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Collaring Forest Elephants - Ziama *Interim Report 2022*



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COLLARING FOREST ELEPHANTS | ZIAMA

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TABLE OF CONTENTS

1.	Summary of Goals and Objectives.....	3
2.	Conservation Needs.....	4
3.	Project Background.....	5
4.	Summary of Progress	7
5.	Problems & Challenges	10
6.	Human Interest Story.....	12
7.	Conclusion and Way Forward.....	13
8.	Project Collaborators	14
9.	Media Information	15

1. Summary of Goals and Objectives

Goal

- To protect the last African forest elephants in Guinea and their forest habitat - the forests of the Zياما Biosphere Reserve.

Objectives

- To improve ecological monitoring of elephants in the Reserve de Biosphere Zياما (RBZ).
- Establish an early detection and warning system to mitigate Human Elephant Conflict



'Little John' a few days after being fitted with collar © Ruben Banuelos Bons / FFI

Completed Activities

- Obtained permits from the Ministry of Environment and Sustainable Development
- Procured two elephant satellite gps collars from African Wildlife Tracking in South Africa
- Contracted veterinarian services of Dr. Pete Morkel
- Successfully collared two forest elephants in June 2022
- Actively monitoring satellite movement of both forest elephants

2. Conservation Needs

From an estimated population size of over two million pre-colonisation, less than 40,000 African Forest elephants remain in the wild today- with a decline of 62% between 2002 and 2011. Recent analysis by the IUCN indicates a reduction of more than 80% of the continental population in the past three generations (93 years). Forest elephants are incessantly poached for their superior ivory and meat, with habitat loss and lack of effective governance further threatening their survival. Importantly, in March 2021, the IUCN officially recognised the Forest elephant as a separate species from the Savannah elephant, and classified it as 'Critically endangered' due to its rapid population decline. The remaining Forest elephant populations are restricted to a handful of Central and West African countries, including Guinea, where critical support is needed to protect these last remaining safe havens.

“Less than 40,000 African forest elephants remain in the wild”

The Zياما Biosphere Reserve is the largest classified forest in Guinea and is part of the Zياما-Wonegisi-Wologizi (Guinea-Liberia) transboundary landscape. The Zياما Forest covers an area of 119,019 ha of fully protected areas and buffer zones, and harbours high levels of endemism, providing a vital habitat for threatened species, including the Western Chimpanzee (CR, Critically Endangered), the Pygmy Hippopotamus (EN, Endangered) and the last remaining Forest Elephants (CR, Critically Endangered) in Guinea. All of these endangered species reside in Zياما and can travel more than 200 km thanks to the tenuous connectivity afforded by the forest fragments and agricultural land. However, its elephant population has declined over several decades due to the persistent threat of poaching and severe habitat degradation. According to the results of anti-poaching patrols carried out in Zياما, we note that the fauna of Zياما is highly threatened by poaching, with a rate of encountering signs (notably traps) linked to this activity of 0.42 signs/km in 2020. This pressure on wildlife was highlighted following a census of elephants in 2016, which was repeated in 2017 to confirm the results. The result of this survey was a sharp decline in the elephant population from an estimated 214 individuals in 2004 (CITES/MIKE et al., 2004) to 16 individuals in 2016 (FFI and CFZ, 2016). In fact, the number of tracks was so small that an accurate estimate was impossible.

“Increasing conflict between farmers and elephants”

Secondly, according to a survey study conducted in 2016 by FFI and CFZ, there has been an increase in illegal occupation in Zياما Reserve, totalling 1011.29 ha of lowlands used for rice cultivation. As their habitats shrink, elephants are progressively forced into closer contact with humans, leading to more frequent and severe conflict over space and resources, with consequences ranging from crop raiding to mutual loss of life (Shaffer et al, 2019). Indeed, in Zياما this has led to serious ecosystem disruption, fragmenting elephant range, polluting water due to the use of herbicides to develop lowlands, and increasing conflict between farmers and elephants (HEC, human elephant conflict, below). The dynamics of HEC were confirmed in Zياما in 2016 by an elephant damage assessment

study conducted by FFI and CFZ. In this study, the cost of the 424 recorded cases of damage was estimated at a monetary loss of approximately 57 million Guinean francs.

3. Project Background

The Management Plan of the Ziama Biosphere Reserve relies on a scientific research and ecological monitoring programme. In this perspective, an efficient monitoring system is essential to provide accurate information on elephant population dynamics and threats in order to strengthen long-term conservation efforts. Thus, the initiative to collar two forest elephants forms part of an improved wildlife monitoring system, which has so far been carried out by monthly foot patrols in Ziama since 1991. Elephant monitoring patrols are also planned regularly, with the main objective of reducing HEC events.

