



AFI MOUNTAIN WILDLIFE SANCTUARY ANNUAL REPORT: 2021



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Summary

This report presents results of ranger patrols of Afi Mountain Wildlife Sanctuary (AMWS) implemented from January to December 2021 with support from the Wildlife Conservation Society (WCS). It also outlines activities implemented by WCS during the same period to raise levels of conservation awareness in local communities and improve local livelihoods. The results of law enforcement patrols in 2021 are compared to those from previous years (2013-2020) to evaluate the effectiveness of law enforcement action at the site. In 2021, Community Rangers employed by WCS completed a total of 72 patrols of AMWS covering 1834.4 kilometers over 402 patrol days (2,388 patrol man-days). A total of 18 offenders were encountered, 15 of which were apprehended including nine hunters. A total of 672 wire snares were removed from the sanctuary and 14 hunting camps were dismantled. In addition to hunting, farm encroachment and illegal logging are increasing threats at Afi. Ten logging sites and several farms were encountered by rangers during these patrols mostly in the lowland area around Boje and Njua while farms were seen mostly in the northeastern axis of the sanctuary around Olum. Rangers sighted gorillas on two occasions by rangers during patrols this year. On one occasion a group numbering seven individuals including three females and four males was sighted in the Boje axis of the sanctuary. The second sighting was in the Esekwe axis of the sanctuary – a group including infants. Due to the nature of the encounter (the rangers were charged aggressively by a silverback), the size of the group could not be determined, and GPS coordinates of the location could not be recorded. A total of 36 ape nest sites were observed: 22 gorilla, 11 chimpanzee, and 3 unidentified. Two nest sites were found outside the sanctuary in the Olum Hills area by “Gorilla Guardians” employed by WCS to monitor gorilla presence outside the sanctuary. Monkeys sighted include Mona monkey *Cercopithecus mona* (106 sightings), drill *Mandrillus leucophaeus* (78 sightings), and putty-nosed monkey *Cercopithecus nictitans* (84 sightings). Other large mammals sighted include blue duiker (*Philantomba monticola*), red river hog (*Potamochoerus porcus*) and brush-tailed porcupine (*Atherurus africanus*).

Activities implemented to raise awareness include presentation of conservation focused films in the 16 surrounding communities (viewed by a total of 6,394 people), 21 exchange visits between school conservation clubs to facilitate exchange of ideas and experiences, 19 guided field trips, 32 school visits by WCS education staff, and 29 community meetings. A total of 240 customized notebooks designed to promote the Cross River gorilla and forest elephant conservation were distributed as awareness materials and awards to the best performing conservation club members and teachers. Other activities include celebration of World Environment Day and World Gorilla Day.

Livelihood activities implemented during this reporting period include training of farmers in agricultural best practices, establishment of cocoa nurseries to raise improved seedlings for replanting old cocoa farms to improve productivity and gradually reduce deforestation from expansion.

Introduction

Established in 2000, AMWS is managed by the Cross River State Forestry Commission (CRSFC). AMWS occupies about 100 km² in the northeastern part of Afi River Forest Reserve, which has a total area of 380 km². The sanctuary includes both the Afi Mountain massif, a rugged hill range with five main peaks, and an extensive lowland area. AMWS is the western-most Cross River gorilla site and is home to about 10% of the total Cross River population. Levels of hunting and other human activities in the sanctuary are high due to previously poor levels of protection. WCS has supported conservation and research at Afi since 1996,

focusing on gorilla monitoring and conservation education. In 2011 WCS expanded this project to include support for CyberTracker based law enforcement and protection by CRSFC rangers. In 2015, a SMART based law enforcement and protection program (<http://smartconservationtools.org/>) was initiated and transitioned to SMART in 2016. WCS has implemented a conservation education program in the Cross River gorilla landscape since 2011 to complement the existing law enforcement monitoring project there. The program focuses on increasing conservation awareness among communities surrounding the wildlife sanctuary and building local support for conservation. Focusing on cocoa farmers and women's groups, the project aims to improve local livelihoods by improving the productivity and sustainability of cocoa, a major source of income for local communities but also a major driver of deforestation in the region, and the sustainability of non-timber forest products harvesting and marketing. This report covers law enforcement, education and livelihood activities supported by WCS in AMWS during the period from January to December 2021.

Methods

Each day, two teams comprising six CRSFC rangers each, patrolled different areas of the sanctuary in order to maximize the area covered. The teams searched areas where hunting activities were suspected or known to be relatively high based on information from informants and results of previous patrols. Patrols this year covered the Esekwe Camp, Nkayang-Kakubok, Njua, Base Camp, Olum, Kathe-Asuben-Katabang, Buanchor-Drill Ranch, and Ebakken-Boje-Asuben sectors of the sanctuary. Valleys and areas around known access trails were targeted. Signs of human activity and large mammals were recorded using SMART. All detected wire snares and hunting camps were destroyed. Data were analyzed using SMART software.

Results

1. Law Enforcement

Patrol effort

Seventy-two patrols were completed during this period over 2,388 patrol man-days covering a total distance of 1,834.4 kilometers (Figure 1; Table 1).

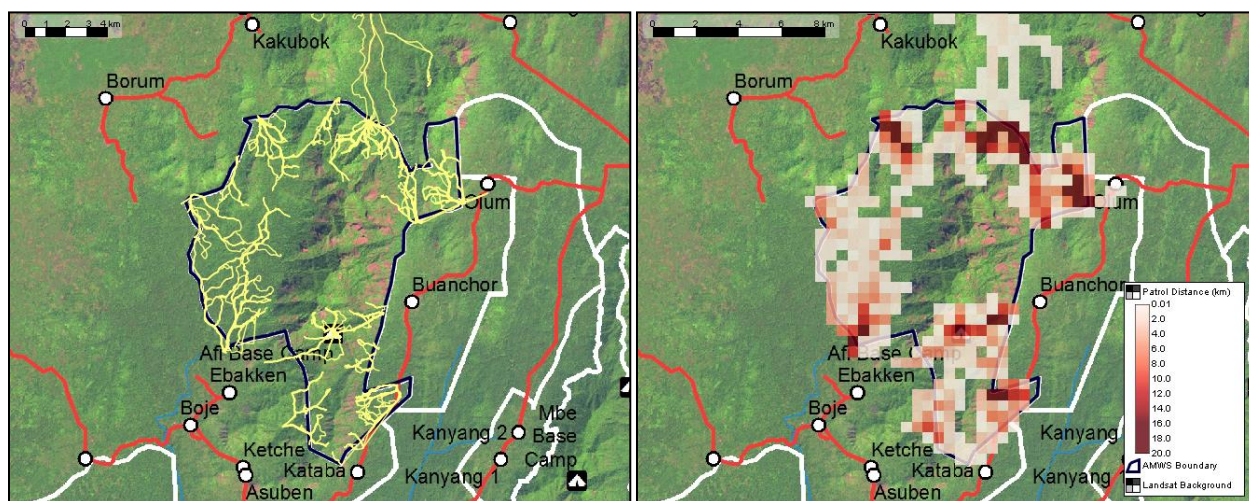


Figure 1. Patrol tracklogs (left) and patrol effort in km walked per grid cell (right) for the period January to December, 2021. Darker red color indicates areas of more intense patrol coverage.

Table 1. Summary of patrol effort by patrol area for the period January to December, 2021.

