

Red Volta Valley Community Elephant Conservation Project Detailed Final Report



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Executive Summary

Elephant crop raiding remains an important challenge to elephant conservation worldwide. This is particularly true in the Red Volta Valley (RVV) ecosystem in Ghana. This ecosystem comprises of six forest reserves and adjacent communal woodlands and serves as an international migratory corridor for elephant populations that move between Burkina Faso, Ghana and Togo. Wildlife authorities in the RVV have had limited success with elephant crop raiding mitigation programs in the area, mainly due to logistical constraints and limited community involvement. Response time for elephant taskforce has been slow and often, farms get destroyed before their arrival. The destruction of farms and produce resulted in two retaliatory killing of elephants in the 2018 cropping season. Active community engagement in elephant conservation activities holds promise for mitigating human elephant conflicts in the RRV ecosystem. The Viridis Environmental consult with funding from The Rufford Foundation and technical support from the Wildlife Division sought to established, train and equip ten community-based Elephant Management Teams (EMTs) spread across the RRV ecosystem, deploy a mobile data collection and reporting system and set-up a mechanism for receiving and managing in-kind and cash donation to communities. The project has been successful in establishing, training and equipping 9 EMTs distributed across the entire elephant migratory routes. The EMTs WhatsApp platform has proven useful for effective communication on the movement and activities of elephants in the corridor providing the Wildlife Division staff with real time and reliable information to warn communities on approaching elephants' populations along the corridor. The EMTs have also supported the WD staff to conduct regular human elephant conflicts (crop raiding) and monitoring activities within their communities. The real-time reporting (telephone calls) on elephant activities by the EMT has helped the Wildlife Regional office to investigate an elephant poaching and arrest perpetrators. They have also helped in the rapid investigation of an elephant killing of a farmer. The EMT activities have increased response time to deploy staff of the WD and reduced false reporting of elephant crop damage by some community members. The project has helped in sensitizing businesses, individuals and local government authorities on the need to support communities with in-kind and cash donations. It has help established a mechanism for collecting and equitably sharing of the benefit. These EMTs have been active in mobilizing the chiefs, community members and local district assembly members to start afforestation programs as well as stop deforestation practices. The teams have been able to prevent commercial exploitation of fuelwood, illegal logging, illegal grazing and farming within the forest reserves via strengthened institutional collaborations with the Forestry Commission and local government agencies and reduced forest reserve encroachment by farmers by 95% in some parts of the corridor.

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1.0 Introduction

Elephant crop raiding remains an important challenge to elephant conservation worldwide. This is particularly true in the Red Volta Valley (RRV) ecosystem in Ghana (Barnes et al. 2006). This ecosystem comprises of six forest reserves and adjacent communal woodlands and serves as an international migratory corridor for elephant populations that move between Burkina Faso, Ghana and Togo. The ecosystem is one of the most important networks of transfrontier protected areas in West Africa and the population is the third most abundant in Ghana (WD 2000). The West Africa regional and national elephant conservation strategies have listed human wildlife conflict and poaching as major threats to these elephant populations. Wildlife authorities have had limited success with elephant crop raiding mitigation programs in the area, mainly due to logistical constraints and limited community involvement. Response time for elephant taskforce has been slow and often, farms get destroyed before their arrival. The destruction of farms and produce resulted in two retaliatory killing of elephants in the 2018 cropping season. Active community engagement in elephant conservation activities holds promise for mitigating human elephant conflicts in the RRV ecosystem.

In response to continuous community hostility and killing of elephants in the 2018 cropping season, the Wildlife Division (WD) organized a stakeholder workshop to discuss elephant conservation in the RRV. The community representatives expressed their frustrations about the activities of the elephants in the area, inability of WD elephant taskforce to work alone and reiterated their commitment to help in managing elephants in the area. They believe that elephants thought to be migratory, are now permanently resident in the area and highlighted the need for greater cooperation between WD and local communities.

In May 2019, Viridis Environmental Consult, a Ghanaian registered advocacy, research and project management organization focused on the development and implementation of integrated agriculture and natural resources management projects successfully secured funding from the Rufford Foundation to work with the Wildlife Division and local communities to monitor the movement of elephants and their activities in the Red Volta Valley Ecosystem.

