



ENABLING HUMAN- ELEPHANT COEXISTENCE THROUGH APPLIED RESEARCH AND STAKEHOLDER ENGAGEMENT

Final Report

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Completion Date: 31 December 2019

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Project Summary

With climate change and demographic growth, affecting large swathes of the African continent, humans and elephants are increasingly competing for land. In order to see a sustainable future for communities (in terms of economic growth and safety) and for elephant populations, it is vital to ensure coexistence between the two species. This coexistence is the main aim of EfA's work as we try and improve community livelihoods and safety, in order to reduce conflict with elephants.

Unfortunately, the Botswana Government does not have resources to invest in reducing the impact of wildlife on people, through research, and subsequent policy changes, or on direct mitigation actions. This leads the people of Botswana to feel helpless and under threat. They are also rarely included in any conservation interventions, leaving them to feel as though they are not part of the solution, despite living with wildlife on a daily basis. This program over the last twelve months has worked with local community members in Khumaga, Phuduhudu and Moreomaoto to educate them on how to live more safely around wildlife and how to protect their livelihoods from wildlife damage (crop raiding) while also giving the community new livelihood options including employment with EfA and using chilli, a mitigation crop, as a cash crop as well. Further, we have trained farmers in the Khumaga community to record data on elephant sightings which will be used in our project to understand elephant movements. With our project aiming to use this data to inform the community on how to avoid conflict with elephants, as well as inform government policy, the community members' involvement ensures they are part of the solution.

Throughout the grant period we have been able to hold ten Living with Elephant workshops, conduct four mitigation workshops, deliver mitigation materials to 36 farmers, hold community meetings in each of our three main partner communities and share our findings, challenges and success with another two communities in the greater area. We have also distributed approximately 200 Living with Elephants brochures complete with infographics and information on how to safely navigate elephant encounters. Further, we have employed two local community members and a staff member from Maun for the duration of the project and one local community member until September 2019. Despite drought conditions meaning that very few farmers ploughed for the 2019 cropping season and even fewer harvesting these crops, we were able to train the farmers in data collection, which is commencing now (February 2020). We have also made strong gains in promoting chilli as a mitigation tool and as a cash crop. By being a mixed outcome crop (mitigation and cash) we are finding a larger uptake in chilli growing, especially by those that are now also growing it to make and sell chilli sauce to the local communities and tourists. All of this amounted to a strong year of achievement for EfA in partnership with the International Elephant Foundation and one which has had a marked effect on the communities and their tolerance to elephants.



EfA conducting a chilli mitigation workshop in Moreomaoto

Human interest story

Kesebelwang Goratwang, one of the local farmers in Khumaga has always been interested in EfA's teachings about chillies and using them for mitigation. For years she has struggled to grow a crop because of elephant raids, so, any way to avoid this was worth a try! But the time and effort required to keep chillies alive in her sandy, dry plot was becoming too much of a burden when it wasn't bringing in a direct income. Her hope was waning. Until she discovered chilli sauce. In June, EfA held a workshop on improving chilli production through conservation agriculture techniques, which we followed with a chilli sauce cooking demonstration in August. The demonstration discussed how to market chilli sauce for tourists vs. the community. Kesebelwang attended both, taking vigorous notes throughout and asking as many questions as she could. By September her first batch of elephant-friendly chilli sauce was ready for the local market. EfA was first in line to try it out! In October, with the help of her brother, and EfA Research Assistant, Thatayaone, her chilli sauce had its very own label. Kesebelwang is now in discussions with two companies to market her chilli sauce to tourists across the country and she is certainly seeing a new advantage of chillies!



Left: Kesebelwang with her newly built chilli plot, courtesy of EfA. Right: The final product.