Thanks to the generous support from the International Elephant Foundation in 2018 and 2019, the African Forest Elephant Foundation was able to support the local CFZ Rangers with new equipment including boots, socks, backpacks, solar rechargeable flashlights, camera traps, gps units, tents, and camping mats. The equipment has significantly improved the efficiency of the patrols in Ziama allowing the CFZ Rangers to cover more areas during patrols and collect vital data relating to biomonitoring and evidence of illegal activities (e.g., illegal farming). This data is vital to develop appropriate conservation strategies to protect the forest elephants and their habitat into the future. Through close monitoring of Ziama elephants, two groups were identified as habitual pests, constituting a key source of conflict with communities and making them vulnerable to retaliation such as slaughter. In addition, this monitoring also allowed the targeting of locations for conflict mitigation measures, such as deterrents like beekeeping or the development of crops that are not palatable to elephants (e.g. ginger). In early September 2020, two forest elephants from Ziama crossed the border from Guinea into Liberia. The two male elephants are believed to be brothers and are well known amongst the local communities on the Guinean side of the border. Their mother was killed by poachers in 2016 – the last known illegally hunted elephant in Ziama – since then the absence of the matriarch has left them slightly disorientated. Increased pressure on their forest habitat has resulted in regular contact with people and they are often seen in and around the villages, attracted by the crops grown in these areas. Unfortunately, this has caused the two forest elephants to become somewhat habituated to humans.

“Transboundary collaboration between Guinea and Liberia”

Many locals were very excited about wild elephants passing through and volunteered to help monitor their movements. However, many people also travelled from afar to catch a glimpse of these magnificent creatures, hoping to take some photos or videos, which could be risky to their safety as well as the safety of the elephants. As a result, the Managing Director of the Forestry Development Authority (FDA) in Liberia, Hon. C. Mike Doryen travelled to the region to engage with communities and supervise the field operation require to keep the animals safe. Fauna & Flora International (FFI) also provided support to government partners in both countries to help deal with the situation. Rangers from the Centre Forestier de N'Zerekore (CFZ) travelled across the border in order to support and train Liberia's FDA in the delicate and difficult business of monitoring and safeguarding

these elephants. These rangers supported the FDA in guiding and guarding the elephants; in some instances, having to push people away.

This collaboration occurred on the backdrop of a cross-border collaboration agreement that was signed in 2019 for the management of the Ziama-Wonegizi (ZWW) transboundary forest landscape between Liberia and Guinea. As part of this agreement, a long-term conservation strategy will be developed to ensure the safety of elephants and other globally important species. Liberia has now made significant progress in elephant conservation, joining the Elephant Protection Initiative in 2015 and they have now developed a 'National Elephant Action Plan' (NEAP), which will provide guidance and actions for the sustainable management of forest elephants in Liberia. It has now been decided by project partners that satellite collars should be fitted on forest elephants from two different herds in the Ziama forest. Satellite collars will allow the conservation team at the N'Zérékoré Forestry Centre to track the animals' movements and provide information that will help not only to improve their protection, but also to improve systems for mitigating human-elephant conflict, for example through the establishment of an early warning system for farmers when elephant pests are approaching village lands.



Dr. Pete Morkel briefing the CFZ Rangers in Seredou © Ruben Banuelos Bons / FFI

4. Summary of Progress

4.1 During the first half of the year, the CFZ Rangers increased their biomonitoring efforts of three forest elephants that were selected as candidates for the satellite collars. These three elephants included the two brothers mentioned above that are locally known as 'Big John' and 'Little John' as well as a third lone male bull who had recently started crop raiding around the Ziama forest.

4.2 Fauna & Flora International and the Centre Forestier de N'Zerekore engaged with the Ministry of Environment and Sustainable Development and other stakeholders to obtain the necessary permits to collar forest elephants. The satellite collars were then procured from African Wildlife Tracking (www.awt.co.za) in Johannesburg, South Africa and collected by the veterinarian Dr. Pete Morkel who transported them with him to Conakry, Guinea.

4.3 Dr. Pete Morkel and Christian Triay (AFEF) arrived in Conakry, Guinea on 2 June 2022 where we met with Neus Estela (FFI) and Gbaguema (FFI). We spent one night in Conakry before the long journey by road to Seredou.

