
ASSESSMENT OF THE CHIMPANZEE POPULATIONS IN AKURE-OFOSU FOREST RESERVE, SOUTHWESTERN NIGERIA

¹ B. G. OGUNJEMITE AND ² JOHN F. OATES

1. DEPARTMENT OF FISHERIES AND WILDLIFE,
FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE, ONDO STATE, NIGERIA

2. DEPARTMENT OF ANTHROPOLOGY, HUNTER COLLEGE CUNY, NEW YORK,
AND THE NIGERIAN CONSERVATION FOUNDATION, LAGOS, NIGERIA

ABSTRACT

The status of chimpanzee populations in western Nigeria was poorly known, and they were judged to be highly threatened, and a plan for their conservation needed. Information on the presence, distribution and abundance of chimpanzees in Akure-Ofosu reserve was obtained from interviews and by making wide-ranging reconnaissance surveys in the company of local guides. Ten short series of line-transect censuses was also conducted. Field work was conducted in March-April 2007 and September-October 2007. Three main areas were identified as still supporting chimpanzee populations in Akure-Ofosu Forest Reserve. These are the Premier Gantry/Benin-Olojoda Road Junction, an area called Double Bridge, and east of Jingbe a settlement between Akure-Ofosu and Idanre Forest Reserves. No direct sighting of chimpanzees was achieved however, a total of 33 nests were counted at four sites. Twenty-five (75.8%) of the nests were observed in a single forest block (Double Bridge). The remaining eight nests (24.2%) were observed in two locations within a second forest block (Jingbe). Other primate species encountered include mona monkey, white-throated monkey, putty-nosed monkey and red-capped mangabey. Hunting and intensive exploitation of timber are the main threats to the chimpanzees in the reserve. Akure-Ofosu Forest Reserve does appear to have potential as a chimpanzee conservation site in southwestern Nigeria, especially in combination with such adjacent forests as Idanre.

Key words: chimpanzee populations, wide-ranging reconnaissance and forest block.

Running title: CHIMPANZEE POPULATIONS IN AKURE-OFOSU FOREST RESERVE.

INTRODUCTION

The *Regional Action Plan for the Conservation of Chimpanzees in West Africa* (Kormos et al 2003) identified Southwest Nigeria and the Niger Delta as a priority area for chimpanzee surveys. That regional plan was based on the deliberations of a workshop on West African chimpanzee conservation, held in Abidjan, Cote d'Ivoire in

September 2002. The status of chimpanzee populations in western Nigeria was poorly known, and they were judged to be highly threatened, and a plan for their conservation needed.

Following the recommendations of the workshop and action plan, Greengrass (2006) conducted a survey of southwestern Nigerian forest reserves,

supported by the CI Primate Action Fund, the Great Ape Conservation Fund (USFWS) and the Wildlife Conservation Society. The survey, which corroborated the work of Ogunjemite (2006), found evidence that chimpanzees were present at seven of 17 sites visited (Idanre, Ifon, Oluwa, Ise, Okomu, Ologbo and Omo), possibly or probably present at a further five sites (Akure-Ofosu, Ala, Owo, Shasha, and Ishan-Aiyede), and absent or extinct at the remaining five sites (Akure, Oba Hills, Oni, Ogbesse and Ohosu). Only one site, Okomu National Park in Edo State, did chimpanzees and other wildlife had a significant level of protection. Recommendations were made for the improved protection of Idanre, Oluwa and Ifon Forest Reserves in Ondo State, Ise Forest Reserve in Ekiti State, and Omo Forest Reserve in Ogun State.

Of the five sites where Greengrass adjudged chimpanzees to be possibly present in 2006, three reserves were considered to have conservation potential: Akure-Ofosu (Ondo State), Ishan-Aiyede (Ekiti State) and Shasha (Osun State). There is the need to supplement Greengrass's survey with further survey work directed at Akure-Ofosu, thus the present survey was conducted with the following objectives:

- To verify whether chimpanzees indeed occur in Akure-Ofosu Forest Reserve.
- To ascertain their distribution and relative abundance.
- To determine the threats faced by chimpanzees in the reserve and to formulate conservation recommendations.

MATERIALS AND METHODS

The study area

Akure-Ofosu Forest Reserve covers 401 km² between latitudes 5°12' and 5°30' N and longitudes

6°50' and 7°05' in the lowland forest zone in Ondo State. It is contiguous with Ala, Owo, Ohosu and Idanre Forest Reserves. Rainfall in this area is usually above 2000 mm annually, distributed over ten months from February to November. The vegetation is mainly secondary forest with patches of primary forest at higher elevation in rugged terrain. The vegetation is at different levels of regeneration following logging. About 25 km² of forest were covered in the survey.

