

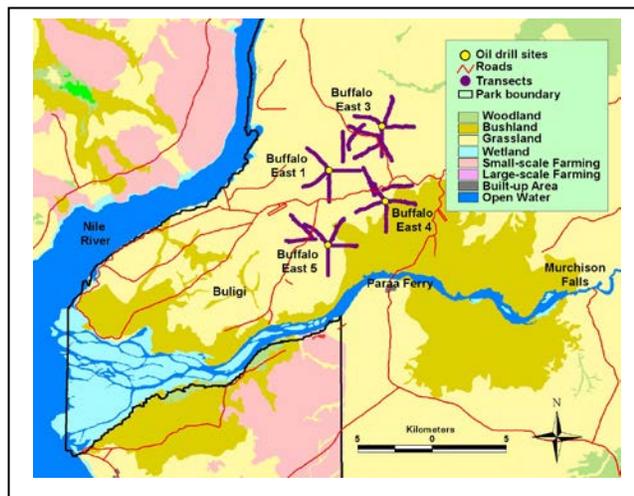
# MEASURING RESPONSES OF WILDLIFE TO OIL OPERATIONS IN MURCHISON FALLS NATIONAL PARK



## Oil Exploration in the Murchison Falls National Park

The ever-increasing worldwide demand for energy has resulted in unprecedented levels of oil and gas exploration, and one of the most recent finds has occurred in the Albertine Rift region of the East African Rift Valley, with some of the most intense exploration activity occurring in Murchison Falls National Park (MFNP). This promises substantial economic development from oil and gas production for Uganda and the region. MFNP is one of four savanna parks in Uganda which is recognized for its uniqueness and importance for biodiversity conservation, has the most spectacular falls along the Nile, is important for its wildlife concentrations, and is the main representation of the Sudanian vegetation form in East Africa. It is thus accorded a high level of conservation priority by IUCN. It is also the only park in Uganda with a viable population of Rothschild's giraffe and crocodile, contains Uganda's largest population of Jackson's hartebeest, which has been nearly or completely eliminated from other protected areas in Uganda, and it is also one of the few places in Uganda with populations of soft-shelled turtle.

Recognizing the high levels of biodiversity richness in MFNP, it is important to assess the potential impacts of oil exploration on the wildlife in the park and to attempt to devise appropriate methods of minimizing any disturbance that is caused by these activities. Attention must be paid to the fact that behavior and response patterns can vary enormously between species, such that some mitigation measures may need to be site- or species-specific dependent on individual site circumstances. This short policy brief summarises the impacts of oil exploration activities on large mammals and birds in the MFNP. It specifically assesses how animals respond to pad construction, pad maintenance between activities and the impacts of drilling at a pad up to 2 kilometres from the pad or drill site. The results come from a 16 month monitoring program around four drill pads between February 2010 and June 2011 that was undertaken by staff of the Uganda Wildlife Authority and the Wildlife Conservation Society with funding from the USAID WILD program.

