

**PROJECT: IMPROVING PROTECTION OF CROSS RIVER GORILLAS
IN THE AFI MOUNTAIN, NIGERIA**

FINAL REPORT TO PRIMATE SOCIETY OF GREAT BRITAIN

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Introduction

The Afi Mountain Wildlife Sanctuary (AMWS), established in 2000, is home to a subpopulation of the critically endangered Cross River gorillas *Gorilla gorilla diehli* (CRG) numbering 25-30 individuals and other endangered primates including the Nigeria-Cameroon chimpanzee *Pan troglodytes ellioti*, drill *Mandrillus leucophaeus*, and red-eared guenon *Cercopithecus erythrotis*, among others. While the sanctuary covers the core range of the Afi gorillas, the gorillas occasionally range outside in two areas of unprotected community forest – the Olum Hill and the Kakwagom-Bitiah community forest. Since creation of the AMWS conservation activities have focused on the sanctuary itself with little attention paid to important adjoining areas used by the Afi gorillas such as the Olum Hill and the Kakwagom-Bitiah community forest. Without any protection from hunting when ranging in these areas outside the sanctuary boundaries the survival of the Afi gorillas is threatened. In addition to hunting the habitat in these areas is threatened by agricultural conversion, seasonal bush fires and small-scale logging. Increased law enforcement within the sanctuary and improved management of surrounding habitat is important for the long-term conservation of the Afi gorillas (Oates et al., 2007; Dunn et al., 2014).

The objectives of this project are:

- 1) to confirm the continued use of the Olum Hill and the Kakwagom-Bitiah community forest by gorillas.
- 2) to assess spatial and temporal patterns of utilization of habitat outside the sanctuary by gorillas.
- 3) to investigate options for improved management of unprotected habitat outside the sanctuary that is used by gorillas (including possible extension of sanctuary boundaries to incorporate adjacent areas used by gorillas, and community-based management of such areas).

- 4) to increase local awareness of the status of the CRG and educate farmers and other forest users on appropriate responses to potential crop-raiding incidents and encounters with gorillas ranging in the areas. As farms encroach into gorilla habitat outside the sanctuary, crop-raiding is likely to occur in future with the potential for gorilla-human conflict. If not prevented, such conflict could have serious negative consequences for the Afi gorillas.

Summary

With a grant from the Primate Society of Great Britain two surveys were conducted in the Olum Hill and Kakwagom-Bitiah community forest that border the Afi Mountain Wildlife Sanctuary (AMWS) to confirm the continued use of the habitat in these areas by gorillas, the presence of gorillas in the area having been previously recorded. The first survey was conducted in November 2014 (during the dry season). The second survey was conducted in May 2015 (during the rainy season). This report presents the results of these surveys and the outcome of community meetings to assess the suitability, and acceptability to the local communities, of potential sustainable management options for the areas which are currently under serious threats from hunting and deforestation. The surveys which were conducted with Cross River State Forestry Commission (CRSFC) rangers and supervised by Wildlife Conservation Society (WCS) covered a total of 143 km (56 km in the first and 87 km in the second) and lasted a total of 32 days. A total of 3 gorilla nest sites were recorded in the Olum Hill. Six chimpanzee nest sites and 1 unidentified great ape nest site were also recorded in the Olum Hill in addition to other ape signs including fresh trails, feeding remains vocalization, and dung. No ape signs were recorded in the Bitiah-Kakwagom forest. Mona and white-nosed monkeys were also sighted in the Olum Hill. Several farms were recorded in both areas, but especially in the Bitiah-Kakwagom area. Numerous hunting signs and farms were recorded. Discussions about sustainable management of the Olum Hill and Kakwagom-Bitiah forest were initiated with the communities concerned – Olum, Kakwagom, Bitiah and Esikwe. The current high level of hunting and rapid farm encroachment that threatens the gorillas was stressed during the discussions. The meetings were also provided opportunity to create awareness about the status of the Cross River gorilla. There was considerable interest among the communities developing more sustainable management strategies for the two areas. Community-based conservation was the preferred option for management of the areas. Extension of the current boundary of the AMWS to include the two areas was not supported by the communities as a management option.