Area	Number of Patrols	Patrol Days	Patrol Hours	Distance (km)	Person - Days
Base Camp	14	70	300.9	177.2	261
Buanchor-Drill Ranch	12	63	379.2	241.8	366
Ebakken-Boje-Asu	2	11	63.8	67.8	68
Esekwe Camp	19	111	847.8	586.5	799
Kakwagom-Bitiah	1	6	36.3	37.3	25
Katabang Axis	1	6	84.2	40.9	57
Ketche-Asuben	2	12	74.8	67.0	83
Njua Lowland	6	33	219.4	250.7	193
Nkanyang-Kakubo	6	34	106.0	94.3	132
Olum Axis	9	56	453.1	270.9	404
Total	72	402	2565.5	1834.4	2388

Average distance and length of patrols per month

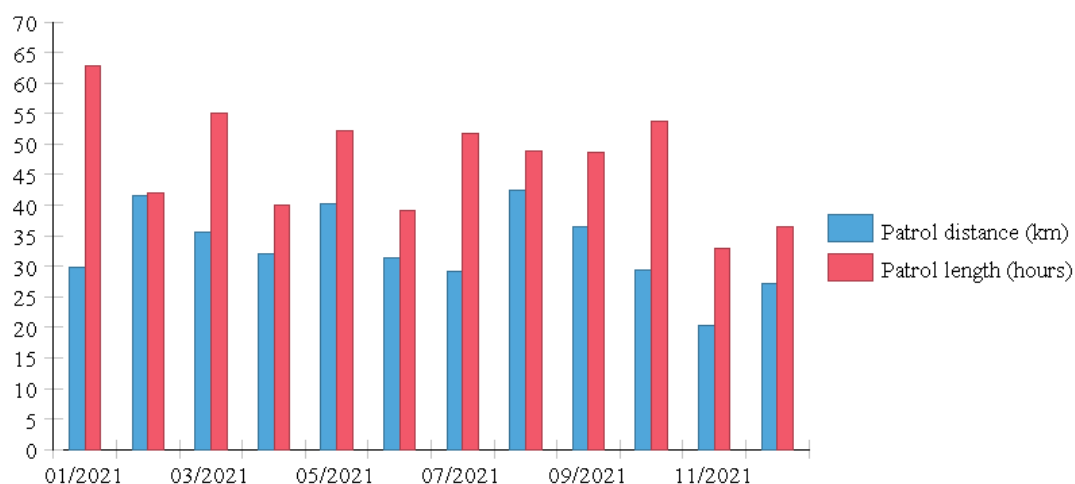


Figure 2. Average distance covered and time taken per patrol per month from January to December, 2021.

Total patrol distance and length per month

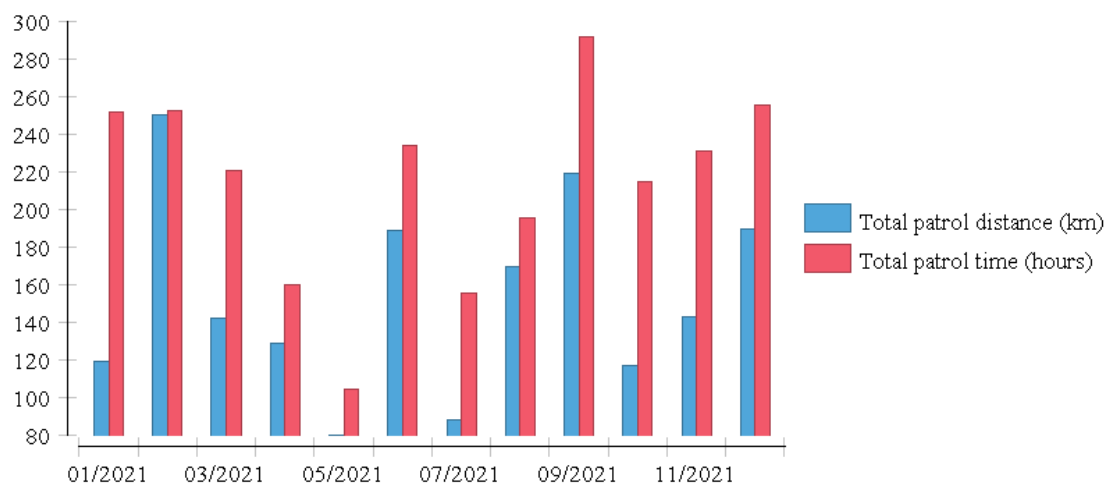


Figure 3. Total patrol distance and time per month from January to December, 2021.

Law enforcement

Encounter rate of wire snares, gunshots heard, and empty cartridges declined in 2021 compared to 2020 as well as the previous two years but remained similar for hunting camps (see Table 2).

Table 2. Comparison of hunting pressure in AMWS from 2013 to 2021

<i>Encounter rate per 10km</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>
Wire snares removed	16.8	9.7	5.3	6.4	8.3	5.9	10.0	16.1	3.7
Gunshots heard	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.5	0.3
Expended shotgun cartridges	1.0	1.6	1.9	1.6	2.2	2.8	2.0	2.7	1.6
Hunting camps destroyed	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1
Number of patrol days	315	303	353	347	488	303	308	326	402
Total distance covered	1,871	1,460	1,899	1,623	1,621	1,572	1732	1,495	1,834.4

Patrols this year led to the arrest of 18 offenders including 9 hunters (Table 3). Several people were seen on farms inside the sanctuary. Arrested offenders were reported to the CRSFC for prosecution. However, none was prosecuted due to lack of political will. The lack of prosecutions is negatively affecting morale of rangers among rangers who take great risks to arrest often armed offenders. The CRSFC needs to make efforts to improve prosecution rate to deter intending offenders. Logging and farm encroachment are increasing threats at Afi encouraged by the lack of action against offenders by the CRSFC. Farms were seen frequently during the patrols and 10 logging sites and over 70 planks and other pieces of timber were sighted awaiting evacuation from the sanctuary. Illegal logging activities discovered by patrol teams were reported to the CRS Anti-Deforestation Task Force and the CRSFC for follow up action, but sadly, little or no action has been taken.

Table 3. Summary of arrests and other law enforcement from January to December, 2021.

Date	Leader	Action Taken	Home Village	Name	Threat
1-Dec-21	Henry Achua	Apprehended	NA	NA	Trapping
9-Jul-21	George Mgbang	Apprehended	NA	NA	Gun hunting
20-Feb-21	Esekwe Gorilla Guardian	Verbal Warning	NA	NA	Trapping
21-Feb-21	Esekwe Gorilla Guardian	Observed only	NA	NA	Burning
8-Jun-21	George Mgbang	Apprehended	Esekwe	Emmanuel Odu	Logging
23-Mar-21	George Mgbang	Apprehended	NA	NA	Farming
8-Apr-21	George Mgbang	Apprehended	Olum	Ananas Achua	Farming
8-Apr-21	George Mgbang	Apprehended	Olum	Kennedy Otu	Farming
8-Apr-21	George Mgbang	Apprehended	Buanchor	Otu Dibang	Farming
11-Oct-21	George Mgbang	Apprehended	Buanchor	NA	Trapping
11-Oct-21	George Mgbang	Apprehended	Buanchor	Christopher Owan	Trapping
11-Oct-21	George Mgbang	Apprehended	Buanchor	Rachael	Farming
27-Jan-21	George Mgbang	Apprehended	Olum	Esabe Oteh	Gun hunting
18-Nov-21	George Mgbang	Verbal Warning	Olum	Asu	Farming
13-Aug-21	Etta Joseph	Apprehended	NA	Eunard Ewah	Gun hunting
11-Nov-21	George Mgbang	Apprehended	Esekwe	Mike	Farming
12-Nov-21	George Mgbang	Apprehended	Bunyaia	Ekwo	Gun hunting
9-Nov-21	George Mgbang	Apprehended	Esekwe	Ebasy	Trapping

Table 4. Number of people seen by threat from January to December, 2021.

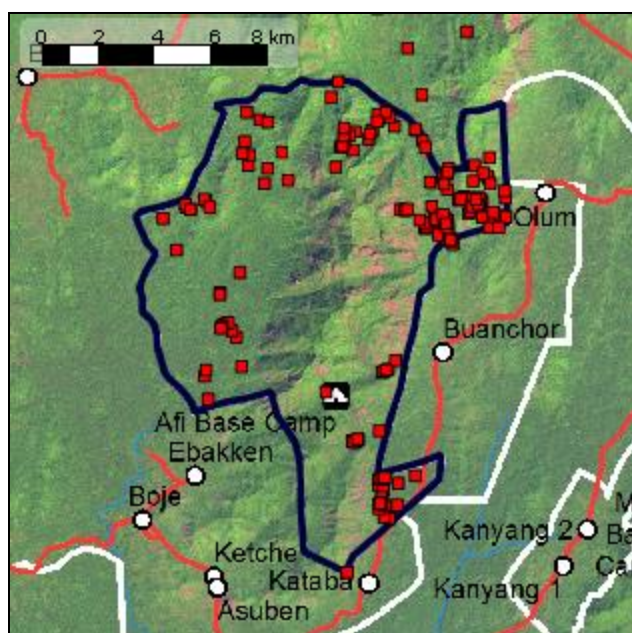
Threat	Number of People	Encounter Rate per km
Burning	1	0.001
Farming	7	0.004
Hunting	9	0.005
Logging	1	0.001
NTPF Collection	1	0.001

Table 5. Encounter rates of signs of human activity from January to December, 2021.