Methods

Information on the presence, distribution and abundance of chimpanzees in Akure-Ofosu reserve was obtained from interviews and by making wide-ranging reconnaissance surveys in the company of local guides. Ten short series of line-transect (totaling 52.3 km) censuses was conducted. Field work was conducted in March-April 2007 and September-October 2007.

At Akure-Ofosu initial information was collected through extensive consultations with hunters, forest guards, farmers and community leaders in and around the reserve. The following villages were visited: Ala, Ago Tafa, Ajagbusi Ile-Iwe, Jingbe, and Idanre. Akure Zonal Forestry Office was also visited. Following one week of interviews, ten consecutive days were devoted to searching the forest for evidence of chimpanzee presence (e.g., vocalizations, sightings, feeding sites, trails, nests) in three of the major locations identified from the prior consultations. Where chimpanzees were detected, we attempted to track the animals until dusk; the following morning the locations were searched for all fresh nests and these were counted. Older nests were assessed for their estimated age, and also counted.

A Garmin 72 GPS receiver was used to establish

the coordinates of sites where chimpanzee signs were found.

RESULTS

Three main areas were identified as still supporting chimpanzee populations in Akure-Ofosu Forest Reserve. These are:

1. An area a few kilometers from the Premier Gantry/Benin-Olojoda Road Junction. This area covers about 6-8 km² and supports secondary forest regenerating about six years after intensive logging.
2. An area called Double Bridge, and beyond. This is fairly inaccessible rugged terrain, especially in the rainy season. Chimpanzees live in areas with rocky outcrops at elevations generally above 200 m.
3. An area east of Jingbe a settlement between Akure-Ofosu and Idanre Forest Reserves.

Tables 1 and 2 summarized chimpanzee tracking results in these locations. No direct sighting of chimpanzees was achieved. A total of 33 nests were counted at four sites. Twenty-five (75.8%) of the nests were observed in a single forest block (Double Bridge). The remaining eight nests (24.2%) of the total nest counted were observed in two locations within a second forest block (Jingbe). Two different groups appear to be using these locations: A larger group of about five or six chimpanzees ranging between Benin-Olojoda Junction and the Double Bridge area; and a smaller group of two or three animals in the Jingbe area. This gives an estimated seven to nine chimpanzees within the study location. From vocalizations heard, we believe that the Double Bridge group contains a juvenile.

Other primate species encountered at Akure-

Ofosu include mona monkey, white-throated monkey, putty-nosed monkey and red-capped mangabey. Hunting and intensive exploitation of timber are the main threats to the chimpanzees of Akure-Ofosu. However, there is usually a temporary cessation of logging activities when the rains are heavy and accessibility in the forest is very difficult.

DISCUSSION

The result of the survey had been able to confirm conclusively the first two objectives for which the survey was initiated. Chimpanzees were present in Akure-Ofosu Forest reserve and this is a confirmation of early observations made by Agbelusi (1994) and Ogunjemite (2006). The work also identified hunting and intensive exploitation of timber as the main threats to chimpanzee populations in the reserve and also confirmed two important locations within the reserve where recent evidences of chimpanzee were found. (1) Benin – Olojoda Junction to Double Bridge an area that is estimated to be between 80 and 105 km² of regenerating forest towards the eastern halves of the reserve. (2) The Jingbe area is toward the western part of the reserve. Although the forest around the location is more fragmented and human population high, fresh evidences of chimpanzees were also found in the area given that the animals still use the forest.

Records of chimpanzee nest is the primary evidence of chimpanzees' presence in a location and this was used to produce an estimate of abundance and the distribution of chimpanzee in this survey. This is in line with the recommendations of White and Edwards (2000) as used by Reynolds (2005) in Centre Africa Republic (CAR) and **Ndimuligo (2007)** in Tanzania. Aggregations of fresh nest are often

good indicators in this wise. Examining Fresh nest group within a chimpanzee community range will reflect the abundance and spatial distribution of the community. This method may not be able to provide a measure of chimpanzee density but it often provides a general indication of the abundance since chimpanzees live in communities with an exclusive membership that utilizes a specific home range as reported by Goodall (1986) and Herbinga et al. (2001). It will also provide information on the habitat utilization of chimpanzees in line with the observation of Morgan et. al. (2006).

