

**WILDLIFE CONSERVATION SOCIETY
CROSS RIVER NATIONAL PARK (OKWANGWO DIVISION)
ANNUAL REPORT: 2019**



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Summary

This report presents results of 63 ranger patrols of the Okwangwo Division of Cross River National Park (CRNP) facilitated by Wildlife Conservation Society (WCS) from January to December 2019, and compares the results to those from previous years (2011-2018) to assess the effectiveness of our law enforcement action. The number patrols supported by WCS increased from four to eight per month in 2019. The patrols covered a total distance of 2,765 km over 388 patrol days and focused mainly on the Boshi Extension and the Okwa Hills areas of the park which are the core areas used by gorillas in the park. Twenty people were arrested during the patrols in 2019 and 52 hunting camps and 1649 wire snares were destroyed. A total of 357 empty shotgun cartridges were encountered. Rangers sighted gorillas once and chimpanzees eight times during patrols in 2019. A total of 194 ape nest sites were recorded (125 gorilla, 54 chimpanzee and 15 unidentified).

Introduction

Created in 1991 and managed by the Nigeria National Parks Service, Cross River National Park consists of two separate divisions: Oban and Okwangwo. Covering an area of about 640 km², the Okwangwo Division was established from an amalgamation of four former forest reserves and elevations range from 150 m to around 1,700 m. As a result of years of uncontrolled hunting the density of large mammals in Okwangwo is very low and at least two primate species are now considered to be extinct: the crowned guenon (*Cercopithecus pogonias*) and the grey-cheeked mangabey (*Lophocebus albigena*). In addition to hunting a major unresolved problem is the presence of three large enclaved villages within the park. Two enclaves were created to accommodate these villages when the area was established as the Okwangwo Forest Reserve in 1930. However, since that time the villages have increased greatly in size and large areas of forest have been cleared for farmland. The expansion of these farmlands threatens to sever the park into 2 two halves – isolating the gorillas within the Boshi Extension from those in the rest of Okwangwo and Takamanda National Park (TNP) in Cameroon. With technical assistance from the North Carolina Zoo, WCS established a CyberTracker-based monitoring project in Okwangwo in 2011 with funding from the Great Ape Conservation Fund of the US Fish and Wildlife Service, the Great Apes Program of the Arcus Foundation and others. The main objectives of this project are to strengthen existing law enforcement efforts by increasing the frequency, duration, coverage and efficacy of anti-poaching patrols and to monitor wildlife, human sign and the effectiveness of ranger patrols. A key feature of the project is strengthening transboundary conservation between Okwangwo and the adjacent TNP.

This report presents summary of patrol data for the period from January to December 2019. It does not include information on conservation education or community conservation work and alternative livelihood work at the site. Information on livelihoods, conservation education or community conservation works can be found in the WCS quarterly reports from Okwangwo which are available online at <https://nigeria.wcs.org/>. An annual report each year is used to monitor hunting pressure in Okwangwo and to gauge the effectiveness of our conservation efforts at the site.

Methods

Eight patrols were conducted each month by four teams comprised of six CRNP rangers each and supervised by WCS staff. The teams patrol different areas simultaneously. The patrols focused on the Boshi Extension and Okwa Hills areas of the park, which are core areas used by gorillas and chimpanzees, but also covered the lowland area between Butatong, Okwangwo and Bamba villages, which is targeted for ebony logging. Signs of human activity and wildlife were recorded using handheld computers running SMART (Spatial Monitoring and Reporting Tool) software which automatically records GPS coordinates for every observation. Data were analyzed using SMART software.