1.1 Objective of the study

Specifically, the project sought to:

- Established, train and equip ten community-based Elephant Management Teams (EMTs) spread across the RRV ecosystem; these teams will be responsible for controlling crop raiding elephants and implementing elephant-related programs (Community sensitization, monitoring and reporting) at community level and will serve as formal contacts for WD.
- Deploy a mobile data collection and reporting system; Through the deployment of a mobile data collection and reporting system (Early Detection and Warning Systems), trained community teams can collect and transmit information (Photo, GPS Co-ordinates, voice messages, movement, numbers, raids) on elephant activities on permanent transects to a central reporting system to be managed by the WD. This system will provide authentic real time information on elephant movement for EMTs to better co-ordinate their response to elephant crop raiding activities and WD to plan for long-term elephant population monitoring in the area.
- Set-up a mechanism for receiving and managing in-kind and cash donation to communities. Since logistical constraints have been a major issue to the sustainability of the community-

based wildlife programs, the project will raise awareness about elephant management issues in the RRV ecosystem among private businesses and local government institutions, and solicit support to sustain community involvement in elephant management in the area.

2.0 Description of Project Area

The Red Volta Valley (RVV, Figure 1) Ecosystem comprises of a network of adjoining forest reserves: Red Volta East, Red Volta West, Gambaga Scarp East, Gambaga Scarp West, and Morago East Forest Reserves and adjacent off reserve woodlands and fallow/crop fields (Latitude 10 30' to 11 00' North, Longitude 0 45' to 0 00' West). It lies within the Talensi, Nabdam, Bawku West, and Bongo Districts of the Upper East Region of Ghana. The vegetation is savanna woodland and consists of deciduous short trees and shrubs (Plate 1), and gallery forests along the banks of Red and White Volta, and Morago rivers. Communities of *Combretum* sp. and *Vitellaria paradoxa* dominates the vegetation.

Two climatic seasons; dry (December-April) and wet (May-November) occurs in the area. Mean annual rainfall is about 896 mm. The dry season is characterized by desiccating northeast winds, which brings dust and haze from the Sahara Desert and also high incidences of wildfire (Adjewodah 2004). The main economic activity of the people is rain-fed subsistence agriculture with farm sizes between 0.1-7.3 ha. Crops cultivated includes millet, maize, and groundnut. Poaching, mining, farming, grazing and tree felling are common in some areas of the reserves although it is under the management of the Forestry Commission of Ghana.

