

# Resolving human–elephant conflict in Luwero District, Uganda, through elephant translocation

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## Abstract

In Uganda, elephants have traditionally migrated through the Luwero Valley to Murchison Falls National Park in the north and to Queen Elizabeth National Park in the south. As human settlement in the Luwero area has blocked this migration corridor, people and elephants now compete for water and land resources. In the face of human–elephant conflict, the option authorities chose was to translocate problem elephants out of the area to Murchison Falls National Park. The move involved a multidisciplinary team effort of 46 Ugandans and Kenyans. An aerial search with a plane and a helicopter located the elephants. They were darted and anaesthetized then crated and transported, with veterinarian care throughout. Four problem elephants were successfully relocated.

## Résumé

En Ouganda, les éléphants migrent depuis toujours par la vallée de Luwero pour aller du Parc National des Murchison Falls, au nord, vers le Parc National Queen Elizabeth, au sud. Comme des installations humaines bloquent maintenant le couloir de migrations dans la région de Luwero, les hommes et les éléphants sont dès lors entrés en compétition pour l'eau et les ressources du sol. Confrontées aux conflits hommes–éléphants, les autorités ont choisi l'option de déplacer les éléphants à problèmes hors de la région du Parc National des Murchison Falls. Le déplacement a nécessité les efforts conjoints d'une équipe de 46 Ougandais et Kenyans. Des recherches réalisées avec un avion et un hélicoptère ont permis de localiser les éléphants. Ils ont reçu une flèche anesthésiante, puis ils ont été placés dans de grandes caisses et transportés, sous la surveillance continue d'un vétérinaire. On a ainsi réussi à déplacer quatre éléphants à problèmes.

## Background

In June 2000, the Kenya Wildlife Service (KWS) received a request from the Uganda Wildlife Authority (UWA), seeking technical assistance in translocating 10–13 elephants from Wakyato Sub-county, Luwero District to Murchison Falls National Park. The translocation exercise was aimed at resolving a long-standing human–elephant conflict.

An initial attempt at translocating the elephants had been made in August 1999 but had to be aborted after moving five of them, largely due to financial constraints. Following this, UWA sent out an international appeal to the donor community seeking financial support to move the rest of the elephants. The appeal received positive response from the Interna-

tional Fund for Animal Welfare (IFAW), which pledged just under USD 100,000 for the exercise. By the end of June 2000, KWS and UWA had reached consensus to collaborate in moving these elephants. Using the IFAW funds, KWS sent a reconnaissance team to the capture and the release sites in July 2000. The team confirmed that the exercise was feasible.

On 8 December 2000, UWA staff started monitoring the elephants in Luwero. Meanwhile, documents and various government protocols were processed for KWS to import equipment into Uganda. On 12 February, an advance team arrived in Uganda to set up camp, resurvey the capture and release sites, and complete any pending logistical arrangements. The main capture team arrived on 18 February 2001, and a

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multidisciplinary team worked together to carry out the exercise on 19–20 February 2001.

## Introduction

The elephants in Wakyato Sub-county had lived amid human settlement since the early 1970s after having been cut off from other herds that had roamed the entire area in earlier years. Elephants are reported to have traditionally migrated through this area to Murchison Falls in the north, and to Queen Elizabeth National Park in the south (John Bosco Nuwe, pers. comm.). Human settlement blocked off the migratory corridors, leading to isolation of this small population in Luwero. Increase in human population, which was accelerated by an influx of pastoralists into the area in the late 1980s and 1990s, led to drastic reduction of ranging space for these elephants and increased human–elephant conflict. The elephants competed for watering points that the people had dug out for their livestock. They also terrorized villagers, killing five people and wreaking havoc on crops and other property.

In the face of this escalating conflict, various options were considered. Relocating the people in favour of the elephants was neither politically right nor humane. Killing the elephants would have been the easiest option but was considered to be neither humane nor of conservation value. Leaving the situation without intervention would expose the elephants to the risk of being killed by the local community. UWA considered moving the elephants to a better location to be the best option.

Here we describe how this small herd of elephants in Luwero was successfully translocated to Murchison Falls National Park to resolve the long-standing human–elephant conflict and save the elephants.

## Capture area

Luwero is generally a swampy area. The vegetation structure could be described as a mixture of patches of open grassland with bushy woodland. This type of vegetation did not pose any visibility difficulties from the air although it greatly reduced accessibility on the ground. The swampy terrain made it necessary to do the operation during the dry season.

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Taking the body measurements of the anaesthetized elephant.



The elephant is loaded on a trailer . . .



. . . and hauled by tractor.

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survey area, who acted as rear-seat observers.