Results

Patrol effort

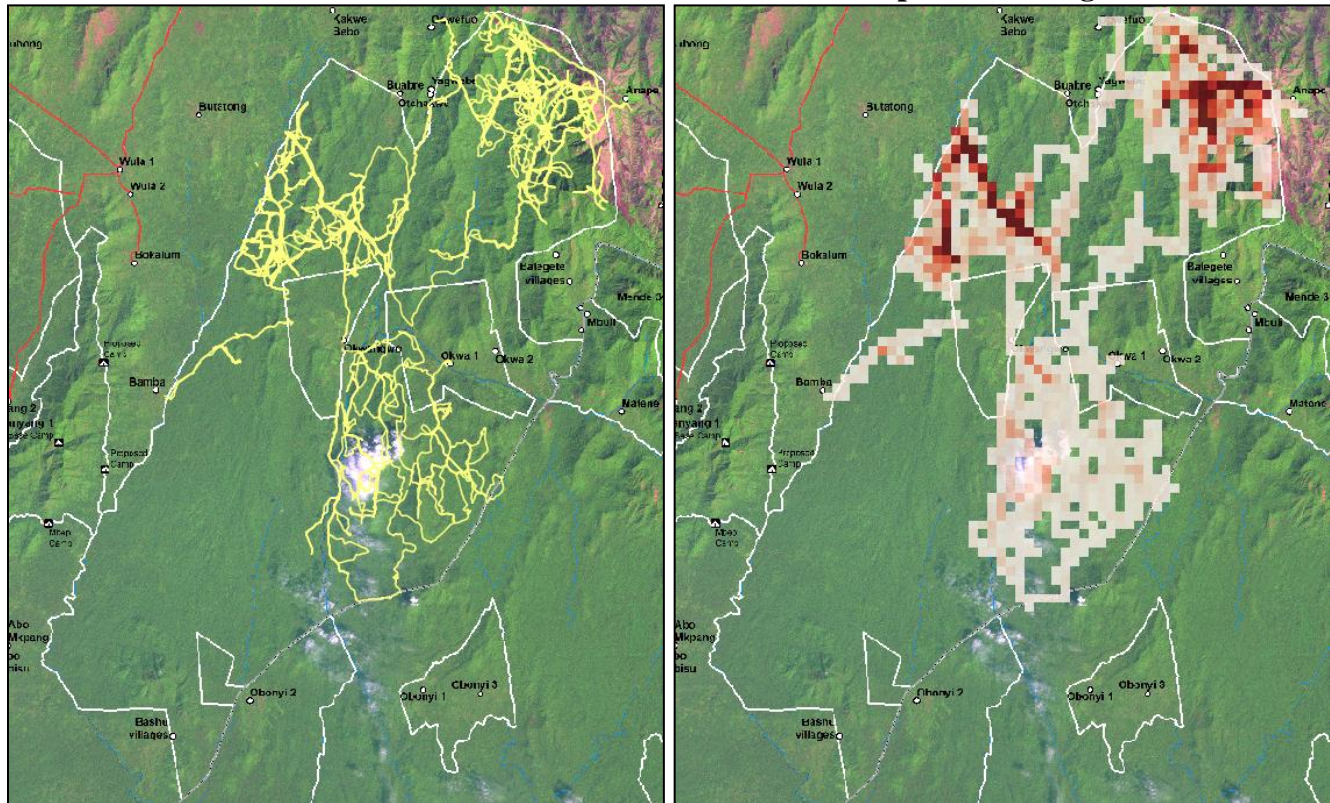
A total of 63 long-distance foot patrols were completed this year covering 2,765.1km over 388 patrol days (an increase in patrol effort compared to the previous year) in the Boshi Extension, Okwa Hills and the lowland area between Butatong, Okwangwo and Bamba villages (Table 1; Fig 1). The patrols did not cover the area southwest of the Okwa Hills (“salt lick” area) which is frequently visited by forest elephants.

Table 1: Comparison of patrol effort in Okwangwo 2011-2019

	2011	2012	2013	2014	2015	2016	2017	2018	2019
No of patrols	13	35	40	44	46	47	51	49	63
No of patrol days	87	235	317	382*	358*	341*	348	377	388
Distance covered (km)	527	1,603	2,187	2,165*	2,503*	2,001*	2059	2,291	2,765

*Incomplete data due to problems encountered with PDAs used for data collection in the field resulting in data not collected with CyberTracker on some patrol days (41 patrol days in 2014, 10 in 2015 and 59 in 2016).

Figure 1. Patrol tracklogs and effort in km walked per grid cell for the period January to December 2019. Darker red color indicates areas of more intense patrol coverage.



Hunting pressure

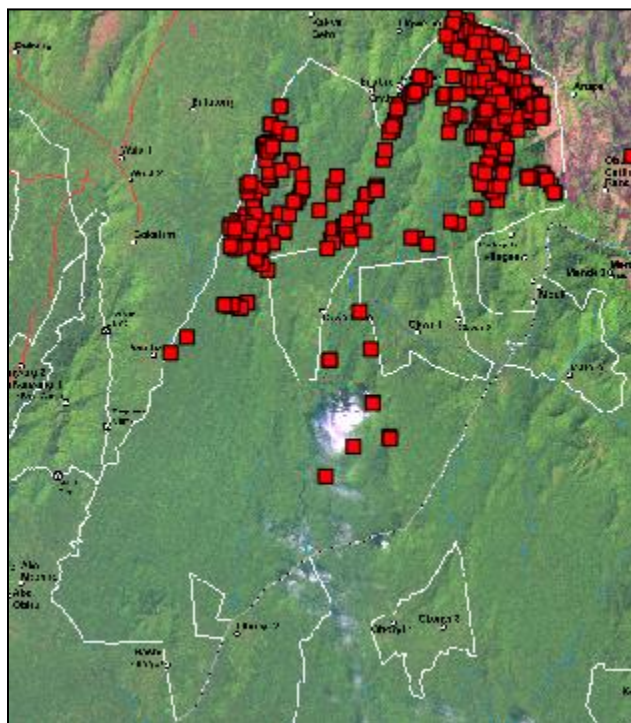
Hunting with wire snares is a major threat to great apes and other wildlife in the park. During 2019, a total of 1,649 set wire snares and 357 empty cartridges were recorded, and 52 hunting camps were found and destroyed. This shows an increase in hunting activity recorded when compared to 2018.