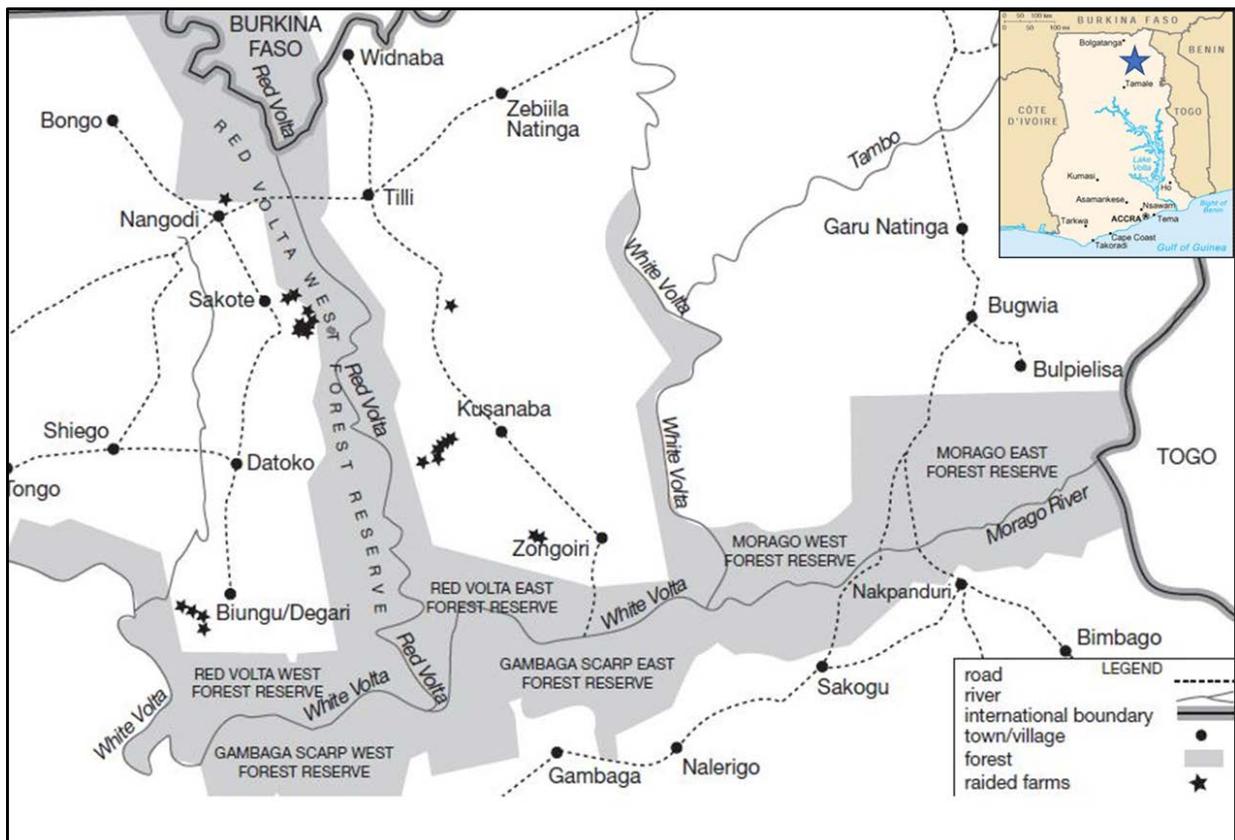


Figure 1. The location of the project area showing elephant migration through forest reserves in Ghana (Map adapted from Adjewodah et al. 2014).

The forest reserves harbour trans-frontier elephant migratory routes, which link the RVV ecosystem to the Kabore-Tambe National Park and the Nazinga Game Ranch in south central Burkina Faso, and Fosse aux Lions National Park in northern Togo (Sebogo and Barnes 2003). About 1,049 km² of the Red Volta Valley, comprising of the above forest reserves and adjoining fallow woodlands, is uninhabited and potentially suitable for elephants and other wildlife conservation (Adjewodah 2004). The Ecosystem also offers unique opportunity for local communities to participate in landscape governance.



Plate 1. Riverine forest along the Red Volta river which serves as migratory route for the elephants

3.0 Project activities implementation

3.1. Inception meetings:

The project team conducted an inception meeting with the (then) Regional Manager of the Wildlife Division (Northern Zone) Mr. John Naada, under whose jurisdiction the project community falls on August 1st, 2019. The meeting discussed project implementation plan, logistics and selected project communities. It also planned community entry protocols as well as project procurements. At the inception meeting, the WD pledge it support to the project. It was agreed that the Wildlife Division staff leads the project team to engage the Bawku Naba (Plate 2. Overlord-King of project communities) and selected paramount chiefs (Plate 3) to announce the project to him and solicit his support. The project also engaged the District Chief Executive of the Nabdam District Assembly (Plate 4) to inform her about the project.

3. 2. Community entry



Plate 2. The project team went to meet and inform the overlord (King) of the Bawku traditional area. The Bawku Naba controls chiefs of all communities within the project area.



Plate 3. Project team and staff of the Wildlife Division in a meeting with the paramount chief of the Nangodi traditional area, Chief Asaga II.



Plate 4. Meeting with Co-ordinating Director of the Nangodi District Assembly to announce the commencement of the project.

3.3 Procurements

The project team procured 10 Tecno tablet with internet connectivity, laptop computer, and a printer-scanner-photocopier machine for the project. The tablet allows for field data capture and also mobile communication among the team members. It also subscribed the team to the Close User Group (CUG) service of the main Telcom provider (MTN) of the area. The CUG service allows a monthly allocation of data (2G) and unlimited call time within the team registered sims.



Plate 5. Tecno tablets procured for the community elephant team members. This allows the team to communicate and capture field data in real time.

3.4 Project community selection

The project selected a total of 9 communities to participate in the project. They include Datoko (Namorateng), Nangodi, Tilli (Kukori), Sakote, Krusanaba, (Kotintaba, Kopeliga, Bukperi), Widnaba, Biugu, Garu (Siisi/Denugu/Kpatua/Takori/Sinebaga), Sambona, Zongoyire (Plate.6) These communities were selected along the migratory route of the elephants. The Viridis project team together with staff of the WD, visited each of the project communities to discuss the project with the chiefs, elders and the community members. Participating communities were tasked to form a community elephant management team (EMT). The communities then selected their team members and elected team leaders. They were equally encouraged to include women in the teams. Together, 9 EMTs with membership of between 10-15 in each of the 9 communities along the corridor were established.

