants were killed within four months after being translocated, and the third elephant within a year (Tiller et al. 2022).

Translocation of problem male elephants is unlikely to be the most effective and humane method to mitigate conflict between people and elephants (Boast et al. 2016; Massei et al. 2010). Translocating problem elephants may simply shift the problem elsewhere (Fernando et al. 2012). In a number of studies, there has been a reported continuation of problem behaviours such as crop raiding and fence breaking in the new area in which the elephants have been released. For example, in Sri Lanka, Fernando et al. (2012) studied tracking data from 12 male Asian elephants, who were classified as 'problem animals'. These elephants were captured in community areas and translocated into national parks. All 12 elephants left the protected areas and became involved in incidents of HEC (fence breaking and crop raiding).

In a 2018 translocation from Lewa Conservancy to TENP one of the elephants broke out of an electric fence eight months after being released and spent 2% of his time in farmland, most likely crop raiding (Tiller et al. 2022). Crop raiding behaviour can be a trait found in a high percentage of individuals of both

sexes in a population. Thus, removing a few habitual raiders will not necessarily solve the problem at the source (Hahn et al. 2022). It is also documented that crop raiding behaviour can be passed down to younger elephants through social learning (Chiyo et al. 2011; 2012; Evans 2015).

When translocating elephants, we must also consider the welfare of the animals. Translocation is likely to cause a high level of stress, including the trauma of the translocation experience itself and of being left alone in a new ecosystem with unfamiliar elephants and resources (Pinter-Wollman et al. 2009). However, a soft release, where elephants are held in a large enclosure for some time prior to release, may be a way of reducing post-translocation stress and may prevent elephants from breaking electric fences (Dublin and Niskanen 2003; Garai and Carr 2001).

Conclusion

HEC continues to increase across much of the African savannah elephant range, as the rapid conversion of elephant habitat into agriculture puts people on the frontline of conflict with wildlife. There is mounting political pressure to address this conflict, as tensions are rising in communities impacted by the elephants that are causing damage to crops or causing injury to, and death of, people and livestock. Where large scale fencing or installation of barriers is not feasible or practical, translocation has often been used to address these issues and show communities that action is being taken. However, the relatively low success rate of documented translocations suggest that it is not necessarily the most effective solution for problem elephants: financial costs are incurred, welfare concerns are created, and problems may be translocated along with the elephant. Focusing mitigation management on a larger number of elephant habitual raiders will have more impact in the long-term and be a more effective management tactic for elephant managers. This could involve better spatial land-use planning, maintenance of corridors between protected areas, negative conditioning tactics and the maintenance and upgrading of barriers.

If translocation continues to be the method of choice for problem elephants, there is a need for thorough planning and sound science to inform future operations, which should include collaring of each individual. Trained personnel and a substantial budget for post release monitoring, and any potential conflict-reduction interventions, are therefore key management considerations for ensuring the health and wellbeing of translocated elephants in the future.

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