Table 2: Comparison of hunting pressure in Okwangwo from 2011-2019

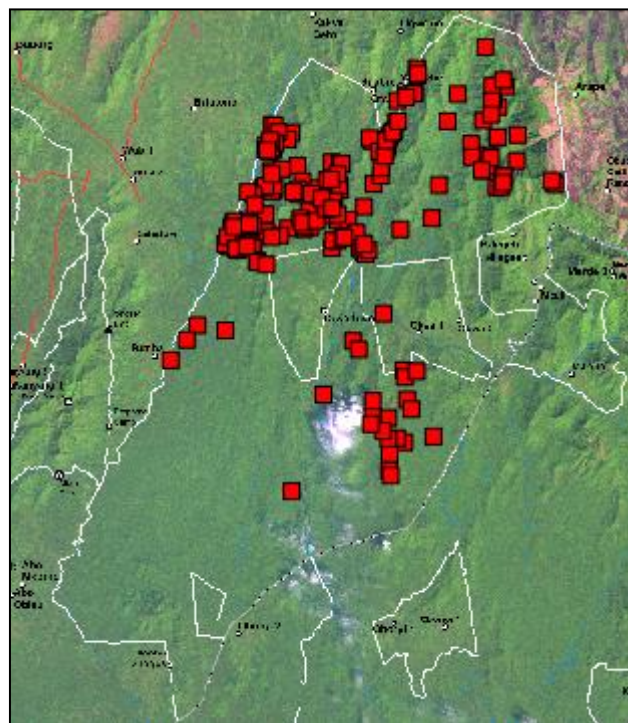
Sign	Encounter rate/10km								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Wire snares	32.60	18.60	7.00	3.18	0.39	2.66	3.38	3.95	5.96
Expended cartridges	5.90	6.60	3.46	2.13	0.66	0.45	0.20	0.79	1.29
Gunshot heard	0.17	0.24	0.17	0.04	0.04	0.02	0.04	0.07	0.12
No of hunting camps destroyed	1.12	0.81	0.48	0.36	0.15	0.10	0.06	0.20	0.18
No of patrol days	87	235	317	382	358	341	348	377	388
Total distance covered (km)	527	1,603	2,187	2,165*	2,503*	2,001*	2059	2,291	2,765

*Incomplete data due to problems with encountered with PDAs used for data collection in the field resulting in data not collected with CyberTracker on some patrol days (41 patrol days in 2014, 10 in 2015 and 59 in 2016).

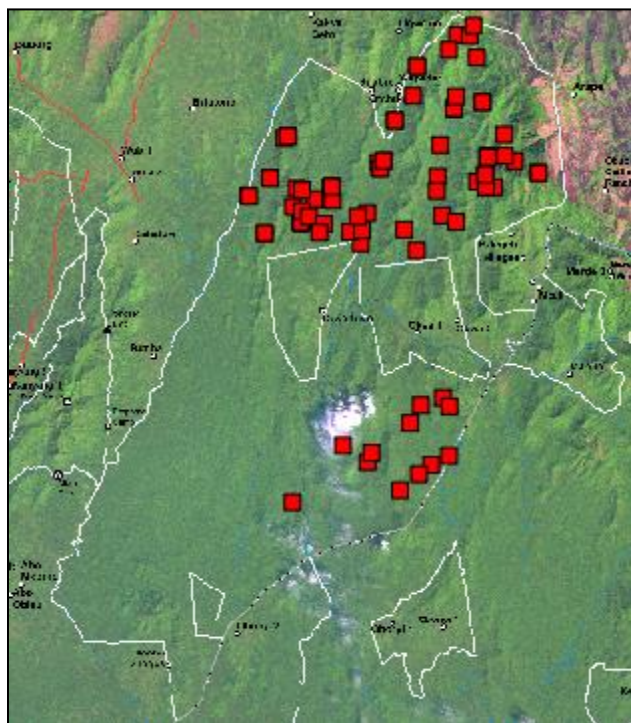
Figure 2: Distribution of all signs of human activity recorded during the period January to December 2019.



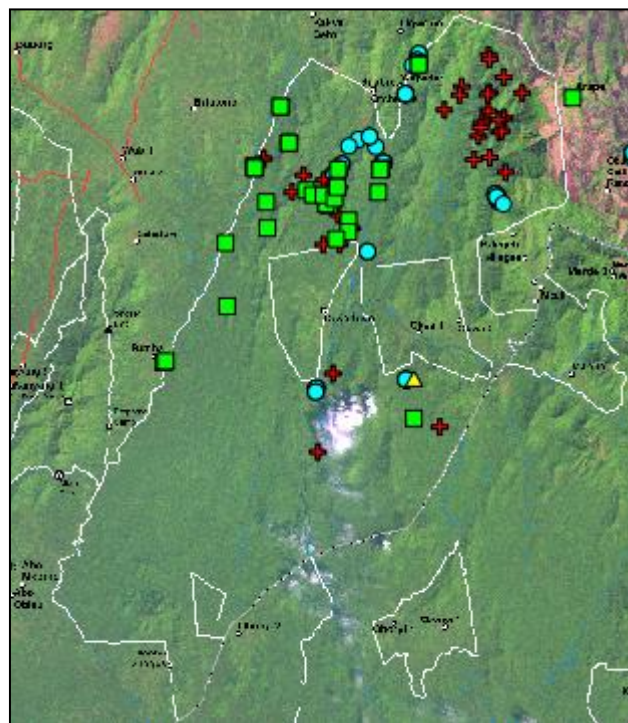
a) Wire snares



b) Empty cartridges



c) Sheds and camps



d) Farms (circles), gunshots heard (crosses), logging (squares), and NTFP collection (triangles)

Patrols in 2019 arrested 20 offenders including 12 hunters. Others were arrested for logging farm encroachment, grazing livestock inside the park, and illegal harvesting of cattle stick (*Carpolobia lutea*). Majority of the cases were “compounded” and the offenders made to pay stipulated fines. However, prosecution of offenders is a more effective deterrent and should be pursued as much as possible.