4.4. Before departing Conakry we visited the Ministry of Environment and Sustainable Development on 3 June 2022 in Conakry where we gave a presentation on the project to the General Secretary and other government officials. We departed Conakry that afternoon and arrived at FFI headquarters in Seredou on Saturday 4 June 2022 after a two-day drive with an overnight stay in Kindia.

4.5 On Sunday 5 June 2022 we confirmed the plan for the collaring operation and prepared counterweights for the elephant collars. The counterweights weigh approximately 7kg and ensure that the satellite transmitter remains at the top of the elephant's neck, which in turn assists with obtaining a stronger satellite signal.

'Little John'

4.6 On Monday 6 June 2022 we arranged a briefing with the CFZ Rangers at their headquarters lead by Dr Pete Morkel whereby he explained the entire elephant collaring procedure, which included health & safety protocols; animal welfare and safety considerations; information on the equipment & medicines that will be used; and videos of previous elephant collaring operations. The CFZ Rangers were also given the opportunity to ask questions and raise any concerns.

4.7 Later that morning we travelled towards a nearby town called N'Zebela to meet with the CFZ Rangers who had been monitoring 'Little John'. The vet and a select few trackers went ahead to locate and dart 'Little John' while the rest of the team stayed behind. Fewer people means less noise when tracking the elephant.

4.8 Once we received confirmation that 'Little John' had been successfully darted and had gone down safely, the rest of the team were able to join briefly while the vet attached the AWT VHF/GPS Satellite collar around his neck. It is imperative that the vet and tracking team locate the darted elephant as quickly as possible to ensure that it has fallen to the ground safely and that its airways are clear.

4.9 The vet and the rangers attached the satellite collar around 'Little John's' neck leaving sufficient space for the elephant to grow while some of the rangers took measurements for data collection purposes. 'Little John' is thought to be approximately 9 years old. Once the collar had been attached and the team left the area, the vet administered the antidote in the ear vein, and 'Little John' stood up without difficulty and moved off quietly. He was observed by the CFZ Rangers over the next few days who confirmed that he showed no ill effects from the immobilisation.



'Little John' being collared on 6 June 2022 © Christian Triay / AFEF

Lone Bull

4.10 Due to the fact that 'Little John's' big brother 'Big John' had travelled into Liberia and was located along the border with Cote D'Ivoire we decided to attempt to collar the lone bull forest elephant which was located outside the Zياما Reserve in an agricultural area between Seredou and Kouankan.

4.11 Collaring the Lone Bull proved to be more challenging due to a number of factors, including the difficult terrain and the fact that this elephant had developed the ability to evade human interaction probably as a result of living amongst farmers and local communities in the area. He was therefore extremely shy and quickly moves off if he hears

people approaching. Although we never saw the elephant, the vet estimates the Lone Bull to be at least 25 years old judging by the size of his tracks.

4.12 After several long days without success and time running out, we decided to stop pursuing the Lone Bull and instead decided to pursue 'Big John' who was still located in Liberia.



Forest elephant tracks near the Zياما forest © Ruben Banuelos Bons / FFI

'Big John'

4.13 The Vet and a select few CFZ Rangers travelled across the border to Liberia where they teamed up with the FDA.

4.14 On Friday 17 June 2022 the Vet and the team successfully darted and collared 'Big John' near Lorplay, Liberia. The Vet estimated 'Big John' to be 14 years old and in excellent condition.

4.15 The latest AWT data shows that 'Big John' is still located in Liberia and seems to be heading further south towards Gbi National Park.



'Big John' collared in Liberia © Ruben Banuelos Bons / FFI

5. Problems & Challenges

We faced several challenges however we were always able to make a plan to overcome them successfully. Some of the challenges included:

5.1 Transporting the collars to Guinea

Transporting satellite collars can be a challenge because of the presence of a battery within the collars, which generally cannot be shipped due to batteries being classified as a 'hazardous' material. To overcome these restrictions we had to arrange for the vet to travel via Johannesburg in South Africa to physically collect the two elephant collars and travel with them as part of his luggage, which is permissible.

5.2 Transporting the dart gun

We had originally planned to depart from Conakry at 06:30am on Friday 3 June 2022. However, upon arrival in Conakry on 2 June 2022, Ethiopian Airlines did not deliver the vet's dart gun as it was stuck in Addis Ababa meaning we had to wait in Conakry until after 16:00 on the Friday for the dart gun to be delivered on the next flight. It is not recommended to

drive at night so leaving at this time meant we could only travel a short distance on the Friday evening resulting in a longer drive of more than 13 hours on the Saturday. Thankfully we still managed to arrive in Seredou on the Saturday as planned meaning the itinerary was not delayed.