Methods

Meetings were held with Olum, Bitiah, Kakwagom and Esikwe communities to introduce the project and initiate discussions about the future conservation management of the Olum Hill and Kakwagom-Bitiah community forest. Two teams comprising rangers of the Cross River State

Forestry Commission and staff of the WCS searched the Olum Hill and Kakwagom-Bitiah community forest (Figure 1) simultaneously from 6-19 November 2014 and from 13-22 May 2015 for gorilla signs and signs of human activity. Two teams patrolled assigned areas concurrently, spending 9 nights per patrol. One community member each from the four communities was selected to participate in the surveys. Signs of gorillas, chimpanzee and other wildlife seen were recorded. All observations were geo-referenced using hand-held computer devices running CyberTracker. Because of the rugged terrain of the area the survey employed reconnaissance walk method, following existing hunter trails rather than transects. Information gathered from hunters and other forest users in the communities was used to plan the survey and direct searches.

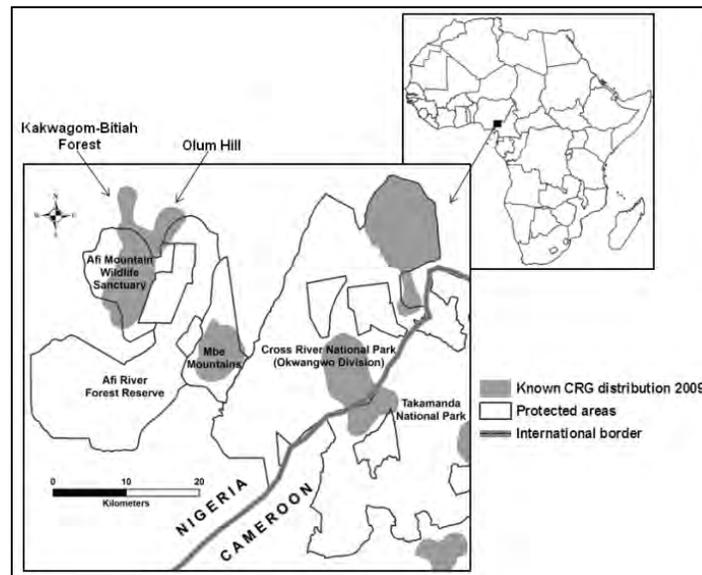


Figure 1. Approximate Cross River gorilla distribution and location of the Olum Hill and Kakwagom-Bitiah forest.

Results

A total of 32 survey man-days were completed (16 in each of the two areas) covering a total distance of 143 km (56 km in the first survey and 87 km in the second) (Figure 2).

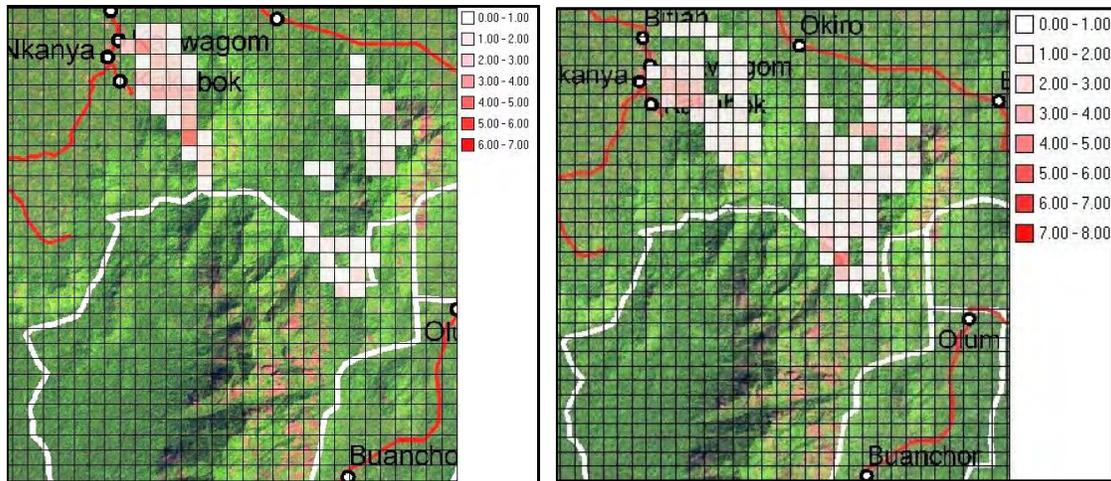


Figure 2: Patrol effort during the first (left) and second (right) surveys of the Olum Hill and Kakwagom-Bitiah forest. Grids with brighter red color represent areas of higher coverage as indicated.