During the bush mango season it is usually difficult for rangers to determine whether people seen in the Park were only collecting bush mango (which is permitted) or also hunting and carrying out other illegal activities. In neighboring Takamada National Park in Cameroon, bush mango collectors are registered and given identification numbers. It might be useful to introduce this practice in Okwangwo.



A camp inside the park used to gather and bush mango

Following the construction of a World Bank funded bridge over the Bemi River in 2012, and approval by the Nigeria National Park Service (NNPS) for the construction of a road to Okwangwo village, the community has continued to agitate for the construction of the road, occasionally stopping patrols in the Okwa Hills for several months to draw the attention of the Park management.

Wildlife Observations

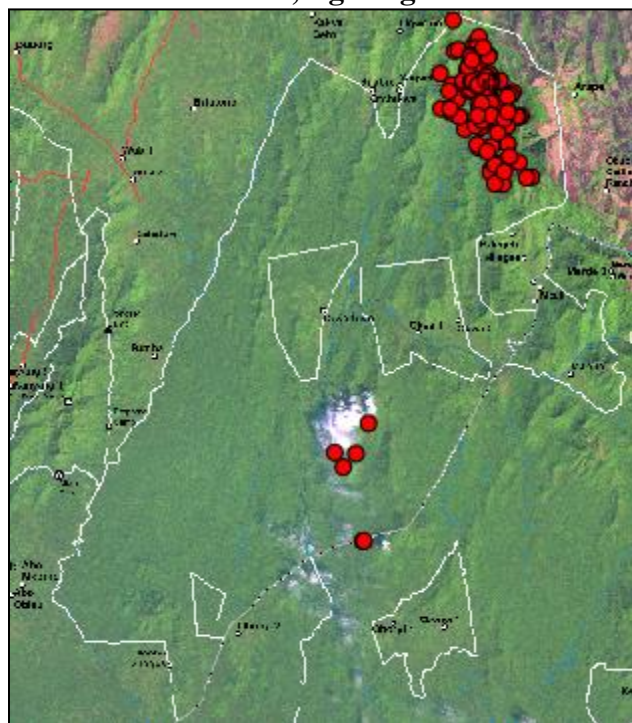
Great apes

Great apes were sighted nine times during the year under review. Gorillas were sighted once and chimpanzees on eight occasions (Table 3). A total of 194 great ape nest sites were also recorded during 2019 (125 gorilla, 54 chimpanzee and 15 unidentified).

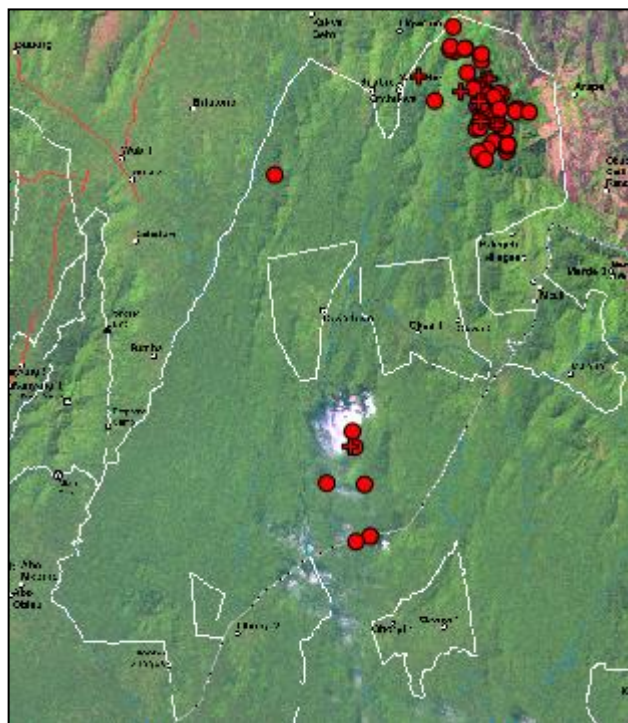
Table 3: Ape sightings recorded for the period January to December 2019.

Date	Species	No of Adult Males	No of Adult Females	No of Young	No Age/Sex Unknown	Total
Nov 27, 2019	Chimpanzee	8				8
Aug 18, 2019	Chimpanzee	1	2		3	6
Aug 14, 2019	Gorilla	1			1	2
Nov 14, 2019	Chimpanzee	8	0	0	0	8
Nov 17, 2019	Chimpanzee	8				8
Oct 17, 2019	Chimpanzee	5				5
Sep 23, 2019	Chimpanzee				2	2
Nov 25, 2019	Chimpanzee	12	4	3		19
Sep 17, 2019	Chimpanzee	5				5

Figure 3: Ape sightings and nest sites recorded for the period January to December 2019. Nest sites shown as circles, sightings shown as crosses.



a) Gorillas



b) Chimpanzees



c) Unidentified apes

Table 4: Number and encounter rate of ape nest sites recorded for the period January to December 2019.