Disturbances associated with logging present a serious threat to chimpanzees. This is the situation with the population in Akure-Ofosu Forest reserve. However, there is usually temporary cessation of logging activities when the rain is very heavy and accessibility in the forest becomes very difficult. Chimpanzees maintain stable communities at such times as earlier reported by Ogunjemite et al (2005) and they explore the lower altitude of their ranges since incidence of human predating are often at lowest levels. This survey took advantage of the situation and chimpanzees' activities were observed within the regenerating forest around the hilly rock-out region at higher elevations within altitude of between 350 and 460m above sea level as we move from the bank of River Ofosu hinterland toward the north and approaching the eastern escarpment of Idanre Hills.

Considering the extent of this survey in terms of time and areas covered, Akure-Ofosu Forest Reserve seems to hold some potential for the conservation of chimpanzee in the region of Southwestern Nigeria. The site is suitable

compared with other sites that had been badly fragmented through extensive conversion of forest to farmland and settlement such as Ala, Okeluse Ago-Owu and Shasha Forests. The greatest problem in Akure-Ofosu is logging. The size of the Forest Reserve; 420 km² seems enough for active conservation of the animal bearing in mind the level of forest fragmentation and encroachment in the south western Nigeria. The reserve is the center of once a contiguous forest block which includes Idanre in the west Ala and Owo in the north and Ohosu and Okeluse in the east. If protection of the species is step up in the centre in Akure-Ofosu there is the possibility that remnant population in these fragmented sites will eventually find safety to the core. The presence of other important wildlife species; the forest elephant, forest buffalo, and the endemic white throated and juju gallago could be an added advantage to chimpanzee conservation in the forest. The current disposition of Nigerian Government at all levels seeking alternative to oil revenue from ecotourism could also add impetus to conservation since biodiversity conservation is the bedrock of ecotourism development. It may therefore not be difficult to convince government to set aside a good proportion of the reserve for conservation purposes.

CONCLUSION

Akure-Ofosu Forest Reserve does appear to have potential as a chimpanzee conservation site, especially in combination with such adjacent forests as Idanre. Evidences of continued presence of chimpanzees were observed in the forest. Presently, however, the reserve is under great pressure from logging and hunting. We recommend a more careful study of the reserve, combined with Idanre, with a view to formulating a practical conservation strategy.

Table 1. Summary of survey results from Akure-Ofosu Forest Reserve.

Location	Date visited	Observed	Other species of primates encountered	Observed human activities	Habitat condition	Dominant tree species	Aspects of physical environment
Premier Gantry N 07° 01.68' E 05° 20.87' Elevation 965 ft	1 st Oct. 2007	None	Mona monkey	Hunting Logging Farming	Secondary forest with a mixture of early succession and climax species. Lots of tangles and shrubby spp.	<i>Ricinodendron</i> sp. <i>Myrianthus arboreus</i> <i>Cordia</i> sp <i>Triplochiton</i> <i>Cola gigantea</i> <i>Ficus</i> spp. <i>Terminalia</i> sp. <i>Cleistopholis patens</i>	Fairly undulating land, No major stream or river
Olojoda-Benin Junction N 07° 00.75' E 05° 21.05' Elevation 841 ft	2 nd / 3 rd Oct. 2007	Vocalization Feeding signs	Mona monkey Putty-nosed monkey	Hunting Logging Poachers tent	Secondary forest with mainly colonizing spp. Thickets with lots of lianas.	<i>Musanga</i> <i>Ficus mucoso</i> <i>Myrianthus arboreus</i> <i>Celtis mildbraedii</i> <i>Pterygota</i> sp. <i>Khaya</i> sp.	Fairly undulating land. Two seasonal streams present
Double Bridge 1 N 06° 58.01' E 05° 56.84' Elevation 815 ft	4 th / 5 th Oct. 2007	Vocalization Feeding signs Fresh and old nests	Putty-nosed monkey White-throated monkey Mona monkey Red-capped	Hunting Logging	Pockets of primary forests at high elevations. Logged forest at lower elevation.	<i>Cieba pentandra</i> <i>Khaya</i> <i>Cordia platyrusa</i> <i>Triplochiton</i> <i>Celtis</i>	Rugged terrain with rock-out areas. Two major rivers and other seasonal tributary

Table 1 cont.