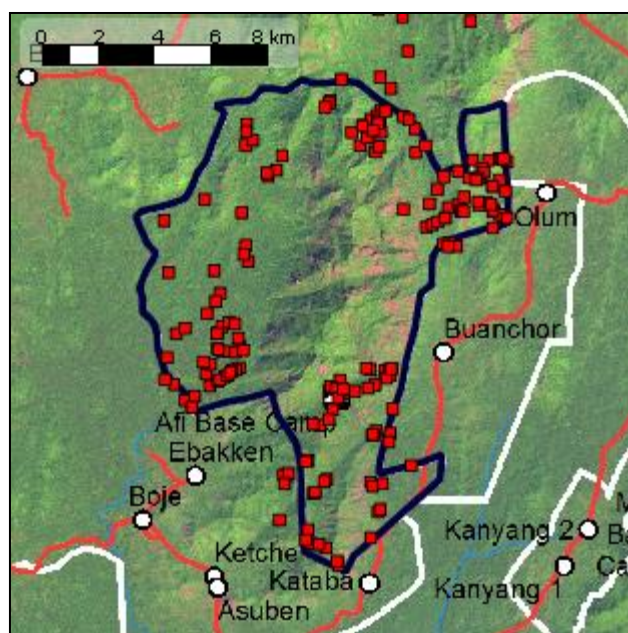
Activity	Number of Incidents	Encounter Rate per km
Farming and Land Clearing	75	0.041
Gunshot heard	50	0.027
Human Sign	127	0.069
Logging and Tree Cutting	10	0.005
NTPFs	1	0.001
People seen	18	0.010
Shed or Camp	19	0.010
Traps, Weapons & Equipment	447	0.244

Table 6. Specific evidence of logging from January to December, 2021.

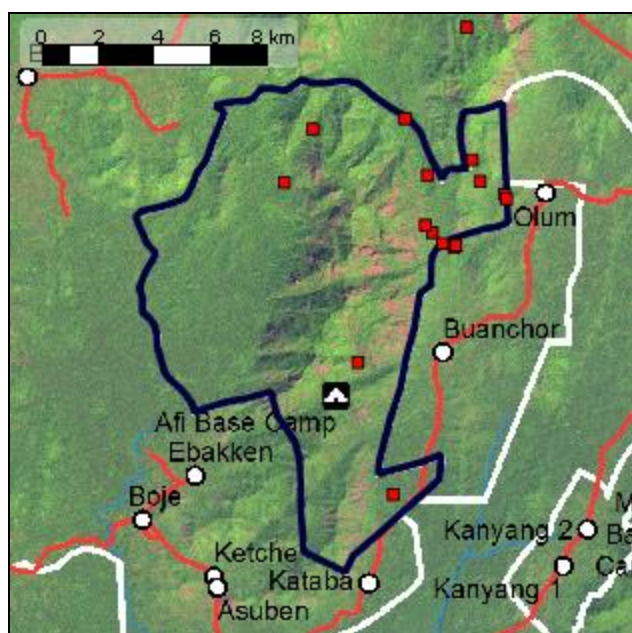
Type of logging evidence	Action Taken	Age of Sign	Number of Logs	Number of Stumps	Tree Species
Stump	Seen Only	Fresh		5	Other
Logs	Seen Only	Fresh	3		Unknown
Logs	Seen Only	Fresh	30		Other
Logs	Seen Only	Fresh	10		Unknown
Stump	Seen Only	Fresh		7	Iroko
Logs	Destroyed	Fresh	2		Unknown
Logs	Confiscated	Fresh	6		Ebony
Logs	Destroyed	Fresh	3		Iroko
Logs	Confiscated	Fresh	15		Ebony
Logs	Collected	Fresh	3		Iroko



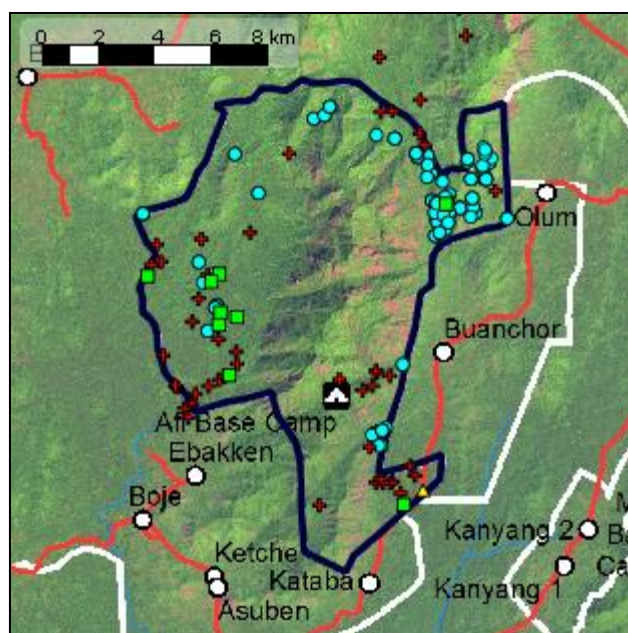
a) Wire snares



b) Empty cartridges



c) Sheds and camps



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

Figure 4. Distribution of signs of human activity recorded from period January to December, 2021

Table 7. Hunting signs recorded from January to December, 2021.

Sign	Number of Observations	Encounter Rate per km
Gunshots heard	50	0.027
Set wire snares	672	0.366
Unset wire snares	7	0.004
Empty cartridges	290	0.158
Hunting camps	14	0.008

Wildlife Observations

Great Apes

Gorillas were sighted on two occasions by rangers during patrols this year. On one occasion a group numbering seven individuals including three females and four males was sighted in the Boje axis of the sanctuary (Figure 5). The second sighting was in the Esekwe axis of the sanctuary. The rangers could not determine the exact size of the group because they were charged aggressively by a silverback before they could make any detailed observation, although the presence of infants in the group was noted. GPS coordinates of the sighting location and other information could not be recorded. In addition to sightings, 36 ape nest sites were recorded including 22 gorilla and 11 chimpanzee nest sites. Three nest sites could not be identified as gorilla or chimpanzee with certainty. Two gorilla nest sites were seen in the Olum Hills area by “Gorilla Guardians” employed by WCS to monitor gorilla presence outside the sanctuary.