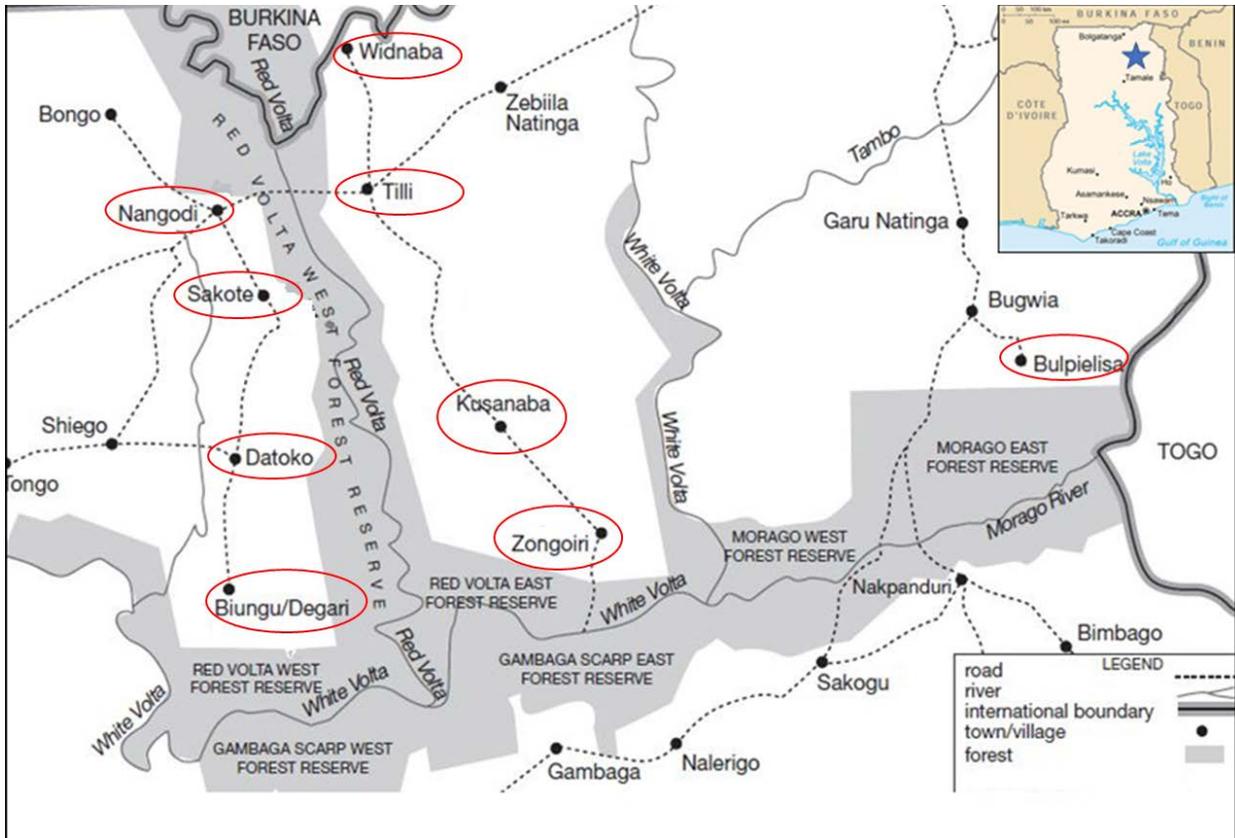


Figure 2. The location of communities and elephant management team in the project area

3.5 Training section

At least two members each of the community elephant management teams (EMT) were select to conference centre of the Nabdam District Assembly for the project training. The teams were taking through the project ideas, and elephant ecology and management protocols (Plate 6).

3.5.1 The project ideas

The team leaders’ workshop was facilitated by Dr. Bright Kumordzi (project team leader), Mr. John Naada (Outgoing Regional Manager) and Mr. Joseph Binlinla the new Regional Manager of the WD. Briefing the elephant management team leaders, Dr. Kumordzi highlighted the importance of the corridor for elephant conservation across West Africa. He indicated that the African elephant is a vulnerable species and enjoys whole protected status both nationally and internationally. The corridor serves as a wildlife migratory route especially connecting elephant populations from Burkina Faso, through Ghana to Togo. It is important to preserve the integrity of the corridor ecosystems so as it can continue to support biodiversity and contribute to socio-economic wellbeing of these communities. Dr. Kumordzi urged team leaders to sensitize their communities to avoid activities that deforest and degrade the environment. These include bush burning, farming in forest reserves, illegal logging and mining. Sustainable grazing practices should also be avoided.



Plate 6. A cross-section of the participants in the Elephant Ecology and Management training project.



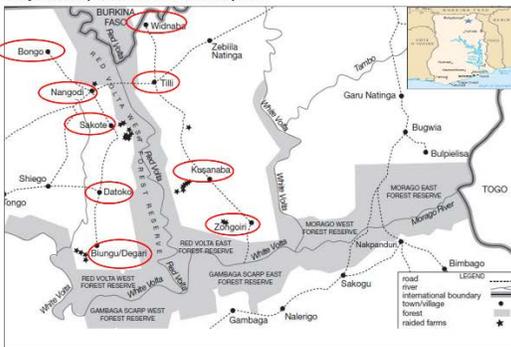
Plate 7. Dr. Bright Kumordzi (project lead) addressing the team leaders during the Elephant Ecology and Management training held at Nangodi in the Upper East Region.