Species	Number of nest sites	Encounter rate of nest sites per km
Chimpanzee	54	0.020
Gorilla	125	0.045
Unidentified great ape	15	0.005

Figure 4: Monkey sightings recorded for the period January to December 2019

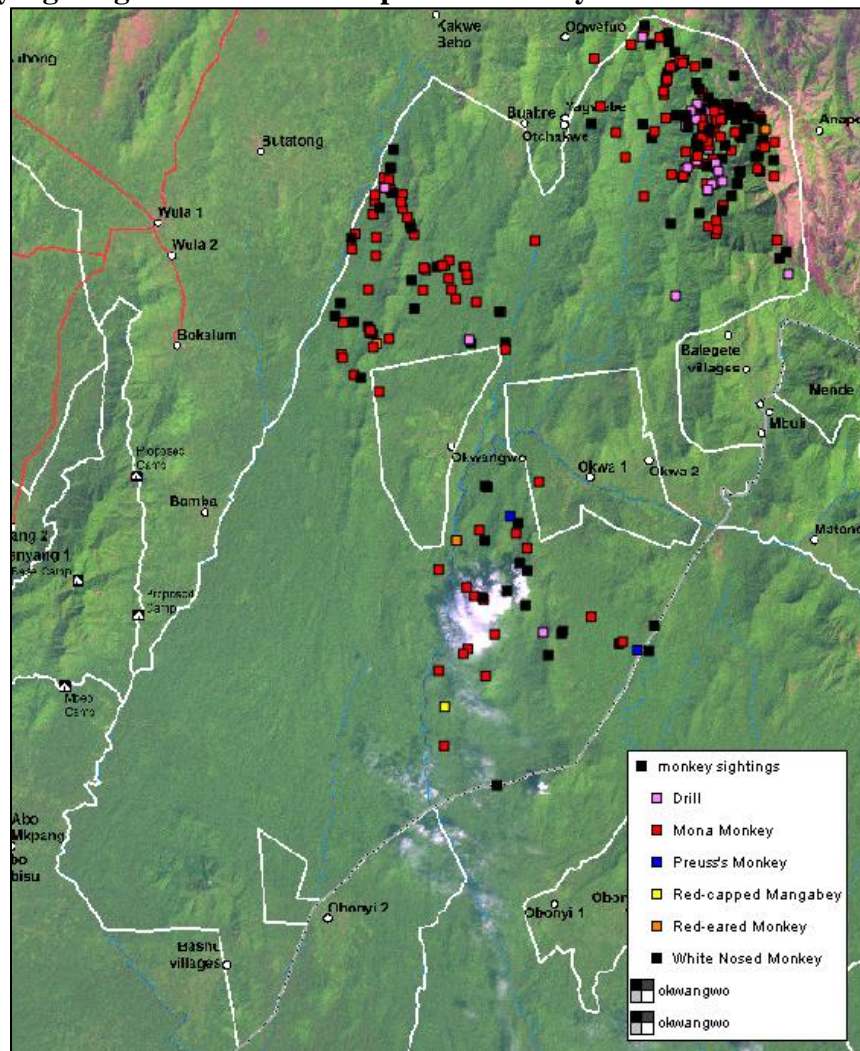


Table 5: Number and encounter rate of monkey species observed for the period January to December 2019.

Common	Scientific name	Encounter rate
Drill	<i>Mandrillus leucophaeus</i>	0.009
Mona Monkey	<i>Cercopithecus mona</i>	0.051
Preuss's Monkey	<i>Cercopithecus preussi</i>	0.001
Red-eared Monkey	<i>Cercopithecus erythrotis</i>	0.001
White Nosed Monkey	<i>Cercopithecus nictitans</i>	0.044

Conclusion

Threats to wildlife in Okwangwo are enormous, resulting in relatively low animal densities. In addition to hunting, farm encroachment and illegal in some areas of the park are increasing threats. Although current patrols are helping to reduce levels of poaching, they are clearly not enough to effectively protect the entire park (Okwangwo Division covers 640 km²). Inaccessibility of some parts of the park during the rainy season due to large rivers, and weak community support greatly hinders law enforcement in Okwangwo. Local support for law enforcement in particular is essential for the effective protection of the park and needs to improve.

Acknowledgements

WCS is formally registered in Nigeria through an agreement with the Ministry of Budget and National Planning of the Federal Republic of Nigeria. Support for the protection of Cross River National Park by WCS is made possible through an MOU with the Nigeria National Park Service. We are grateful to the Great Ape Conservation Fund of the United States Fish and Wildlife Service, Arcus Foundation, Critical Ecosystem Partnership Fund (CEPF), GRASP, and Margot Marsh Biodiversity Foundation. Dr. Richard Bergl of North Carolina Zoo introduced CyberTracker in Nigeria in 2009 which has now been replaced by SMART, and has provided close technical support for the project since then, refining and improving the system further.