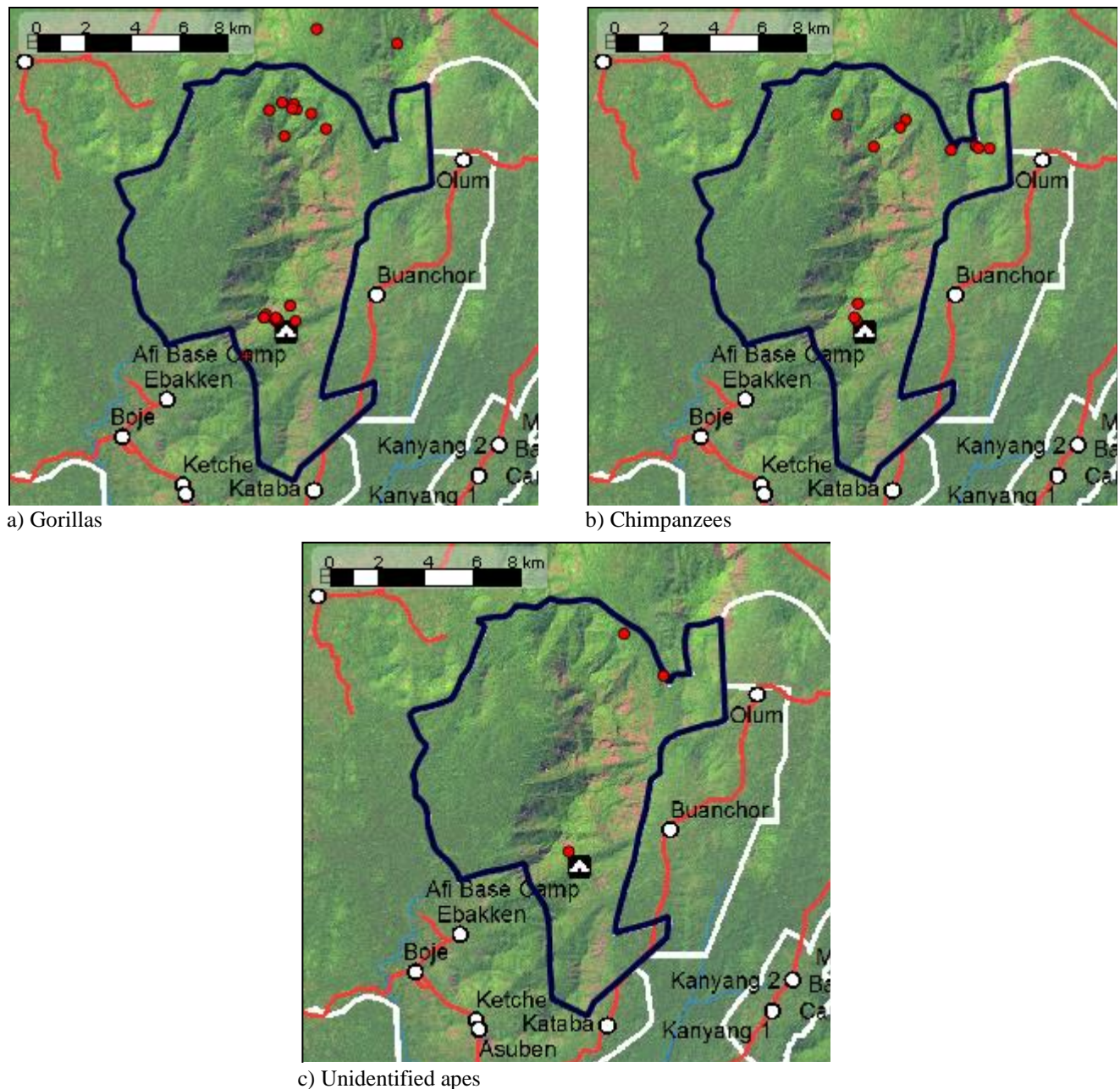


Figure 5. Ape sightings, vocalizations and nest sites recorded from January to December, 2021. Nest sites shown as circles, sightings and vocalizations shown as crosses.

Table 8. Number and encounter rate of nest sites recorded from January to December, 2021.

Species	Number of nest sites	Encounter rate of nest sites per km
Chimpanzee	11	0.006
Gorilla	22	0.012
Unidentified great ape	3	0.002

Table 9. Nest sites recorded from January to December, 2021.

Species	Nest site type	Age of Sign	Dung present	Number of ground nests	Total number of nests
Chimpanzee	Night nest(s)	Fresh	true	0	4
Chimpanzee	Night nest(s)	Recent	true	0	7
Chimpanzee	Night nest(s)	Recent	true	0	9
Chimpanzee	Night nest(s)	Recent	true	1	8
Chimpanzee	Night nest(s)	Recent	true	3	11
Chimpanzee	Day nest(s)	Fresh	true	0	10
Chimpanzee	Night nest(s)	Recent	true	0	7
Chimpanzee	Night nest(s)	Recent	true	9	0
Chimpanzee	Unknown	Fresh	false	0	7
Chimpanzee	Night nest(s)	Recent	false	0	5
Chimpanzee	Night nest(s)	Fresh	true	0	9
Gorilla	Night nest(s)	Fresh	true	3	9
Gorilla	Night nest(s)	Recent	true	1	6
Gorilla	Night nest(s)	Recent	true	0	5
Gorilla	Night nest(s)	Recent	true	2	9
Gorilla	Night nest(s)	Fresh	true	1	5
Gorilla	Day nest(s)	Fresh	true	1	0
Gorilla	Day nest(s)	Fresh	true	0	1
Gorilla	Unknown	Old	true	1	1
Gorilla	Unknown	Recent	true	1	2
Gorilla	Night nest(s)	Fresh	true	4	4
Gorilla	Night nest(s)	Fresh	true	8	8
Gorilla	Night nest(s)	Recent	true	1	0
Gorilla	Night nest(s)	Fresh	true	4	0
Gorilla	Day nest(s)	Fresh	true	6	6
Gorilla	Night nest(s)	Fresh	true	1	1
Gorilla	Night nest(s)	Recent	true	4	0
Gorilla	Night nest(s)	Old	true	1	0
Gorilla	Night nest(s)	Fresh	true	1	4
Gorilla	Day nest(s)	Recent	false	9	9
Gorilla	Unknown	Recent	true	1	3
Gorilla	Night nest(s)	Fresh	true	2	8
Gorilla	Night nest(s)	Recent	false	0	4
Unidentified great ape	Night nest(s)	Recent	true	8	0
Unidentified great ape	Unknown	Old	false	0	4
Unidentified great ape	Unknown	Old	false	1	2

Monkeys sighted

Monkeys sighted during this period include drill (*Mandrillus leucophaeus*), putty-nosed monkey (*Cercopithecus nictitans*), and Mona monkey (*Cercopithecus mona*) (Table 10; Figure 6). The largest group sighted was estimated to number over 25 individuals.

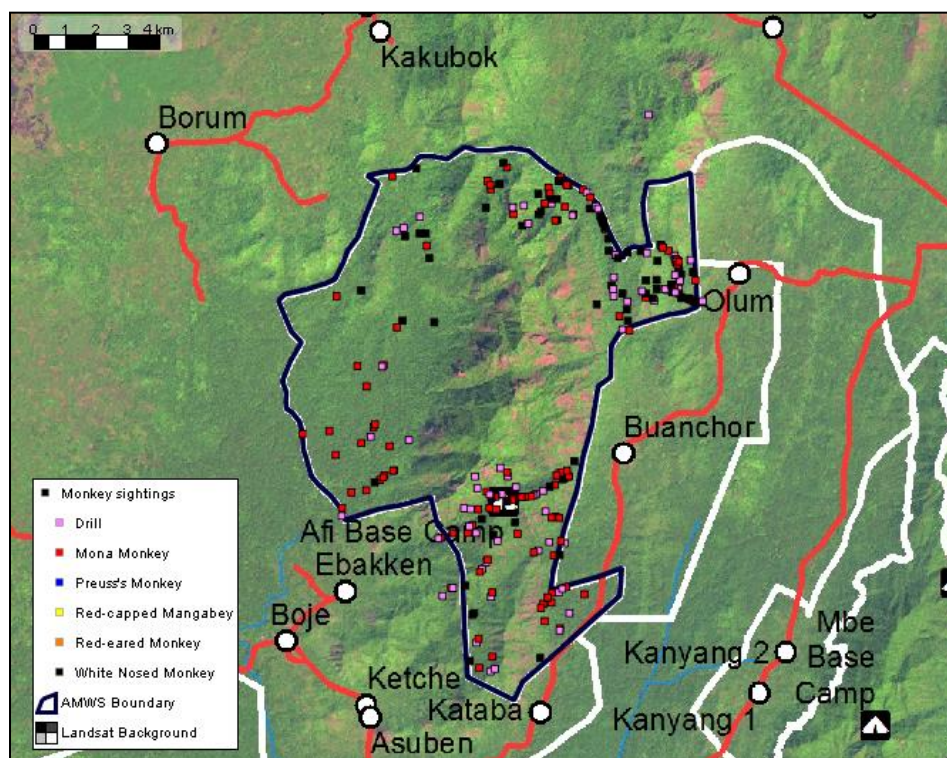


Figure 6. Monkey species observed from January to December, 2021.

Table 10. Number and encounter rate of monkey species recorded from January to December, 2021.

Species	Number of observations	Encounter rate per km
Drill	78	0.043
Mona monkey	106	0.058
White-nosed monkey	84	0.046

Other Wildlife

Other large mammals sighted include blue duiker (*Philantomba monticola*), brush-tailed porcupine (*Atherurus africanus*) and red river hog (*Potamochoerus porcus*). Encounter rate of all species recorded is presented in Appendix II.

Meeting with the Executive Chairman of Boki Local Government Area (LGA)

The meeting was facilitated by the AMWS Project Manager and had in attendance three other WCS Nigeria staff, Bassey Emmanuel, Louis Okonyu, and Hillary Chucku. The meeting focused on forest and wildlife conservation in Boki LGA especially the negative consequences of the increasing illegal logging in the area. The chairman reiterated his position on the ban of logging in Boki until there is a deliberate plan to make it sustainable. The My Gorilla My Community radio program manager, Hillary Chukwu used the opportunity to interview the Chairman for the new season of the program being produced.