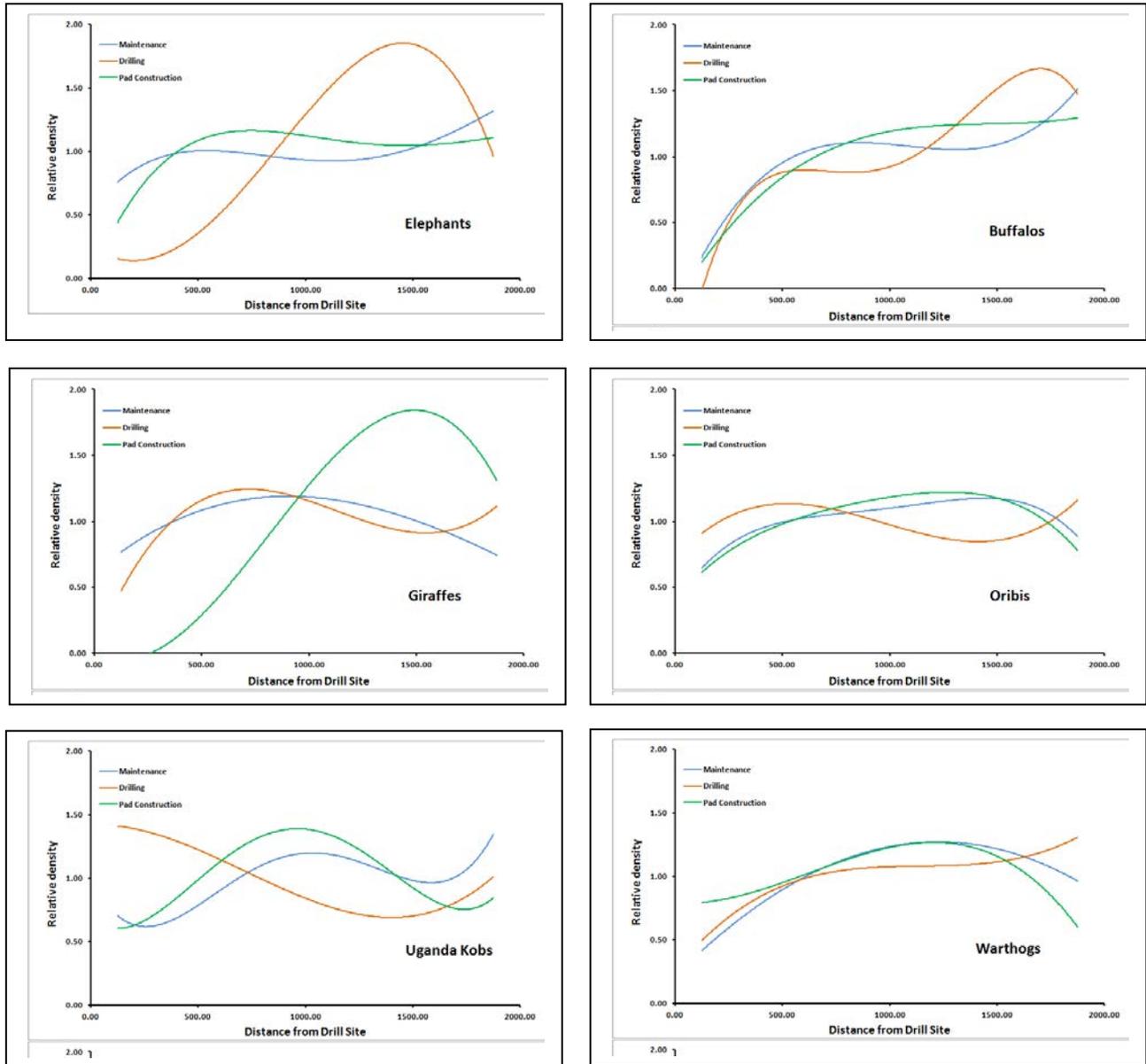


**Figure 1.** Location of four well pads in MFNP where large mammal and bird densities were monitored during pad construction, pad maintenance and drilling operations. Monitoring was undertaken along transects up to 2 km away from the pad.

## Impacts of exploration on wildlife

Most large mammals were negatively affected by the activities at a drill pad site, even during pad maintenance where there is not much activity but there is a presence of people and some vehicle traffic. Elephants, buffalos and giraffes were most negatively affected with avoidance up to 750-1000 metres being exhibited (figure 1). Smaller mammals such as oribi, warthog and Uganda kobs showed some avoidance up to 250-500 metres away but in some cases the

presence of the pad seemed to benefit these species and they could occur at relatively high densities near the pad. It is thought they may have learnt to avoid predation by staying around the pads at night where there are spotlights.



**Figure 1.** The relative densities of each large mammal between 0-2000 metres from the drill pad/site with curves fitted to data from pads BE1, BE3 and BE4. Where the curves are lower than one then the density of a species is less than the average and vice versa.

Total bird density was lower near the pads but stabilized between 200-400 metres from the pad/drill site (figure 2). We could not calculate densities at different distances from the pads for all species because of the need for many sightings but for the more common species this was possible. During drilling operations the African palm swift, rattling cisticola, croaking cisticola, black-headed gonolek, black-crowned tchagra, yellow-billed oxpecker, helmeted guineafowl and

grey-backed fiscal all showed lower densities near the pad up to 300-700 metres away (8 out of 13 species that could be estimated). Two species, piapiac and zitting cisticola, occurred at higher densities near the pad during drilling operations. The other three species showed no clear change with distance. When pad construction was taking place five of the 13 species showed lower densities near the pad and none showed increased densities. Most species showed no change under pad maintenance although a few occurred at lower densities near the pad site (0-500m).

## Recommendations

Given the findings of this report it is clear that oil operations are having a significant impact on the behavior of large mammals and a less severe, but still measurable, impact on bird distributions. Given that this is happening we would make the following recommendations for the management of oil drilling operations within savanna protected areas in Uganda:

1. Minimize movements of vehicles and personnel to well pads when they are being maintained while waiting for drilling equipment so as to minimize disturbance at these sites.
2. Avoid drilling or constructing pads at the same time within 5 km of each other. Where this needs to be carried out then stagger the pad construction and drilling so as to avoid simultaneous activities at both sites.
3. Avoid placing well pads in relatively rarer habitat types where species have fewer options where they can disperse to in order to avoid the disturbance.
4. Avoid establishing well pads on ridge tops where noise disturbance will carry much further afield and likely have a larger radius of impact on wildlife.
5. Care should be taken in siting the access roads to the sites. These should not be created on an ad-hoc basis, rather the whole network of roads required should be contained within a single EIA report to allow judgement of their contribution to animal disturbance and to ensure the least impact.
6. Make efforts to minimize noise pollution from a site. Only switch on machinery when using it and avoid car horns and other loud noises.
7. Aim to bring traffic to and from a site in a convoy, or between closely defined periods so that it is not continuous during the day and only causes disturbance for a minimum period.
8. Once a site has been drilled it should be vacated and restored as quickly as possible to minimize the time that well pads are being maintained and disturbance occurs.
9. Minimize pad construction time and also drilling time to minimize the periods of greatest disturbance.
10. This research did not assess how predators are responding to the oil operations because sightings were too few from transects. We recommend a specific study of lions, leopards and hyaenas to assess how they are reacting to the disturbance.
11. Continue to monitor the movements of the large mammals within the drilling region and across the whole park to assess longer term impacts on their populations.

Extracted from: Prinsloo, S., Mulondo, P., Mugiru, G. and Plumtre, A.J. (2012). *Measuring responses of wildlife to oil exploration operations in Murchison Falls National Park*. Report of USAID WILD Program. [www.albertinerift.org](http://www.albertinerift.org)