Appendix i: SMART-CyberTracker Data from Okwangwo for 2011-2019

	2011*	2012*	2013	2014	2015	2016	2017	2018	2019
No. of wire snares	1,717	3,026	1540	690	99	534	696	907	1649
No. of gunshots heard	9	39	38	9	11	3	10	17	34
No. of expended cartridges	309	1,065	757	463	166	90	43	178	357
No. of hunting camps/sheds destroyed	59	130	106	80	39	37	14	46	52
No. of farms recorded	54	25	5	25	1	9	1	14	48
No. of logging sites	14	27	8	7	9	16	1	15	36
No. of poachers apprehended	0	4	13	3	2	3	2	3	20
No. of gorilla groups sighted	0	2	0	0	0	1	0	1	1
No. of chimpanzee groups sighted	0	3	1	3	1	2	2	2	8
Gorilla nest sites recorded	21	21	59	26	56	18	57	137	125
Chimpanzee nest sites	10	7	11	20	39	24	40	77	54
Unidentified great ape nest sites	1	22	11	1	27	23	14	21	15
Time taken (hours)	485	1,401	1,947	2,197	2,593	2,180	2,444	2438	2671
Total distance covered (km)	527	1,603	2,187	2,165	2,503	2,001	2059	2291	2765
No of patrol days	87	235	317	332	358	282*	348	377	388
Number of rangers per 10km ²	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

*In 2011 data available only for the period March–June & September–December; in 2012 data not available for August; in 2016 data not available for 59 patrol days

Appendix ii: Great ape nest sites recorded in January to December 2019

Species	Nest site type	Age	Dung present	Number of ground nests	Total number of nests
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Fresh	false	0	5
Chimpanzee	Night nest(s)	Recent	false	0	6
Chimpanzee	Night nest(s)	Fresh	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Very old	false	0	6
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Old	false	0	3
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Recent	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	1
Chimpanzee	Night nest(s)	Recent	false	0	8
Chimpanzee	Night nest(s)	Fresh	false	0	9
Chimpanzee	Night nest(s)	Fresh	false	0	1
Chimpanzee	Night nest(s)	Old	false	0	4
Chimpanzee	Night nest(s)	Old	false	0	9
Chimpanzee	Night nest(s)	Old	false	0	5
Chimpanzee	Night nest(s)	Recent	false	0	8
Chimpanzee	Night nest(s)	Old	false	0	2
Chimpanzee	Night nest(s)	Recent	false	0	4
Chimpanzee	Day nest(s)	Fresh	true	0	6
Chimpanzee	Night nest(s)	Very old	false	0	4
Chimpanzee	Day nest(s)	Recent	false	0	8
Chimpanzee	Night nest(s)	Old	false	0	4
Chimpanzee	Night nest(s)	Old	false	0	4
Chimpanzee	Night nest(s)	Fresh	false	0	2
Chimpanzee	Night nest(s)	Recent	false	0	2
Chimpanzee	Night nest(s)	Fresh	false	0	3
Chimpanzee	Night nest(s)	Fresh	false	0	1
Chimpanzee	Night nest(s)	Fresh	false	0	4
Chimpanzee	Night nest(s)	Fresh	false	0	3
Chimpanzee	Night nest(s)	Fresh	false	0	6
Chimpanzee	Night nest(s)	Old	false	0	2
Chimpanzee	Night nest(s)	Recent	false	0	2
Chimpanzee	Night nest(s)	Recent	false	0	6
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Old	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	3
Chimpanzee	Night nest(s)	Fresh	false	0	3
Chimpanzee	Night nest(s)	Recent	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	6
Chimpanzee	Night nest(s)	Old	false	0	4
Chimpanzee	Night nest(s)	Recent	false	0	3
Chimpanzee	Night nest(s)	Recent	false	0	6
Chimpanzee	Night nest(s)	Recent	false	0	6
Chimpanzee	Night nest(s)	Recent	false	0	2
Chimpanzee	Night nest(s)	Very old	false	0	1

Chimpanzee	Night nest(s)	Very old	false	0	3
Chimpanzee	Night nest(s)	Fresh	false	0	4
Chimpanzee	Night nest(s)	Fresh	false	0	7
Chimpanzee	Night nest(s)	Old	false	0	1
Chimpanzee	Night nest(s)	Fresh	false	0	12
Gorilla	Night nest(s)	Very old	false	2	2
Gorilla	Night nest(s)	Fresh	false	3	3
Gorilla	Night nest(s)	Fresh	true	1	5
Gorilla	Night nest(s)	Recent	false	2	7
Gorilla	Night nest(s)	Recent	false	3	6
Gorilla	Night nest(s)	Recent	false	3	8
Gorilla	Night nest(s)	Fresh	true	3	8
Gorilla	Night nest(s)	Fresh	false	2	6
Gorilla	Night nest(s)	Fresh	true	2	6
Gorilla	Night nest(s)	Old	false	1	5
Gorilla	Night nest(s)	Very old	false	2	5
Gorilla	Night nest(s)	Fresh	true	2	4
Gorilla	Night nest(s)	Fresh	true	4	5
Gorilla	Night nest(s)	Fresh	true	3	8
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Recent	false	1	3
Gorilla	Night nest(s)	Recent	false	3	8
Gorilla	Night nest(s)	Recent	false	3	6
Gorilla	Night nest(s)	Recent	false	2	6
Gorilla	Night nest(s)	Fresh	false	2	6
Gorilla	Night nest(s)	Recent	false	3	8
Gorilla	Night nest(s)	Fresh	false	4	4
Gorilla	Night nest(s)	Fresh	true	2	6
Gorilla	Night nest(s)	Fresh	true	1	4
Gorilla	Night nest(s)	Recent	true	3	8
Gorilla	Night nest(s)	Fresh	true	2	2
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Old	false	1	1
Gorilla	Night nest(s)	Fresh	false	1	5
Gorilla	Night nest(s)	Recent	false	3	8
Gorilla	Day nest(s)	Fresh	false	1	1
Gorilla	Night nest(s)	Fresh	false	1	2
Gorilla	Night nest(s)	Fresh	false	1	2
Gorilla	Night nest(s)	Recent	false	1	4
Gorilla	Night nest(s)	Recent	true	0	2
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Fresh	true	1	3
Gorilla	Night nest(s)	Recent	false	3	3
Gorilla	Night nest(s)	Fresh	false	2	2
Gorilla	Night nest(s)	Old	false	6	
Gorilla	Night nest(s)	Very old	false	2	5
Gorilla	Night nest(s)	Old	false	1	3
Gorilla	Night nest(s)	Old	false	1	1
Gorilla	Night nest(s)	Recent	true	1	3
Gorilla	Night nest(s)	Fresh	true	2	2
Gorilla	Night nest(s)	Fresh	false	1	1
Gorilla	Night nest(s)	Fresh	false	1	5
Gorilla	Night nest(s)	Fresh	false	1	4
Gorilla	Night nest(s)	Recent	true	0	2