Meeting with CRSFC Chairman and the Paramount Ruler of Boki and some Clan Heads & Village Heads and other Stakeholders

The meeting which held in the palace of the Paramount Ruler of Boki in Olum was convened to discuss ways to tackle the increasing threat of illegal logging following the call by the Boki Local Government Chairman for traditional rulers and other stakeholders take measures to stop illegal logging in all parts of Boki forest. The meeting was facilitated by the CRSFC and focused on identifying those perpetrating the illegal activity in the area and their financiers, while highlighting the negative consequences of illegal logging on the environment and on the livelihood of the local communities among other issues. The traditional ruler's council through the Paramount Ruler and some Clan Heads informed the CRSFC that they understood that the logging in Boki is supported by some persons in government, which is the reason why it has lingered for so long and without benefits to the communities. They gave instances of receipts allegedly issued to illegal loggers by government officials. They also complained about the absence of CRSFC staff on the ground and recalled how in the past the constant presence rangers in the forest discouraged such illegal activities in the sanctuary. Today, all of that has changed, a situation that no forest rangers patrol the reserves even the commission's offices in Boki are always deserted. They further opined that if not for Organizations like WCS that support community rangers to patrol the AMWS and protect the Wildlife, and Drill Ranch, Boki would have lost most of her forest estate by now.

Meeting with CRSFC Zonal Officer and Erruan Forest Officer in the zonal office, Ogoja:

This meeting was to harmonize plans for the prosecution of the arrested logger and to formally report on the establishment of 3 new farms in the Esekwe axis of the sanctuary. On the prosecution of the arrested logger, the CRSFC team agreed to meet with the police in Okundi on the way forward. On the reported new farms, the Erruan Forest Officer promised to formally take the complaint to Okundi Divisional police office, after which their arrest will be facilitated.



Cross section of participants at the meeting in Olum (left) and Cross section of participants during the METT assessment (right)

Visit of the Cross River State Forestry Commission Chairman and his team to Afi Communities

With support from WCS, the management of the Cross River State Forestry Commission (CRSFC) visited some AMWS communities including Boje, Buanchor, and Esekwe. Nearby communities were also supported by WCS to attend the meeting.

Some of the highlights of the meeting include:

- Reminder to all communities by the CRSFC that AMWS is still a protected area backed by the Cross River State Forestry Law and other extant laws;

- That anybody trespassing and carrying out any illegal activity including hunting, farming, logging, etc, does so at his/her own risk and if caught will be treated in line with existing laws including community laws;
- Support should be given to organizations such as WCS and Pandrillus who are investing their time and resources to protect AMWS;
- Communities present also highlighted some of their needs including:
 - government should be more responsible in the protection of AMWS including the surrounding forest as loggers have almost finished their forest
 - provision of alternative livelihood to support household that don't have where to farm
 - involvement of the youths in the protection of the forest as this will provide much-needed employment and reduce pressure on the forest.



Community meetings in Ebok-Boje, Buanchor and Esekwe with WCS, CRSFC and Pandrillus

METT Assessment

On the 20th of April WCS facilitated a Management Effectiveness Tracking Tool (METT) reassessment for AMWS conducted jointly by the CRSFC and WCS to evaluate changes in management effectiveness of the sites.

Ranger Patrols in Stopped Esekwe Area of the AMWS

During the year youths from Esekwe community stormed the Esekwe base camp used by and evicted the rangers camped there for patrols, threatening to assault any ranger who failed to leave the camp immediately. According to the youths the action was taken because rangers confiscated a chainsaw and destroyed an illegal camp inside the sanctuary used by loggers and hunters. The incident was reported to the CRSFC as well as the leadership of Esekwe community and Paramount Ruler of Boki for their intervention.

There has been an increase in farm encroachment and logging in the Esekwe area of the sanctuary sponsored by a group of influential persons in the community.

Ranger training

WCS organized a ranger training workshop for 14 Afi rangers to update their anti-poaching knowledge and skills, helping to improve their performance. WCS engaged the South Africa-based specialist ranger training company, “Conservation Outcomes”, to conduct the training. The training took place at the Erokut Gate Camp on the edge of the Oban Division of CRNP and lasted for a total of 42 days divided into two courses, each lasting 21 days. The training covered intelligence gathering, anti-poaching patrol techniques, physical fitness, first aid, drill, discipline, human rights, and self-defense. As part of the ranger training course, WCS invited a magistrate to educate the rangers on the provisions of the Administration Criminal Justice Law of Cross River State and on collecting and documenting evidence to present in court to support and ensure successful prosecutions. WCS also provided refresher training for the rangers in the use of SMART software for data collection, analysis, and reporting.



Rangers undergoing training at the Erokut Gate, Cross River National Park

2. Conservation Education and Awareness

Exchange Visits

WCS facilitated 21 exchange visits between conservation clubs in Afi. A total of 2,095 students participated in the exchange visits (Table 1). The aim is to engage students to share knowledge and experiences. During the visits, students were guided through various competitive activities including conservation games, quiz competition and conservation drama designed to raise conservation awareness.

Table 11: School Exchange visits at Afi in 2021 and number of participants

Date	School(s)	No of students
January 25	Community Sec. Sch. Irruan and Rev. Fr. Idaku Memorial College Bunyia	109
January 27	Government Primary School Bitiah & Govt. Primary School Kakwagom	114
February 8	Government Primary School Ebok and Migrant Primary School Ebranta	106
February 17	Community Sec. Sch. Olum and Community Secondary School Buanchor	112
March 19	Government Primary School Bitiah and Primary School Kakwagom	118
March 19	Primary School Nkanyan and Primary School, Kakubok	86
April 26	Govt Prim. Sch. Esekwe and Rev. Father Idaku Prim. Sch.l Bunyia Iruan	106
April 26	Comm. Sec. Sch. Kakwagom and Govt. Migrant Science Sch., Kakubok	64
May 17	Comm.y Prim. School Enyi Boje and Primary School Enyi Boje	96
May 19	Jafor Intl Prim. School Buanchor and Migrant Prim. School Buanchor	113
June 9	Govt Primary School Buanchor and Migrant Primary School Buanchor	110
June 10	Govt. Primary School Olum and Pennel Nursery & Primary School Olum	96
July 16	Government Primary School Enyi and Primary School Kache	91
July 17	Govt. Primary school Katabang and Peggy Intl. Primary School Katabang	83
September 27	Government Primary School Katabang and Primary School Kache	101
September 30	Govt Primary School Bitiah and Primary School Baggabo Kakwagom	99
October 17	Secondary School Boje and Noble Breed secondary school Enyi Boje	91
October 17	Day to Day Primary School Kache Boje and Springfield International School Kache Boje	102
November 17	Primary School Olum and Penuel International School Olum	95
November 17	Community Sec. School Olum and Community Sec.y School Buanchor	99
December 13	Government Primary School Ebok and Migrants Primary School Ebranta	104



Exchange visit between Community Secondary School Buanchor and Community Secondary School Olum

Field Trips

Conservation education is crucial to engage those that will shape the future of wildlife and their habitat. By experiencing and exploring nature, children learn to understand, value, and appreciate the natural world around them. Field trips connect students/pupils to nature and produce lasting experiences that help to inspire people to place more value on wildlife and make them more willing to support biodiversity conservation. WCS regularly organized these trips for conservation club members to introduce them to conservation concepts, experiences and ideas that cannot be given in the classroom environment. In 2021, WCS organized 19 guided field trips with schools around Afi, Mountain Wildlife Sanctuary with a total of 457 students and 37 teachers into Afi Mountain. (Table 2). The field trips provided students with the opportunity to learn about the rainforest, threats to wildlife, and ongoing efforts to save species from extinction.