Red Volta Valley Community Elephant Project

1. Build capacity of Community-based Teams in Elephant Biology, Ecology and Management



Project study area: Red Volta Ecosystem



2. Develop and deploy an information management system to monitor elephant distribution, movement and incidence of crop raiding



3. Solicit In-kind and cash support for elephant management activities in project communities



Figure 3. A training poster presenting the summary of the main project activities as presented by the project team lead, Dr. Bright Kumordzi.



Plate 8. The representative of the District Chief Executive of the Nabdam District Assembly addressing the Community team leaders at the training.

Mr. John Naada (Former WD Regional Manager) took the participants through a section on the ecology and natural history of elephants (Figure 4, Plate 9). He provided information on the different species of elephants, sizes and sexual dimorphism among African elephants. He provided detailed information on social structure and their behaviours, explaining that the oldest biggest female (as known as the Matriarch) leads the family. He suggested that once the matriarch is poached (killed), it destabilizes the family and will have negative consequence on their interaction with humans. The training touched on elephant movement and home-range, communication, feeding and reproduction (Figure 4).

The Natural History and Ecology of Elephants



Elephants

- ❖ Size: Height Up to 3.6 m, Weighs up to 6000kg
- ❖ Species: African and Asia elephants
- ❖ Habitat: Forest & Savanna



Social Structure and Behaviour

- ❖ They are social animals
- ❖ Males are usually bigger than the females



❖ Oldest Biggest female (Matriarch) leads family



Movement & Home Range

- ❖ Migrates between 15-3500km
- ❖ Home range : 75km



Reproduction

- ❖ Reproductive age (years)
 - ❖ Cows: 7-22; Bulls: 20-25
- ❖ Gestation period: 21.5 months
- ❖ Mean Calving interval: 3-9 years
- ❖ Birth Weight: 120kg



Feeding

- ❖ Grasses & Trees
- ❖ Fruits, herbs & Barks
- ❖ Agricultural crops



Communication

- ❖ Poor eye sight
- ❖ Long memory
- ❖ Excellent sense of smell
- ❖ Screams and trumpets
- ❖ Communicates in frequencies inaudible to humans



The Rufford Foundation
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Figure 4. A training poster presenting the summary of ecology and natural history of the African elephant as presented during the training section.



Plate 9. Mr. John Naada taking participants through the section on ecology and natural history of the African savanna elephants.

The new Regional Manager, Mr. Joseph Binlinla, provided an overview of elephant human conflicts in the area. He noted that damages from elephants can cause severe economic loss to farmers and understands farmers' frustration. He highlighted that it was the task of the WD to protect farmers from elephant damage. He expressed satisfaction that communities will be able to work with the staff of WD to confront the challenge together (Figure 5, Plate 10).

Mitigating Human Elephant Conflicts

Mitigation Strategy

1. Noise-Making

- Bells
- Electronic Alarms
- Busters
- Disturbance Shooting

2. Olfactory Deterrents

- Pepper with Grease
- Burning Chilli bricks

3. Vegetation Barriers

- Establish Buffer Zone
- Plant less desirable crops

1. Communal Efforts

- Reduce human encroachment into elephant range
- Relocate agricultural activity out of elephant range
- Consolidate human settlement patterns near elephant range
- Diversify crops types to reduce overall exposure
- Use intercropping layout
- Change timing of harvest
- Guarding fields
- Elephant data collection: movement, distribution & raids



Figure 5. A training poster summary on mitigating human-elephant conflicts in the project communities presented by Mr. Joseph Binlinla, the Regional Manager of the wildlife Division.



Plate 10. Mr. Joseph Binlinla, the WD Regional Manager, during discussions at the workshop.

3.5.2 Conducting community surveillance and data collection

The team leads were trained on using and taking good care of the tablets (Plate 11-13). A practical section was held where team leads were taken through different applications on the tablets. For instance, a section focused on using the GPS to capture geographical coordinates and the camera capture good pictures. The trainees were also taught about making audio and video calls, activating the data collection application, recording and sending messages on it via WhatsApp. The team leaders were also taken through the electronic capturing and reporting of elephant population, movement and damage using format developed by African Elephant Specialist Group.