A total of 3 gorilla nest sites were recorded, all in the Olum Hill (Table 1). Six chimpanzee nest sites and 1 unidentified great ape nest site were also recorded in the Olum Hill (Table 2, 3). Other ape signs recorded in the area were fresh trails, feeding remains and dung. No ape signs were recorded in the Bitiah-Kakwagom forest. Mona and white-nosed monkeys were also sighted in the Olum Hill on several occasions.

Table 1. Gorilla nest site recorded during surveys of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015

Date	Latitude	Longitude	Nest site age	Total nests	Ground	Tree	Dung present
11/15/2014	6.3894917	9.0124120	Old	4	4	0	Yes
05/16/2015	6.4224537	9.0165350	Recent	4	4	0	Yes
05/16/2015	6.4221940	9.0165012	Recent	19	5	14	Yes

Recent = 4-7 days, Old = 1-4 weeks, Very old = \geq 1month

Table 2. Chimpanzee nest sites recorded during surveys of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015

Date	Latitude	Longitude	Nest site age	Number of nests
11/11/2014	6.4224417	9.0166917	Recent	1
11/11/2014	6.4214567	9.0164250	Recent	3
11/11/2014	6.4206350	9.0165183	Recent	2
11/13/2014	6.3981767	9.0073200	Old	3
11/13/2014	6.3983583	9.0076600	Very old	5
05/16/2015	6.4223392	9.0165242	Recent	5

Recent = 4-7 days, Old = 1-4 weeks, Very old = \geq 1month

Table 3. Unidentified great ape nest site recorded during surveys of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015

Date	Latitude	Longitude	Nest site age	Total number nests	Dung present
05/20/2015	6.3982485	9.0119143	Fresh	7	No

Fresh (1-3 days)

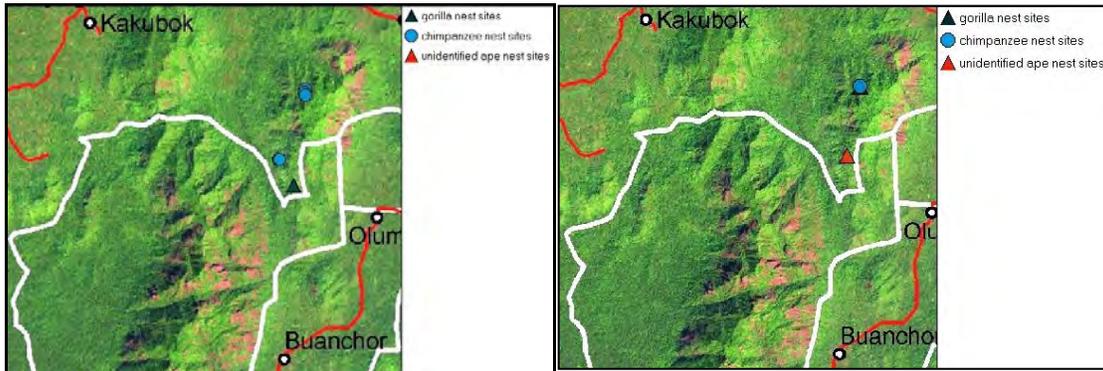


Figure 2. Location of ape nest sites recorded during the first (left) and second (right) surveys of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015.

High levels of human activity were recorded in both areas (Figure 3; Table 4) including hunting, farming, and logging. Levels of human activity were especially high in the Bitiah-Kakwagom area where no signs of gorillas were found.

Table 4. Encounter rate of human activities recorded during two surveys of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015.