Table 12: Field Trips organized for schools around Afi Mountain Wildlife Sanctuary in 2021

Date	School(s)	No of students
January 26	Government Primary School Esekwe	20
January 27	Community Secondary School Irruan (EBONA)	25
February 6	Government Primary School Ebok	24
February 12	Community Secondary School Buanchor	20
March 15	Government Primary School Enyi	22
March 16	Government Primary School Buanchor	24
April 27	Government Primary School Esekwe	21
April 27	Government Migrant Science School Kakubok	25
May 19	Community Secondary School Buanchor	25
May 25	Pennel International Nursery and Primary School Olum	25
June 14	Government Primary School Ebok	26
June 18	Community Secondary School Njua	24
July 9	Community Secondary School Olum	22
July 19	Government Primary School Katabang	25
August 12	Community Secondary School Njua	25
August 24	Community Secondary School Olum	26
September 25	Government Primary School Katabang	24
October 15	JAFOR International Nursery/Primary School Buanchor	25
October 18	Noble Breed International Secondary School Enyi Boje	29



Field trip with Community Secondary School Njua at Drill Ranch (left), and with Migrant Technical college Kakubok to AMWS (right)

School Visits

To increase understanding on how the environment function, WCS made a total of 32 visits in schools around Afi Mountain Wildlife Sanctuary. WCS education team organized lessons and outdoor activities on conservation and natural resource management. Other activities include quiz competition and conservation games (Table 3). Puppets were used to illustrate animal behaviour. A total of 475 pens and 240 WCS branded notebooks designed to promote conservation of forest elephants were distributed to conservation club members.

Table 13: Schools visited in Afi and number of customized notebooks distributed

Dates	Name of school visited	Number of notebooks distributed
25/1/2021	Rev. Father Idaku Memorial Academy Bunyia Irruan	15
25/1/2021	Community Secondary School Irruan (EBONA)	15
25/1/2021	Government Primary School Esekwe	15
8/2/2021	Government Primary School Ebok	15
8/2/2021	Migrant Primary School Ebranta	15
8/2/2021	Pope John Paul Primary School Enyi Boje	15
8/2/2021	Community Secondary School Boje	15
17/2/2021	Community Secondary School Olum	15
15/3/2021	Government Primary School Enyi	20
16/3/2021	Primary School Kache-Asuben	20
26/4/2021	Government Primary School Esekwe	20
26/4/2021	Primary School Kakubok	20
18/5/2021	Community Secondary School Njua	25
18/5/2021	Government Primary School Njua	20
19/5/2021	Community Secondary School Buanchor	30
9/6/2021	Government Primary School Buanchor	20
9/6/2021	Government Secondary School Buanchor	20
10/6/2021	Community Secondary School Olum	20
17/7/2021	Government Primary School Katabang	20
17/7/2021	Peggy Nursery and Primary School Katabang	50
30/9/2021	Government Primary School Bitial	30
30/9/2021	Government Primary School Kakwagom Irruan	30
30/9/2021	BUDA Community Secondary School Irruan	30
October 15	JAFOR International Nursery/Primary School Buanchor	50
October 18	Noble Breed International Secondary School Enyi Boje	50
November 27	Migrant Technical School Enyi Boje	15
November 27	Government Primary School Enyi	5
November 27	Pope John Paul Primary School Enyi Boje	10
December 5	Winners International Nursery/Primary School Katabang	20
December 5	Oath Comprehensive Secondary School Katabang	20
December 5	Government Primary School Katabang	20
December 6	JAFOR International Nursery/Primary School Buanchor	20

Film Shows

WCS organized 47 conservation focused film shows in 16 community around Afi this year. The films were viewed by a total of 6,394 people and provided opportunity for interaction with the local people on a variety of conservation problems including bushmeat hunting, deforestation and habitat loss and climate change.

Table 14: Villages and schools visited for film show and estimated number of viewers

S/No	Date	Name of Community	Site	Attendance
1	22/1/2021	Mbanya Buanchor	Afi	118
2	23/1/2021	Katabang	Afi	96
3	25/1/2021	C.S.S Irruan	Afi	120
4	26/1/2021	Bitiah	Afi	300
5	30/1/2021	Olum	Afi	101
6	7/2/2021	Ebok	Afi	149
7	18/2/2021	Kakubok	Afi	81
8	22/2/2021	Nkanyan	Afi	101
9	23/1/2021	Kakwagom	Afi	250
10	14/3/2021	Asuben	Afi	200
11	15/3/2021	Enyi	Afi	145
12	20/3/2021	Bitiah	Afi	81
13	21/3/2021	Pri. Sch. Nkanyang	Afi	190
14	12/4/2021	Ebranta	Afi	91
15	21/4/2021	Katabang	Afi	117
16	26/4/2021	Kakubok	Afi	200
17	17/5/2021	Ebok Boje	Afi	98
18	19/5/2021	Mbanyang Buanchor	Afi	141
19	23/5/2021	Olum	Afi	103
20	24/5/2021	Asuben Boje	Afi	77
21	29/5/2021	Kache Boje	Afi	82
22	9/6/2021	Buanchor	Afi	120
23	10/6/2021	Olum	Afi	104
24	14/6/2021	Ebok	Afi	140
25	15/6/2021	Kanyang	Mbe	144
26	17/6/2021	Kanyang II	Mbe	63
27	9/7/2021	Olum	Afi	133
28	27/7/2021	Katabang	Afi	125
29	28/7/2021	Kache Boje	Afi	250
30	29/7/2021	Enyi Boje	Afi	189
31	15/8/2021	Buanchor	Afi	179
32	20/8/2021	Nkanya	Afi	134
33	25/8/2021	Ebranta Boje	Afi	88
34	23/9/2021	Buanchor	Afi	258
35	27/9/2021	Katabang	Afi	164
36	30/9/2021	Bitiah	Afi	240
37	16/10/2021	Ebranta Boje	Afi	64
38	17/10/2021	Enyi	Afi	81
39	24/11/2021	Katabang	Afi	148
40	27/11/2021	Itali Boje	Afi	49
41	28/11/2021	Enyi Boje	Afi	176
42	29/11/2021	Buanchor	Afi	206
43	2/12/2021	Itali Boje	Afi	41
44	3/12/2021	Ebranta	Afi	89
45	4/12/2021	Ebok	Afi	91
46	5/12/2021	Katabang	Afi	107
47	20 /12/2021	Njua	Afi	170

Community Meetings

During this period, WCS facilitated 29 community meetings in 16 villages to address current conservation challenges in Afi. The message focus on precaution measures against bush burning, logging, hunting of endangered wildlife and rivers poisoning with emphases on incessant logging activities. It has become difficult for local communities to stop on-going lumbering activities due to involvement of some politicians. Some communities frowned on illegal activities in protected areas and expressed commitment to participate in the protection of resources in Afi Mountain.

Table 15. Communities around AMWS where meetings held in 2021 and attendance

S/no	Date	Name of Community	Attendance
1	12/4/2021	Ebranta Boje	31
2	26/4/2021	Kakubok	11
3	19/5/2021	Mbanyang Buanchor	9
4	28/5/2021	Asuben	16
5	29/5/2021	Kache Boje	24
6	26/1/2021	Esekwe	19
7	27/1/2021	Bitiah	21
8	31/1/2021	Olum (Paramount Ruler)	11
9	6/2/2021	Ebok	20
10	7/2/2021	Ebranta	19
11	13/2/2021	Buanchor	97
12	21/2/2021	Kakawagom	20
13	23/2/2021	Nkanyan	30
14	15/3/2021	Enyi	20
15	16/3/2021	Asuben Boje	19
16	15/8/2021	Buanchor	17
17	20/8/2021	Nkanya	134
18	25/8/2021	Ebranta Boje	13
19	27/9/2021	Katabang	14
20	30/9/2021	Bitiah	10
21	16/10/2021	Ebranta Boje	25
22	17/10/2021	Enyi	14
23	24/11/2021	Katabang	49
24	27/11/2021	Itali Boje	21
25	28/11/2021	Enyi Boje	33
26	2/12/2021	Itali Boje	23
27	3/12/2021	Ebranta	40
28	4/12/2021	Ebok	19
29	5/12/2021	Katabang	28

World Environment Day Celebration

World Environment Day (WED) celebrations remained one of our annual activities in WCS education program where schools, partners, community leaders and forest resource users are brought together to discuss challenges affecting the local environment. The theme for this year's WED was "Ecosystem Restoration" and sought to encourage people to reimagine, recreate, restore the ecosystem with a focus on preventing and reversing environmental damage. The occasion was used to advocate for moving away from exploiting nature to healing it. Local students and community members were to join the campaign to stop illegal logging, indiscriminate bush burning, hunting of endangered species of wildlife, and poisoning of rivers for fishing.