Plate 11. *Dr. Bright Kumordzi, taking team leaders through the training section on electronic data captures and capabilities of the tablets.*



Plate 12. Some female team leads during the project training. Project emphasized the importance of women in natural resources management and prioritized their inclusion in project activities.



Plate 13. Plate 13. Some participants during the training section on field data capture during the training

Certificates of participation

The team members were presented with certificates of participation after the completion of the different training modules and each team with the tablets (Plate 14-15).



Plate 14. Mrs. Bara, the team lead for the Nangodi community receiving her team's tablet from Mr. Joseph Binlinla the Regional Manager of the Wildlife Division



Plate 15. Participants with their certificates of participation.

3.6 Mechanism set-up a for receiving and managing in-kind and cash donation to communities.

Since logistical constraints has been a major issue to the sustainability of the community-based wildlife programs, the project raised awareness about elephant management issues in the RVV ecosystem among private businesses and local government institutions and solicited support to sustain community involvement in elephant management in the area. In consultation with chiefs, community members and the Regional Manager, the project team setup the following.

3.6.1 Awards Scheme

The project has developed a conservation awards support initiative that will recognize individuals, corporate and governmental organizations support to the community elephant management efforts. The program named **Environmental Stewardship Program (ESP)** will present:

1. Certificate of Appreciation
2. Publish ESP sponsors names on Viridis Environmental Consult websites and project’s social media. Additionally, the ESP sponsors will be acknowledged during public project events.
3. Letters of introduction have been developed and an inventory of prospective sponsors compiled. Some of them sponsors have been contacted and some donations received by the communities.



Plate 16. Sample of certificate of appreciation developed by the project

3.6.2 Bank account.

The key stakeholders agreed that to ensure financial accountability for all cash donations, a project account name **Red Volta Elephant Management Program** be established and managed by the Viridis Environmental Consult. This account will receive cash donation made directly to the project and will be shared equitably quarterly among the community teams to support their work.

3.6.3 Grant applications

Applications were made to donor organizations in Ghana and outside the country for support to the program. These include:

1. Jana Robeyst Trust Fund (Jan 2020- Unsuccessful)
2. Idea Wild (Logistics Support-Pending)

In-kind support received:

- Internet data for communities (In-kind 120 pounds)
- Accommodation for project team (In-kind 100 pounds)
- District assembly conferencing facility for training (In-kind-120 pounds)
- Fuel for team members (In-kind 100 pounds)

4.0 Project success

1. The project has been successful in establishing, training and equipping 9 community elephant management team (EMTs) distributed across the entire elephant migratory routes. Six of these communities are actively reporting on elephant activities.
2. The EMTs have provide effective communication on the movement and activities of elephants in the corridor via the WhatsApp platform. Through self-initiated community patrol programs, the EMTs provide community members and the Wildlife Division staff will real time and reliable information to warn communities on approaching elephants' populations along the corridor.
3. Monitoring information from the EMT shows that elephants are currently resident in the corridor all year round contrarily to previous information they were non-resident and only present in the corridor during the cropping season.
4. These EMTs have been active in mobilizing the chiefs, community members and local district assembly members to start afforestation programs as well as stop deforestation practices. The teams have been able to prevents commercial exploitation of fuelwood, illegal logging, illegal grazing and farming within the forest reserves via strengthened institutional collaborations with the Forestry Commission and local government agencies.

One of the community team leaders, Achisbo Michael an EMT leader at Krusanaba, the project has been useful, it is a demonstration of the fact, that when communities are empowered and equipped, they can sustainably self-manage their environments better. We use and benefits from the resources and we are the best people to ensure it is sustainably managed.

Rev Mathias Salifu from the Sissi community in the Garu district also noted *the project has really impacted our environment. Through the project support we were able to educate and sensitize people on the importance of conserving our forest resources. Communities have awakened to project their resources instead of relying only on the government officials. We have been able to create a strong network in the region. We have been able to discourage the illegal wood harvesters, chain saw operators and charcoal burners. Thank you, Rufford Foundation, and Viridis for making this a reality.*

5. Through sensitization activities in the area, there has been a significant reduction in the encroachment of farmers in the forest reserve. For instance, out of 20 farms illegally established in the protected area in 2019, only one is still under cultivation in 2020 cropping season (i.e. 95% reduction in forest reserve encroachment in the Tilli section of the corridor)
6. The communities have been instrumental in providing up-to-date information on elephant numbers, movement and activities within the project. The EMTs support the WD staff to conduct regular surveys within their communities' jurisdiction to monitor human elephant conflicts (crop raiding) within their communities. The real-time reporting (telephone calls) on elephant activities by the EMT has:
 - provided the Regional Manager with up to-date and real time information on elephant distribution and activities in the corridor.
 - helped the Wildlife Regional office to investigate an elephant poaching and arrest perpetrators of the crime.
 - rapidly investigate an elephant killing of a farmer. The WD was quick to get to the scene and calm the communities to avoid a possible back clash from the communities.
 - increased response time to deploy staff of the WD to help communities prevent elephants from elephant crop raiding.
 - reduced false reporting of elephant damage resulting in community aversion toward elephant conservation activities.