Double Bridge 2	8 th / 9 th Oct. 2007	Vocalization Fresh nest	Mona monkey Red-capped mangabey	Hunting Logging	Pockets of primary forests at high elevations. Logged forest at lower elevation.	<i>Ceiba pentandra</i> <i>Khaya</i> <i>Cordia platythyrsa</i> <i>Triplochiton scleroxylon</i> <i>Celtis</i> <i>Musanga</i> <i>Diospyros</i> sp. <i>Erythrophleum</i> sp.	Rugged terrain with rock-out areas. Two major rivers and other seasonal tributary present
N 06° 58.12'							
E 05° 10.97'							
Elevation 750-850 ft							
Jingbe 1	10 th Oct. 2007	Vocalization Old nest	Mona monkey Red-capped mangabey	Hunting Logging Illegal settlements Farming	Secondary forests at different rates of regeneration.	<i>Alstonia</i> <i>Celtis</i> spp. <i>Pterygota macrocarpa</i> <i>Cola</i> sp. <i>Ficus</i> spp. <i>Brachystegia</i> sp.	Rugged terrain. Major stream and seasonal streams present
N 06° 59.25'							
E 05° 07.32'							
Elevation 700-860 ft							
Jingbe 2	11 th / 12 th Oct. 2007	New nests	Mona monkey Red-capped mangabey	Hunting Logging Illegal settlements Farming	Secondary forests at different rates of regeneration.	<i>Alstonia</i> <i>Celtis</i> spp. <i>Pterygota macrocarpa</i> <i>Cola</i> spp. <i>Ficus</i> spp. <i>Ceiba pentandra</i> <i>Albizia</i> spp. <i>Drypetes</i>	Rugged terrain. Major stream and seasonal streams present
N 06° 58.04'							
E 05° 14.68'							
Elevation 857 ft							

Table 2. Chimpanzee nests observed in Akure-Ofosu Forest Reserve.

Location	No. of fresh nests	No. of recent nests	No. of old nests	No. of rotting nests	Total no. of nest / site	Approx. area covered by forest patches (km ²)	Remarks
Double Bridge 1			5		5	7	About 5 weaned animals nesting here
Double Bridge 2	5	11	4		20	6	Five weaned animals may have produced the nests
Jingbe 1			3		3	6	Three weaned animals may have produced the nests
Jingbe 2	3		2		5	6	Three weaned animal may have produced the nests
Total	8	11	14		33	25	

Note: Age class of nest follows Tutin & Fernandez (1984) as follows:

- (a) Fresh nest - Vegetation green, not wilted
- (b) Recent nest – Vegetation dry and changing colour
- (c) Old nest – Vegetation dead but nest still intact

(d) Rotting nest – Nest beginning to disintegrate

Nest group is defined as a number of nests of the same age class found within a 50m radius of the most centrally placed nest within the group.

REFERENCES

- Agbelusi, E. A. (1994). Wildlife Conservation in Ondo State, *Nigeria Field* 59: 73 - 83.
- Goodall, J. (1986). The chimpanzees of Gombe: Patterns? of Behaviour. Harvard University Press. Cambridge, MA.
- Greengrass, E.J. (2006). A survey of Chimpanzees in South-West Nigeria. NCF-WCS Biodiversity Research Programme. 51 pp.
- Herbinger, I; Boesch, C and Rothe, H. (2001). Territory characteristics among three neighbouring chimpanzee communities in Tai National Park, Cote D' Ivore. *Int. J. Primatol.* 22: 143-167.
- Kormos, R. & Boesch, C. (2003). Regional Action Plan for the Conservation of Chimpanzees in West Africa. Conservation International, Washington, D.C.
- Morgan, D; Sanz, C; Onononga, J. Randstrindberg, S. (2006). Ape abundance and habitat use in the Goualougo Triangle, Republic of Congo. *Int. J Primatol.* 27:147-179.
- Ndimuligo, S. A. (2007). Assessment of Chimpanzee (*Pan Troglodytes*) Population and Habitat in Kwitanga Forest, Western Tanzania. Msc. Thesis In Resource Conservation Biology University of Witwatersrand, Johannesburg, South Africa.**
- Ogunjemite, B. G ; Afolayan, T. A and Agbelusi, E. A. (2005). Habitat Structure of Chimpanzee Community in Ise Forest Reserve, Ekiti State, South-Western Nigeria. *Afr. J. Ecol.* 43: 396–399.
- Ogunjemite, B. G. (2006). Trends in the chimpanzees of Kukuruku Hills: indication of extinction in the population of chimpanzees of South-west Nigeria. *Nig. Journal of Forestry.* 36; (2) 116 – 125.
- Reynolds, V. (2005). The chimpanzees of the Budongo Forest : Ecology, Behaviour, and Conservation . Oxford University Press.
- White, L., Edwards, A. eds. (2000). *Conservation research in the African rain forests: a technical handbook*. Wildlife Conservation Society, New York. 444 pp.