At the end of the program, prizes were given to teachers, village heads, and students who were outstanding in their efforts to prevent such activities that negatively impact their local environment.



Local Students celebrating World Environment Day 2021

World Gorilla Day

September 24 every year is World Gorilla Day, a day set aside to celebrate these threatened giants of the forest as well as to renew calls for action to protect them. WCS Nigeria used the day to raise awareness about the Cross River gorilla, the rarest of the four sub-species of gorilla with only an estimated 250-300 individuals remaining in the wild. Cross River gorillas are threatened by human activities including hunting, farming and logging that destroy their habitat.



Rangers from Afi, Mbe and Cross River National Park celebrate World Gorilla Day 2021 in Butatong

3. Livelihood Support

Livelihood activities implemented during this reporting period include training of 238 farmers in agricultural best practices to reduce deforestation. Three cocoa nurseries were established in Ndemechang, Okubuchi and Nkanya communities with improved variety seeds from the Cocoa Research Institute of Nigeria (CRIN). The seedlings produced from the nurseries will be distributed to farmers who have been trained to replace old, unproductive cocoa trees on their farms to improve productivity and reduce deforestation from expansion. All farms supported by the project are mapped and monitored to ensure that farmers adopt sustainable practices.

Recommendations

- The lack of presence of the CRSFC staff on the ground at Afi weakens law enforcement efforts, and may be one of the reasons why law enforcement activities are being resisted by communities.
- Lack of prosecutions of arrested defaulters is encouraging communities to perpetrate illegal activities in the sanctuary. The CRSFC should take action to and prosecute arrest offenders.
- Decisive action is needed to deal with the problem of farm encroachment at Afi. Numerous farms were seen in the sanctuary during patrols this year.
- There is need to have a camp (permanent or temporary) in the Kakubok axis of the sanctuary to deal with the increasing illegal activities in the area.
- Regular meetings between stakeholders increasing the CRSFC, Ministry of Climate Change, Boki LGA, communities around AMWS is encouraged to generate interest and support.
- The existing synergy between the WCS law enforcement, education and livelihood teams should be strengthened and sustained.
- The sanctuary boundary should be cleared regularly to facilitate law enforcement, as most people seen in the sanctuary claimed ignorance of the sanctuary boundary, which is overgrown in many places.
- In addition to clearing, signposts should be placed at strategic locations along the boundary with information on prohibited activities to reduce illegal activities.
- Prosecution is key to reducing illegal logging in and around the sanctuary. The CRSFC should arrest and prosecute defaulters to discourage illegal logging.
- Forestry checkpoints on the roads should be complimented with having field staff within logging hotspots in the sanctuary to compliment the work of rangers.

Acknowledgements

We are grateful to the Great Ape Conservation Fund of the United States Fish and Wildlife Service who have constantly provided financial support to the WCS Nigeria program. We also appreciate the funding from the Kolmården Zoo, AZA, Zoo New England, Dutch Gorilla Foundation, the JRS Biodiversity Foundation, and North Carolina Zoo. We also wish to acknowledge the efforts of all the Afi rangers, particularly the Community Rangers who have endured and kept patrols going to date despite being owed several years of salary by the Cross River State Government. WCS is formally registered in Nigeria through an agreement with the Ministry of Budget and National Planning of the Federal Republic of Nigeria. The Government of Cross River State is also highly appreciated for giving WCS the enabling environment to operate. WCS works at Afi Mountain Wildlife Sanctuary in collaboration with the Ministry of Climate Change and Forestry and the Cross River State Forestry Commission.

Appendix I. Patrol effort statistics from January to December, 2021.

Date	Number of Patrols	Distance (km)	Number of Hours	Number of Rangers
2021-01-13	2	8.1	15.2	13
2021-01-14	2	10.2	15.6	13
2021-01-15	2	8.9	25.6	13
2021-01-16	2	6.5	31.6	13
2021-01-17	2	12.6	22.0	13
2021-01-18	2	7.7	16.8	13
2021-01-19	2	6.5	14.3	13
2021-01-24	2	8.9	13.9	13
2021-01-25	2	8.7	17.1	13
2021-01-26	2	10.2	16.6	13
2021-01-27	2	9.7	16.8	13
2021-01-28	2	6.8	16.5	13
2021-01-29	2	6.3	15.5	13
2021-01-30	2	8.1	14.1	13
2021-02-10	2	8.2	12.1	12
2021-02-11	3	25.3	21.3	17
2021-02-12	3	19.9	21.6	17
2021-02-13	3	26.7	21.4	18
2021-02-14	3	12.0	20.8	18
2021-02-15	3	19.8	20.8	18
2021-02-16	2	9.8	12.5	13
2021-02-20	3	19.0	17.0	18
2021-02-21	3	20.3	18.3	18
2021-02-22	2	16.4	14.1	13
2021-02-23	3	22.6	21.1	18
2021-02-24	3	22.0	18.4	18
2021-02-25	2	11.5	11.8	13
2021-02-26	2	9.3	14.1	13
2021-02-27	1	7.3	6.9	6
2021-03-10	2	10.5	11.8	14
2021-03-11	2	10.8	9.8	14
2021-03-12	2	7.6	10.1	14
2021-03-13	2	11.2	13.8	14
2021-03-14	2	7.6	14.2	14
2021-03-15	2	7.6	14.2	14
2021-03-16	2	10.4	13.7	14
2021-03-17	2	10.7	10.8	14
2021-03-22	2	12.6	14.2	14
2021-03-23	2	8.1	15.5	14
2021-03-24	2	8.1	15.2	14

Date	Number of Patrols	Distance (km)	Number of Hours	Number of Rangers
2021-03-25	2	7.3	16.7	14
2021-03-26	2	7.4	16.8	14
2021-03-27	2	8.0	16.9	14
2021-03-28	2	5.7	13.0	14
2021-03-29	2	8.6	13.8	14
2021-04-05	2	11.1	12.7	12
2021-04-06	2	8.7	14.4	12
2021-04-07	2	8.9	13.7	12
2021-04-08	2	10.0	15.6	12
2021-04-09	2	6.5	13.9	12
2021-04-10	2	7.6	14.3	12
2021-04-11	2	7.2	11.7	12
2021-04-16	1	3.5	5.5	6
2021-04-17	1	3.8	7.2	6
2021-04-18	1	3.7	7.2	6
2021-04-19	1	2.9	5.2	6
2021-04-20	1	3.7	5.7	6
2021-04-21	1	2.2	3.1	6
2021-04-25	1	8.3	4.1	6
2021-04-26	1	7.6	6.8	5
2021-04-27	1	7.6	5.9	6
2021-04-28	1	11.1	5.4	6
2021-04-29	1	6.0	4.7	6
2021-04-30	1	8.2	2.4	6
2021-05-12	1	6.3	4.6	8
2021-05-13	1	6.0	7.9	8
2021-05-14	1	5.3	8.7	8
2021-05-15	1	4.5	8.3	8
2021-05-16	1	5.9	8.4	8
2021-05-17	1	6.7	8.2	8
2021-05-18	1	4.7	8.4	8
2021-05-19	1	7.6	5.9	8
2021-05-24	1	7.3	6.4	8
2021-05-25	1	6.1	6.9	8
2021-05-26	1	3.8	6.7	8
2021-05-27	1	4.4	8.0	8
2021-05-28	1	8.9	9.2	8
2021-05-29	1	2.7	6.9	8
2021-06-04	2	11.6	13.9	14
2021-06-05	2	7.7	12.6	13