Gorilla	Night nest(s)	Fresh	false	1	2
Gorilla	Night nest(s)	Recent	false	1	2
Gorilla	Night nest(s)	Fresh	false	1	3
Gorilla	Night nest(s)	Fresh	true	0	2
Gorilla	Night nest(s)	Recent	true	0	1
Gorilla	Day nest(s)	Fresh	false	1	
Gorilla	Day nest(s)	Fresh	false	2	
Gorilla	Night nest(s)	Fresh	false	1	4
Gorilla	Day nest(s)	Fresh	false	1	
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Recent	true	1	4
Gorilla	Day nest(s)	Recent	false	1	
Gorilla	Night nest(s)	Fresh	true	0	6
Gorilla	Night nest(s)	Fresh	false	2	6
Gorilla	Night nest(s)	Fresh	true	0	8
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Recent	false	2	4
Gorilla	Night nest(s)	Fresh	true	1	3
Gorilla	Night nest(s)	Recent	false	1	2
Gorilla	Night nest(s)	Fresh	false	1	3
Gorilla	Night nest(s)	Fresh	false	3	5
Gorilla	Night nest(s)	Recent	false	1	1
Gorilla	Night nest(s)	Fresh	false	2	
Gorilla	Night nest(s)	Recent	false	1	1
Gorilla	Day nest(s)	Fresh	false	1	1
Gorilla	Night nest(s)	Fresh	true	2	5
Gorilla	Night nest(s)	Recent	true	3	
Gorilla	Day nest(s)	Fresh	true	1	
Gorilla	Night nest(s)	Recent	true	1	3
Gorilla	Night nest(s)	Fresh	false	1	5
Gorilla	Night nest(s)	Recent	false	1	4
Gorilla	Night nest(s)	Fresh	true	2	
Gorilla	Day nest(s)	Fresh	false	1	
Gorilla	Night nest(s)	Fresh	true	1	6
Gorilla	Night nest(s)	Fresh	false	3	8
Gorilla	Night nest(s)	Recent	false	1	4
Gorilla	Night nest(s)	Fresh	true	3	8
Gorilla	Night nest(s)	Fresh	false	2	6
Gorilla	Night nest(s)	Fresh	true	3	8
Gorilla	Night nest(s)	Recent	false	2	6
Gorilla	Night nest(s)	Recent	false	2	5
Gorilla	Night nest(s)	Recent	true	2	6
Gorilla	Night nest(s)	Fresh	false	2	5
Gorilla	Day nest(s)	Fresh	true	1	
Gorilla	Day nest(s)	Recent	false	1	
Gorilla	Day nest(s)	Fresh	false	1	
Gorilla	Night nest(s)	Fresh	false	1	3
Gorilla	Night nest(s)	Fresh	true	1	
Gorilla	Night nest(s)	Fresh	true	1	5
Gorilla	Day nest(s)	Fresh	true	1	
Gorilla	Night nest(s)	Recent	false	2	4
Gorilla	Night nest(s)	Recent	true	1	3
Gorilla	Night nest(s)	Fresh	true	4	4
Gorilla	Night nest(s)	Recent	true	2	6

Gorilla	Night nest(s)	Old	false	3	6
Gorilla	Night nest(s)	Recent	true	2	8
Gorilla	Night nest(s)	Recent	true	2	5
Gorilla	Night nest(s)	Recent	false	2	6
Gorilla	Night nest(s)	Fresh	false	3	6
Gorilla	Night nest(s)	Fresh	true	3	10
Gorilla	Night nest(s)	Fresh	true	1	4
Gorilla	Night nest(s)	Old	false	3	4
Gorilla	Day nest(s)	Fresh	false	1	2
Gorilla	Night nest(s)	Fresh	true	7	7
Gorilla	Night nest(s)	Fresh	false	3	6
Gorilla	Night nest(s)	Fresh	true	3	5
Gorilla	Night nest(s)	Recent	true	3	3
Gorilla	Night nest(s)	Fresh	true	1	5
Gorilla	Night nest(s)	Fresh	false	2	6
Gorilla	Night nest(s)	Recent	false	2	5
Gorilla	Night nest(s)	Old	false	2	6
Gorilla	Night nest(s)	Fresh	true	5	8
Gorilla	Night nest(s)	Fresh	true	3	6
Gorilla	Night nest(s)	Fresh	true	5	10
Gorilla	Night nest(s)	Fresh	true	3	6
Gorilla	Night nest(s)	Fresh	true	5	8
Unidentified great ape	Night nest(s)	Old	false	0	1
Unidentified great ape	Night nest(s)	Recent	false	0	3
Unidentified great ape	Night nest(s)	Recent	false	0	5
Unidentified great ape	Night nest(s)	Recent	false	0	3
Unidentified great ape	Night nest(s)	Recent	false	0	2
Unidentified great ape	Night nest(s)	Recent	false	0	3
Unidentified great ape	Night nest(s)	Recent	false	0	2
Unidentified great ape	Night nest(s)	Recent	false	0	3
Unidentified great ape	Night nest(s)	Old	false	0	6
Unidentified great ape	Night nest(s)	Fresh	false	0	3
Unidentified great ape	Night nest(s)	Recent	false	0	2
Unidentified great ape	Night nest(s)	Fresh	false	0	4
Unidentified great ape	Night nest(s)	Fresh	false	0	4
Unidentified great ape	Night nest(s)	Fresh	false	0	8
Unidentified great ape	Night nest(s)	Recent	false	0	3