Mr. Alfred Bara, Wildlife Officer at Eastern Wildlife Corridor which covers the project communities said *“we have noted an unprecedented increase in community participation in the monitoring and management of elephant issues in the corridor. With elephant coming closer to communities watering points, community members are now more knowledgeable about the elephant behaviours and are more careful when they encounter elephants. We also noted reduced incidence of elephant poaching in the area. We think that elephant poachers are now aware of community informants who are likely to cause their arrest. There have been a few cases of poachers being apprehended. We are grateful to Viridis Environmental Consult and the Rufford Foundation for their support to conserving elephants in the corridor”.*

7. The project has also helped in sensitizing businesses, individuals and local government authorities on the need to support communities with in-kind and cash donations. It has helped established a mechanism for collecting and equitably sharing of the benefit. The project has also been successful in soliciting some in-kind support for community activities.
8. The project maintains an active communication platform. The provides for effective networking and communication among team members.

- Publication: Project activities were captured by the Ghana News Agencies. <https://ghananewsagency.org/social/community-elephant-training-programme-held-at-nangodi-160436>. This news feed was shared by several other online portals. A documentary on Elephant activities is being prepared with footage from the project (TV3 Network). Short videos from the project has been prepared for educational purposes. A short paper on social media application use in natural resources conservation is being prepared for publication in an academic journal.

Suggest Next Phase: Red Volta Valley Community Elephant Management Project II.

In recognition for the overwhelming community and institutional support for the project, the next phase of the project will focus on a landscape approach involving several communities to conserving elephants and other ecological sensitive areas along the corridor while promoting sustainable utilization of natural resources and climate smart Agriculture practices to enhance agricultural productivity. The next phase will also support local communities to develop the value chains of natural resources products within their communities towards enhance socio-economic opportunities.

The second phase of the project will focus on increasing environmental stewardship among participating communities through development of a Community Resources Management Area (CREMA) within the Corridor. This will be used as the major vehicle for implementation of community conservation and socio-economic development initiatives.