Activity	No of observations	Encounter rate/km
Farming	96	0.67
Hunting	112	0.78
Camp	14	0.10
Logging	4	0.03
Total		1.58
Average		0.40

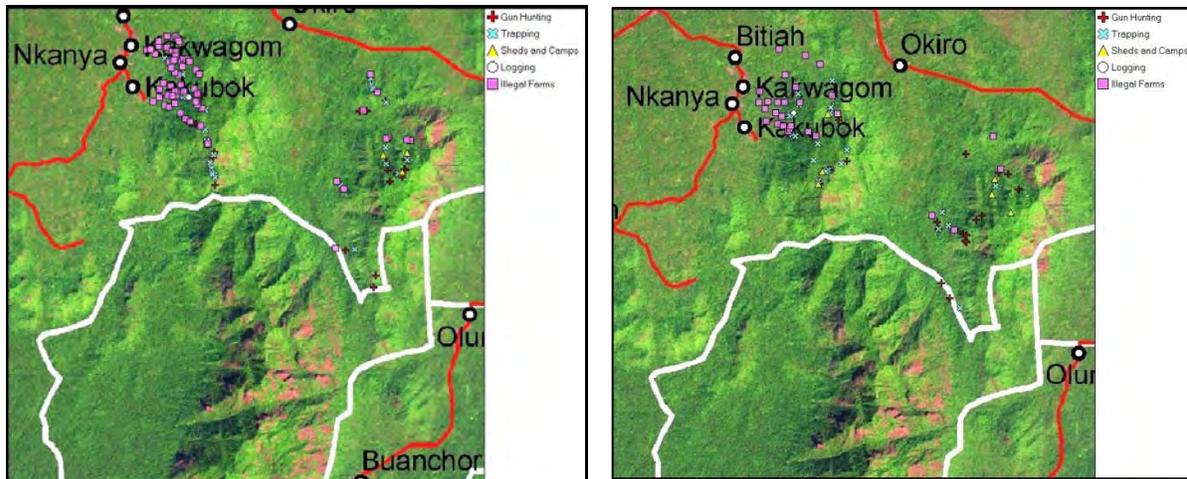


Figure 3. Distribution of human activities recorded during the first (left) and second (right) survey of the Olum Hill and Kakwagom-Bitiah forest in November 2014 and May 2015.

Discussion

The presence of gorillas and chimpanzees was confirmed in the Olum Hill in the two surveys conducted at different times of year – the rainy season and dry season – confirming that the area was habitually used by gorillas and chimpanzees. Three gorilla nest sites and other signs including dung and trails were recorded in the Olum Hill. Six chimpanzee nest sites and 1 unidentified great ape nest site were also recorded in the Olum Hill. These surveys, conducted in collaboration with the Cross River State Forestry Commission, provide information for conservation planning to improve management of the Olum Hill as well as the Bitiah-Kakwagom forest where evidence of the presence of gorillas or chimpanzees was not recorded. The presence of gorillas was previously recorded in the Bitiah-Kakwagom forest.

Since its creation in 2000, conservation activities have focused mainly on the AMWS itself with little attention paid to important adjoining areas such as the Olum Hill and the Kakwagom-Bitiah community forest which form part of the range of the Afi gorillas. With increasing human activities, the continued presence of gorillas in the areas, as well as the current condition of the habitat, were unclear. An assessment to obtain such information was therefore necessary to inform conservation planning. The importance of these two areas for gorillas was recognized when earlier reconnaissance surveys showed their occasional use by gorillas. Two events have highlighted the need to improve the conservation management of these two areas. First, in 1997, the Olum Hill suffered substantial damage from uncontrolled bush fire from nearby farms which forced the gorillas to abandon the area for about a decade returning there only in 2005 when the vegetation started to recover. In 2006, following reports of crop-raiding by gorillas in nearby farms in the Kakwagom-Bitiah forest, WCS conducted a survey which confirmed use of the area by gorillas and noted the rapid loss of habitat in the area. Current data on habitat use by gorillas

and human activities in the two areas is crucial for conservation planning and management but this important knowledge is lacking. Information about local preferences for management options for the areas to inform policy is also lacking.

The discussions held with the three communities concerned – Olum, Kakwagom, and Bitiah - about sustainable management of the Olum Hill and Kakwagom-Bitiah forest were useful in two ways. First, they helped to provide insight into which management options will be most accepted and supported by the communities if implemented. Secondly, they provided opportunities to highlight and create awareness about the current high level of hunting and rapid farm encroachment that threatens the gorillas. There was considerable interest among the communities for more sustainable management of the two areas. Community-based conservation was the preferred option for management of the areas. Extension of the current boundary of the AMWS to include the two areas was not supported by the communities as a management option.

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References

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