Appendix iii. Encounter rate of wildlife species observed during patrols, January to December 2019.

Common name	Number of Observations	Encounter rate per km
Unidentified monkey	-	0.315
Brush-tailed porcupine	<i>Atherurus africanus</i>	0.305
Mona monkey	<i>Cercopithecus mona</i>	0.226
Red river hog	<i>Potamochoerus porcus</i>	0.211
Common mongoose	<i>Crossarchus sp</i>	0.197
White-nosed monkey	<i>Cercopithecus nictitans</i>	0.159
Blue duiker	<i>Philantomba monticola</i>	0.154
Yellow-backed duiker	<i>Cephalophus silvicultor</i>	0.108
Nigeria-Cameroon chimpanzee	<i>Pan troglodytes ellioti</i>	0.064
Cross River gorilla	<i>Gorilla gorilla diehli</i>	0.053
Unidentified large duiker	-	0.046
Drill	<i>Mandrillus leucophaeus</i>	0.041
Unidentified great ape	-	0.030
African vivet	<i>Civettictis civetta</i>	0.028
Bay duiker	<i>Cephalophus dorsalis</i>	0.022
Cane rat	<i>Thryonomys swinderianus</i>	0.022
Forest elephant	<i>Loxodonta cyclotis</i>	0.022
Pangolin	<i>Phataginus tricuspis</i>	0.013
ForestBuffalo	<i>Syncerus caffer</i>	0.012
Preuss's monkey	<i>Cercopithecus preussi</i>	0.010
Unidentified medium duiker	-	0.007
Palm civet	<i>Nandinia binotata</i>	0.005
Rock Fowl	<i>Picathartes oreas</i>	0.004
Unidentified small duiker	-	0.004
Bushbuck	<i>Tragelaphus scriptus</i>	0.003
Ogilby's duiker	<i>Cephalophus ogilbyi</i>	0.003
Red-eared monkey	<i>Cercopithecus erythrotis</i>	0.001

Appendix iv: Summary of arrests for the period January to December 2019

Leader	Waypoint Date	Home Village	Name	Threat	outcome
William Utang Esira	Dec 16, 2019	NA	Isara	Gun hunting	Compounded
Stephen Odu Arop	May 28, 2019	Butatong	Emmanuel	Logging	In court
Stephen Odu Arop	May 28, 2019	Benue state	James	Logging	Compounded
Mathias Mbua Osor	Nov 25, 2019	Ogbuefor (Bumaji)	Dominic Ishi	Gun hunting	Compounded
Mathias Mbua Osor	Nov 26, 2019	Okwa I	Obua Samuel	Hunting	Compounded
Edet Etim Ekor	Jan 21, 2019	Taraba state	Ali Lamu	Livestock	Compounded
William Utang Esira	May 17, 2019	Buabre	Stanley Tawo	Trapping	Compounded
William Utang Esira	Jul 29, 2019	Bamba	Umaro Gambo	NTFP Collection	Compounded
Edet Etim Ekor	May 17, 2019	Buabre	Ijow Cyprian	Trapping	Compounded
William Utang Esira	May 28, 2019	Butatong	John	Logging	In court
William Utang Esira	Sep 11, 2019	Kakwa Bebuo	Francis Nzu	Trapping	Compounded
William Utang Esira	Nov 12, 2019	Butatong	Peter Akinare	Logging	Compounded
William Utang Esira	Nov 12, 2019	Butatong	Owoh Ojovick	Logging	Compounded
Kingsley Otu Osang	Sep 21, 2019	Okwangwo	Jeffrey Obi	Hunting	Compounded
Kingsley Otu Osang	Sep 27, 2019	Otchakwe	Benjamin	Farming	Escaped from cell
William Utang Esira	Oct 10, 2019	Okwa I	Chima Mbey	Gun hunting	Compounded
Magnus Ukpeve	Jul 27, 2019	Belegete village	Akor Abraham	Hunting	Compounded
Kingsley Otu Osang	Sep 11, 2019	Kakwa Bebuo	John Akabo Otu	Trapping	Compounded
William Utang Esira	Nov 26, 2019	Okwa I	Chima Mbey	Gun hunting	Compounded
Moses Egbe	Apr 24, 2019	Okwangwo	Joseph Etoh	Gun hunting	Compounded