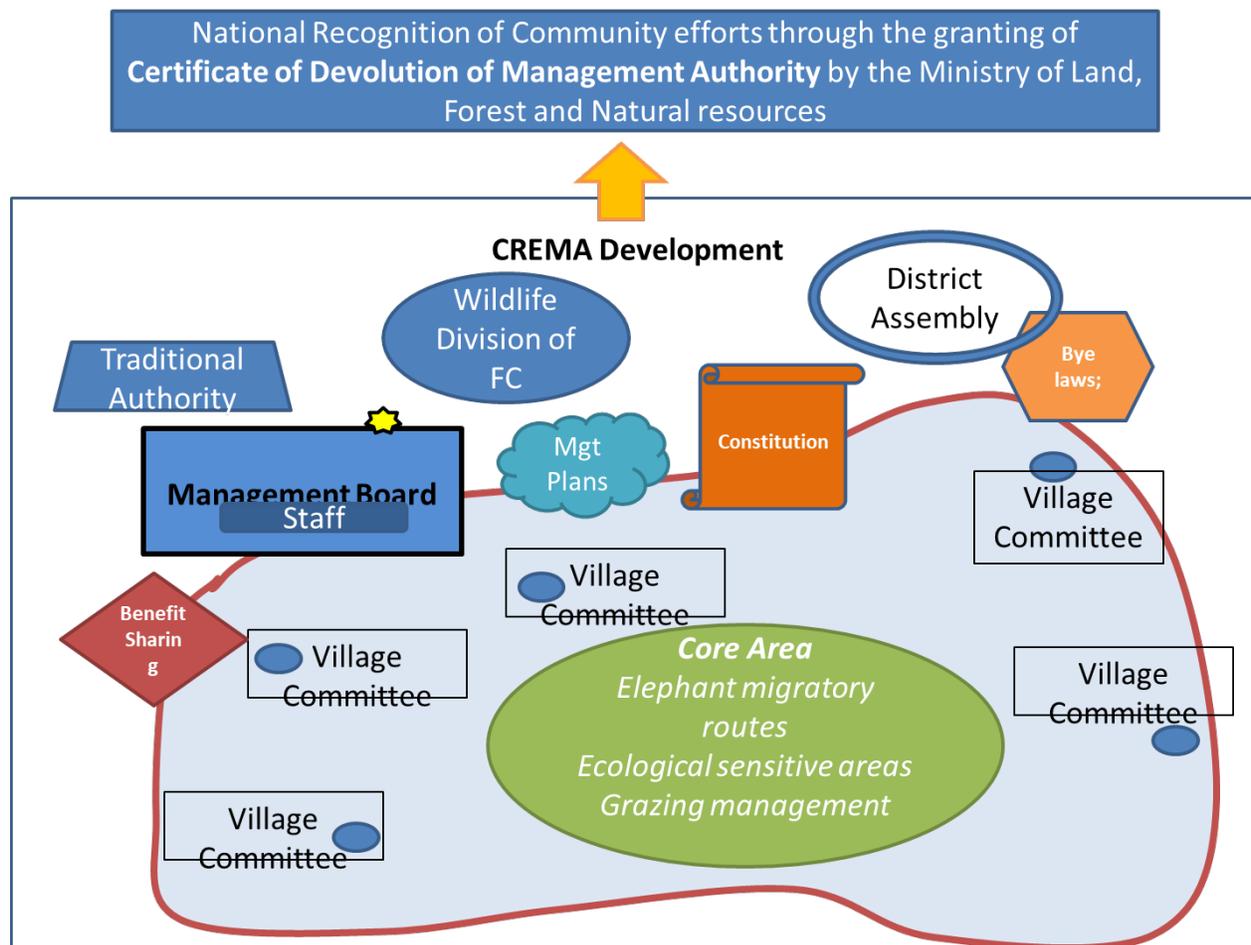


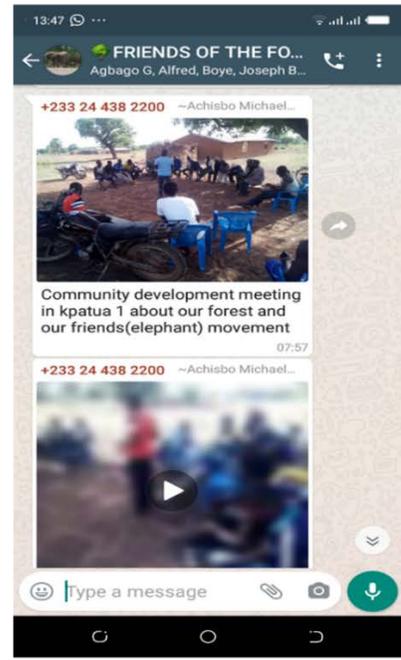
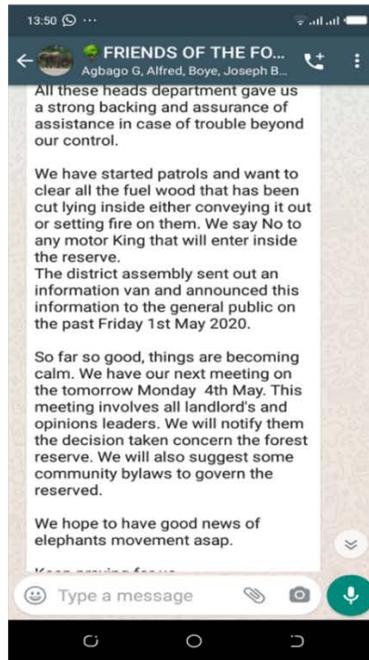
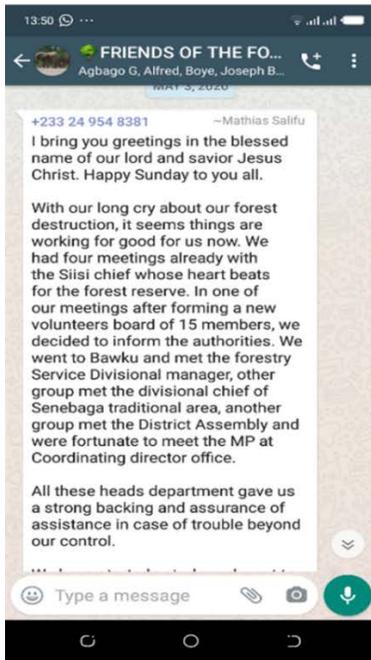
Figure 6: The Community Resources Management Area (CREMA) framework to be implemented by the project.



Plate 17. Community self-initiated nursery and seedling planting program

Platform Communications Album

Community Sensitization and Support from local government and Forestry Commission



EMT reports on elephant activities in the project areas