Date	Number of Patrols	Distance (km)	Number of Hours	Number of Rangers
2021-06-06	2	8.5	13.7	11
2021-06-07	2	11.6	14.8	12
2021-06-08	2	21.0	17.3	13
2021-06-09	2	6.3	9.1	12
2021-06-10	2	10.7	12.6	14
2021-06-11	2	11.4	10.6	14
2021-06-16	1	4.2	7.9	8
2021-06-17	2	9.2	15.6	13
2021-06-18	2	11.7	15.5	14
2021-06-19	2	7.3	15.8	14
2021-06-20	2	8.9	13.9	14
2021-06-21	1	3.1	4.3	6
2021-06-24	1	4.3	5.3	8
2021-06-25	2	14.8	12.5	14
2021-06-26	2	10.3	11.5	14
2021-06-27	2	12.1	11.7	14
2021-06-28	2	8.0	9.7	14
2021-06-29	1	6.1	5.8	6
2021-07-08	2	6.3	8.9	14
2021-07-09	2	8.6	17.6	14
2021-07-10	1	4.8	7.9	7
2021-07-11	1	3.4	8.4	7
2021-07-12	1	5.4	8.3	7
2021-07-13	1	6.3	9.1	7
2021-07-14	1	6.5	8.8	7
2021-07-15	1	3.9	6.6	7
2021-07-21	1	6.6	6.6	7
2021-07-22	1	7.6	8.3	7
2021-07-23	1	5.1	9.0	7
2021-07-24	1	4.9	16.8	7
2021-07-25	1	5.6	15.6	7
2021-07-26	1	4.7	8.9	7
2021-07-27	1	4.9	7.3	7
2021-07-28	1	2.9	7.0	7
2021-07-29	1	0.1	0.2	2
2021-08-10	2	11.9	8.5	14
2021-08-11	2	7.9	7.7	14
2021-08-12	2	14.4	12.2	14
2021-08-13	2	15.2	12.3	14
2021-08-14	2	14.3	14.6	14

Date	Number of Patrols	Distance (km)	Number of Hours	Number of Rangers
2021-08-15	2	10.4	7.5	14
2021-08-16	2	18.8	13.2	14
2021-08-17	2	14.0	9.8	14
2021-08-22	2	8.7	17.1	14
2021-08-23	2	8.0	17.4	14
2021-08-24	2	8.7	14.5	14
2021-08-25	2	9.7	13.2	15
2021-08-26	2	12.8	16.8	14
2021-08-27	2	7.4	14.5	15
2021-08-28	2	7.1	16.4	14
2021-09-04	2	11.9	10.6	15
2021-09-05	2	12.2	12.2	15
2021-09-06	2	15.0	13.7	14
2021-09-07	2	9.5	11.2	14
2021-09-08	2	10.1	13.6	14
2021-09-09	2	12.3	11.3	14
2021-09-10	2	8.3	10.3	14
2021-09-15	2	9.5	12.5	13
2021-09-16	2	6.1	15.4	13
2021-09-17	2	7.9	14.6	14
2021-09-18	2	7.9	13.8	14
2021-09-19	2	9.0	11.9	14
2021-09-20	2	10.2	12.1	14
2021-09-21	1	5.9	16.4	6
2021-09-22	1	0.0	13.9	6
2021-09-23	1	9.5	9.8	3
2021-09-25	2	14.8	18.6	13
2021-09-26	2	12.3	22.9	13
2021-09-27	2	10.4	12.8	13
2021-09-28	2	11.4	12.9	13
2021-09-29	2	12.8	13.1	13
2021-09-30	2	11.7	7.7	13
2021-10-09	2	10.1	12.5	13
2021-10-10	2	14.2	14.3	13
2021-10-11	2	9.5	14.5	13
2021-10-12	2	8.3	18.2	13
2021-10-13	2	9.1	16.0	13
2021-10-14	2	9.0	14.0	13
2021-10-15	2	9.9	14.3	13
2021-10-16	2	6.6	8.8	13

Date	Number of Patrols	Distance (km)	Number of Hours	Number of Rangers
2021-10-20	1	6.0	6.7	5
2021-10-21	2	9.3	14.4	13
2021-10-22	2	4.7	14.7	13
2021-10-23	2	4.7	12.2	13
2021-10-24	2	4.5	14.6	13
2021-10-25	2	6.0	14.1	13
2021-10-26	2	2.9	13.3	13
2021-10-27	2	2.4	12.0	13
2021-11-06	1	4.5	4.0	6
2021-11-07	2	9.5	12.3	10
2021-11-08	2	14.9	12.8	10
2021-11-09	2	8.4	11.7	10
2021-11-10	2	5.3	19.1	10
2021-11-11	2	6.6	20.1	10
2021-11-12	2	9.9	11.5	10
2021-11-13	2	11.0	10.3	10
2021-11-16	1	6.8	5.9	7
2021-11-18	2	10.7	9.7	11
2021-11-19	2	7.1	11.4	11
2021-11-20	2	10.9	20.9	11
2021-11-21	2	5.9	20.1	10
2021-11-22	2	12.2	22.2	11
2021-11-23	3	8.2	18.4	11
2021-11-30	3	10.9	20.3	16
2021-12-01	2	11.2	13.8	10
2021-12-02	2	11.9	17.8	10
2021-12-03	2	10.2	16.1	10
2021-12-04	2	11.5	17.6	10
2021-12-05	2	11.8	13.9	10
2021-12-10	2	10.5	13.9	10
2021-12-11	2	8.8	13.2	11
2021-12-12	2	9.0	11.6	10
2021-12-13	2	7.4	15.5	11
2021-12-14	2	10.8	14.3	11
2021-12-20	2	12.5	20.6	13
2021-12-21	2	12.5	19.0	14
2021-12-22	2	8.3	11.0	14
2021-12-23	2	10.1	8.5	14
2021-12-27	2	8.2	9.2	14
2021-12-28	2	11.5	13.8	14
2021-12-29	2	13.6	13.7	14
2021-12-30	2	9.9	12.1	14

Appendix II. Encounter rate of wildlife species observed during patrols from January to December, 2021. Species not encountered during patrols are not shown.

Species common name	Scientific name	Encounter rate per km
Blue duiker	<i>Philantomba monticola</i>	1.016
Brush-tailed porcupine	<i>Atherurus africanus</i>	0.748
Red river hog	<i>Potamochoerus porcus</i>	0.671
Drill	<i>Mandrillus leucophaeus</i>	0.467
Mona monkey	<i>Cercopithecus mona</i>	0.394
Turaco	-	0.303
Hornbill	-	0.282
Common mongoose	<i>Crossarchus sp-</i>	0.275
Putty nosed monkey	<i>Cercopithecus nictitans</i>	0.232
Unidentified monkey	-	0.218
Bay duiker	<i>Cephalophus dorsalis</i>	0.185
African civet	<i>Civettictis civetta</i>	0.178
Yellow-backed duiker	<i>Cephalophus silvicultor</i>	0.178
Cane rat	<i>Thryonomys swinderianus</i>	0.154
Tree pangolin	<i>Phataginus tricuspis</i>	0.073
Nigeria-Cameroon chimpanzee	<i>Pan troglodytes ellioti</i>	0.059
Rock fowl	<i>Picathartes oreas</i>	0.051
African palm civet	<i>Nandinia binotata</i>	0.050
Cross River gorilla	<i>Gorilla gorilla diehli</i>	0.045
Unidentified great ape	-	0.022
Unidentified medium duiker	-	0.021
Unidentified large duiker	-	0.018
Unidentified small duiker	-	0.008
Guinea fowl	-	0.001

Appendix III. Ranger work time from January to December, 2021.

Name	Number of Patrols	Number of Patrol Days	Number Patrol Hours	Total Patrol Distance (km)
Alphonsus Oweh	28	157	1083.8	844.0
Anthony Odu	1	1	5.0	9.1
Anthony Osang	24	144	929.3	706.8
Bernard Akpa	28	181	1373.9	910.4
David Otu	26	155	975.2	766.0
Donald Ojie	24	147	921.9	725.0
Duke Ofre	5	25	195.2	116.3
Esekwe Gorilla Guardian	9	36	236.0	228.2
Etta Joseph	25	151	945.9	753.5
Francis Okeke	1	1	4.0	6.4
George Mgbang	26	176	1368.6	864.7
Henry Achua	24	153	1149.8	750.1
Joseph Dibang	10	63	486.7	278.9
Katabang Gorilla Guardian	22	110	803.3	625.2
Ofambe Gorilla Guardian	2	10	71.4	98.3
Okiro Gorilla Guardian	7	28	215.7	174.1
Olum Gorilla Guardian	12	57	431.8	316.9
Patrick Bankong	26	167	1286.2	807.5
Patrick Kejie	23	144	902.3	712.2
Peter Nsan	25	170	1297.7	832.7
Philip Ashijua	23	149	1154.7	759.6
Victor Agbor	1	1	7.1	5.2
Vincent Ayang	26	162	1239.2	803.1