5.3 Ensuring the collars were operational

Once the collars have been switched on and completed, they cannot be turned on and off without re-opening the transmitter. This means that you need to make sure the collars are working before fitting them on the target animal.

We placed the two collars outside in open space so that the transmitters could pick up a satellite fix. One of the collars obtained a satellite signal within a few hours however unfortunately the other was not picking up signal. We feared the collar may have been defective (which can happen) meaning we would have to request a replacement collar, which could have resulted in additional cost and delay. After consulting with the manufacturers, we successfully troubleshooted the issue by moving the collars into a more suitable position and managed to establish a satellite fix meaning the project could continue without delay.

5.4 Creating counterweights for the collars

Under the thick forest canopy satellite signal can sometimes be limited. To mitigate this risk, a lead weight is placed at the bottom of the collar acting as a counterweight to the satellite unit. This ensures that the satellite unit remains on the top of the collar (i.e., on top of the elephant's neck) which assists with obtaining a stronger satellite fix.

Due to the target elephants generally being in remote areas in tough conditions, it is often not feasible to take ready made weights to the project location. In our case we needed to build the counterweights ourselves by melting scrap metal over a fire and pouring the molten metal into a frame that we constructed.



Creating counterweights using wooden frames in Seredou © Christian Triay / AFEF

5.5 'Big John' crossing over into Liberia

Three forest elephants had been identified as suitable candidates for being fitted with the satellite collars. These consisted of the two brothers that had travelled through Liberia previously, namely 'Little John' and 'Big John', and another lone bull who had gained a reputation for crop raiding. Based on the historical data we had planned the collaring operation during a time in which we predicted the two brothers would be located close to Zياما. However, 'Big John' had other plans and decided to cross into Liberia earlier than predicted around 4 weeks before the collaring operation was due to take place.

Due to difficulties collaring the lone bull near Seredou we had to make the decision to pursue 'Big John' in Liberia. Although this required some additional cross-border logistical considerations and additional costs it was ultimately the correct decision, and 'Big John' was successfully collared in Liberia.

6. Human Interest Story



Adama Traore is a CFZ Ranger © Ruben Banuelos Bons / FFI

During the planning session with the CFZ Rangers, the vet made it clear that fitting a satellite collar to an elephant is an inherently risky operation for both the elephant and the people involved if the correct protocols are not followed. Such an operation requires veterinary expertise and experience, meticulous planning, and strong tracking skills.

The CFZ Rangers were therefore encouraged to ask questions about the operation and raise any concerns that they had before going into the field. One of the main concerns raised by some of the rangers was whether the elephants would suffer from any adverse side effects after the collaring operation or whether they would be “angry” at the rangers or “act out” at them for allowing such an operation to happen. The Rangers explained that they spend a lot of time monitoring these elephants and were concerned that the elephants may feel betrayed by them in some way allowing them to be tranquilised and collared.

The vet however reassured them that elephants generally return to normal once they have been woken and that there were no previous reports of elephants changing their behaviour as a result. We were shown several videos of other elephants waking up after having been collared and it is amazing to see how quickly they regain consciousness and awareness of their surroundings. On this occasion ‘Little John’ immediately raised his trunk in telescopic fashion smelling the presence of the humans that had now moved away.

I was lucky enough to stay behind with the vet and witness ‘Little John’s’ re-awakening while the rest of the team had returned to the vehicles on the road. I was relieved to see that the re-awakening closely resembled the videos that we had seen previously and before we knew it ‘Little John’ was up on his feet smelling his surroundings before gently making his way back into the Ziama forest.