A six-seater Hughes 500 Jet Ranger helicopter and a two-seater Husky plane were used for the search. Both aircraft have good visibility, allowing observers to make accurate counts. Approximately 300 km<sup>2</sup> were covered in 2.25 hr of count time, giving a searching rate of about 120 km<sup>2</sup>/hr. This rate gives data quality of category two as described in the *African elephant database* (Said et al. 1995). The helicopter hovered low over the thick bushes in an effort to flush out any hiding elephants, but none were seen.

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### **Capture and translocation**

A multidisciplinary team of 46 people from KWS and UWA was involved in the exercise. We used a wide range of equipment including capture, communication, security, veterinary and laboratory equipment as well as different types of vehicles and aircraft. We also used a wide variety of veterinary and first-aid drugs.

The elephants were located using the Husky plane and darted from a helicopter. The darted animals were herded towards open glades close to where the ground capture team had been positioned. They resisted being pushed to the open, however, and fell

in the forest, from where they had to be recovered using a tractor and trailer and moved to a suitable loading area.

The elephants were immobilized using 18 mg of etorphine hydrochloride (M99) mixed with 5000 i.u. of hyaluronidase administered using the method described by Kock et al. (1993). The animals went down in about 6 minutes on average except in one case where the first dart landed obliquely, depositing the drug just under the skin, and the animal had to be redarted after about 20 minutes.

Once the animal was down, the helicopter directed the ground team through the woods to the site. The

## **Materials and methods**

### **Total aerial count**

To ascertain how many elephants were present, we did an aerial search, using the standard technique of 'total aerial count' as described by Douglas-Hamilton (1996), Douglas-Hamilton et al. (1994) and Norton-Griffiths (1978). Success of the method depends on the experience of the pilot and the flight crew (Douglas-Hamilton 1994; Litoroh 1995). This search had the advantage of a well-experienced front-seat observer and two experienced pilots, familiar with the

veterinarians and some capture rangers armed with heavy-calibre rifles advanced speedily to the site on foot to ensure that the animal was in a suitable lateral position and in a stable state of anaesthesia. Meanwhile with the aid of a bulldozer, an access way was quickly made to the site to enable the rest of the team with the vehicles and the recovery trailer to move in.

The elephants were kept in a state of unconsciousness using additional doses of etorphine of about 4 mg. The vital parameters (temperature, pulse rate and respiration) of the animals were monitored and recorded at 5-minute intervals. The mucous membranes were frequently observed to gauge the level of circulating oxygen in the animal's blood. The animals were kept cool by pouring cold water on their earflaps. Dart wounds and other injuries were treated conventionally.

Elephants were recovered from the woodland and put into transportation crates using conveyor and hydraulic systems. They were revived using 50 mg of diprenorphine administered into the ear vein. The elephants were tranquilized for transportation using 120 mg of azaperone tartarate administered into the neck muscle just before reviving them. They were escorted by a veterinarian and rangers to the release site, where they were free released at an off-loading ramp.

A radio collar was fitted on one of the elephants and the others were marked with paint for monitor-

ing, to determine if they would settle down and establish new home ranges.

## Results and discussion

Four elephants were counted during the aerial surveillance, two males and two females. All four were successfully captured at Luwero, translocated and released at Murchison Falls National Park with no mortality.

Any possibility of elephants hiding in thick vegetation was remote, as the helicopter would likely have flushed them out. Therefore, previous elephant numbers assessed before translocation were an overestimation. This was attributable to the limitations of the monitoring method, which used footprint observations as an index of elephant abundance.

We concluded that Luwero had only four elephants, and all four were safely moved to Murchison Falls National Park, thus resolving the human–elephant conflict at Luwero. The translocation was 100% successful when measured against its objectives.

## Acknowledgements

The Kenya Wildlife Service Translocation Team thanks IFAW for funding the operation. We are very grateful to UWA for extending the request to KWS to work with them. We thank the UWA executive director, Dr Robbie Robinson; the director, Mr Arthur Mugisha; the deputy director of field operations, Mr Moses Mapesa; the senior warden, Mr John Bosco; and the veterinary coordinator, Dr Joseph Okori. We thank various government offices in both Kenya and Uganda, including in Kenya the Office of the President, the Ministry of Foreign Affairs, and the Uganda High Commission for facilitating all necessary protocols. The team is grateful to the KWS director, Mr Nehemiah Rotich, and all KWS deputy directors for their support throughout the entire planning and execution of the exercise. Special thanks go to Mr Sam Ngethe, Mrs Connie Maina, Captain



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Elephants were put into transportation crates and escorted to the release site.

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Ogle, Mr Isiche, Mr Gathitu, Mr Musyoka and Mr Kigen.

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