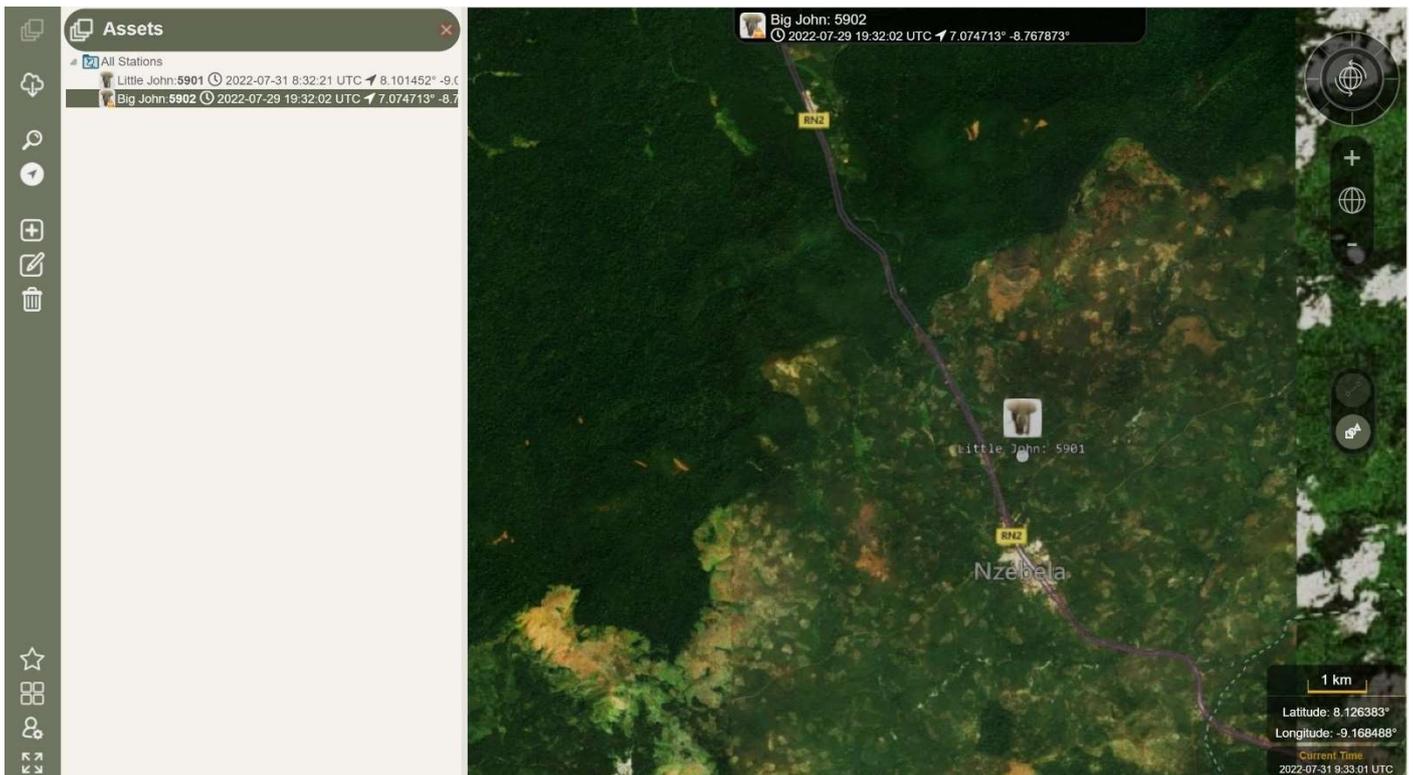
As I was making my way back through the forest to the main road when I saw Adama, the CFZ Ranger pictured above, eagerly waiting on the path to make sure that ‘Little John’ was okay. The look of relief on Adama’s face when I told him that ‘Little John’ was okay and that we had watched him get up and walk away resembled the look of loved one awaiting the news of a family member.

Witnessing the rangers’ genuine concern for the wellbeing of the elephants was heart-warming and showed the passion and love that the CFZ Rangers have for these forest elephants and the work that they do.

7. Conclusion and Way Forward

The two forest elephants have been successfully collared with the AWT satellite collars. We are now able to log-in to African Wildlife Tracking (www.awt.co.za) control panel to access all the location data of the two elephants. The satellite collars are currently programmed to emit a signal every hour to start with however it is likely that the frequency of signals will be reduced in the future to preserve the longevity of the battery life of the collars.

‘Little John’ has remained in the same area where he was collared in Nzebela, Guinea whereas ‘Big John’ remains in Liberia and seems to be heading further south away from Guinea.



Screenshot of African Wildlife Tracking dashboard © African Wildlife Tracking

We will now actively monitor the location and movement of both elephants to achieve the two objectives of (1) improving ecological monitoring of elephants in the Reserve de Biosphere Ziama; and (2) establish an early detection and warning system to mitigate Human Elephant Conflict.

We look forward to sharing more developments in our final report.

8. Project Collaborators



9. Media Information

Fauna & Flora International Press Release:	202206_FFI_Elephant-collaring-press-release.pdf (fauna-flora.org) https://www.fauna-flora.org/news/banded-brothers-critically-endangered-african-forest-elephants-fitted-with-tracking-collars/
National Television in Guinea:	https://youtu.be/oSaZeZyXUhY (approx. minute 25)
AFEF Website:	www.forestelephants.org
Instagram:	@forestelephantfoundation @c.z.triay @callumgerrish
Facebook:	@forestelephantfoundation
Twitter:	@AFEF_elephants