Conservation needs addressed by this project

The future of wild elephants is dependent on human-elephant coexistence; elephants will always require land outside of protected areas, and this need will likely increase with climate change. In order to make informed decisions when developing land use and conservation plans, government need data detailing how wildlife utilize lands outside protected areas. As a keystone species, and a species with a range that is not limited by fences, elephants need to be considered when making these decisions. Thus, the incorporation of elephant movement data into policy will provision for a secure long-term future for elephants and humans in this desert landscape. Pilot data, using farmers as citizen scientists, will provide the basis for a more comprehensive study on these movements on both large- and small-scales. Data from the comprehensive study will also be fed directly to the Botswana Land Board to be considered when allocating agricultural land, which will further decrease conflict.

Poor rural communities living alongside protected areas are paying the heaviest price of wildlife utilizing unprotected lands. Thus, these communities need to see benefit from living alongside wildlife or they will turn to killing wildlife (retaliatory killings and poaching). Our long-term partnership with these communities has, and will continue to ensure that our research and education projects address their needs and concerns and enable them to increase the sustainability of their livelihoods as well as their personnel safety.

Goals, Objectives and Actions taken

The overall objective of this project is to provide a report of elephant movement patterns in the communal lands adjacent to the Makgadikgadi Pans National Park to reduce human-wildlife conflict and to use these results to improve the livelihoods of communities living alongside elephants. Within this overarching goal we have two main objectives, which remain unchanged since the signing of the grant agreement:

Objective I - Obtain pilot movement data of elephants utilizing communal lands through citizen science

Aim 1: Understand how elephants are utilizing the communal lands adjacent to the MPNP

Through this project we have trained our 42 partner farmers to collect data, and report it to EfA on the presence of elephants in the community lands. The data collection phase will occur in the first quarter of 2020 when farmers are harvesting their crops. While this wet season has not seen large amounts of rain, we are not in the same drought conditions as this time last year so we anticipate good data collection as farmers will be in their fields and harvesting crops, unlike last year when no crops grew. Further, through continued IEF support, alongside funding support from other partners, EfA will start attending elephant crop raiding locations to track elephant movements to and from the field that was raided to understand how elephants are moving from and to fields that they chose. This research will further elucidate the motivations behind elephant choice in terms of which field is raided.

Objective II - Enable community members to coexist with elephants and increase financial security.

Aim 2: *Increase understanding of elephant behavior in community lands bordering protected areas.*

We have presented *Living with Elephant* workshops in four communities (Khumaga, Moreomaoto, Phuduhudu and Mokubilo) as well as at nine cattle posts in the region of these communities. While we planned to be in three communities, we attended a full day workshop in Mokubilo where we were able to share our experiences, at the request of the local community and conservation organizations. This enabled us to significantly expand our reach and also liaise with local government stakeholders who are now more aware of our work, how we have achieved success, and what mitigation methods have proven ineffective. Our workshops have been held with varying content depending on the attendees. For instance, the cattle post workshops were largely attended by herders who live in the remote cattle posts for the majority of their time and are required to walk around alone, often after dark, as part of their work. While the Mokubilo workshop was

attended by government, community and NGO representatives who we could engage with to enable them to further spread the content of these workshops. We found that in all instances, the final portion of the workshop, the question and answer time, provide highly beneficial so that people could discuss real life occurrences and determine how they could (if possible) react more safely in these situations in the future.

Aim 3: Increase mitigation uptake by farmers

With IEF and other funding we have been able to hold mitigation workshops for farmers in the Khumaga and Moreomaoto communities, at cattle posts and on farms. These workshops have been designed as hands on workshops focusing on chilli burning to deter elephants and discuss other mitigation options including sleeping in fields (in the safety of a tent) to provide reactive responses to elephants and building electric fences to secure the farmers' fields. These workshops have also taught farmers how to grow chilli for use in mitigation. Separately, we have provided workshops on conservation agriculture to improve crop yields, including for chilli production. The project has provided mitigation materials to 36 farmers directly, including chilli for burning, personal protective equipment (gloves, goggles and masks for burning chilli – which we had a stockpile of, leading into the project and so have not had to purchase extra), burning tins (stockpile), and loan tents to use for mitigation. The mitigation practices our farmers are successfully employing have also been presented to the Mokubilo community and their representatives who are hoping to successfully employ these practices in their community.

Aim 4: Increase community members' employment levels

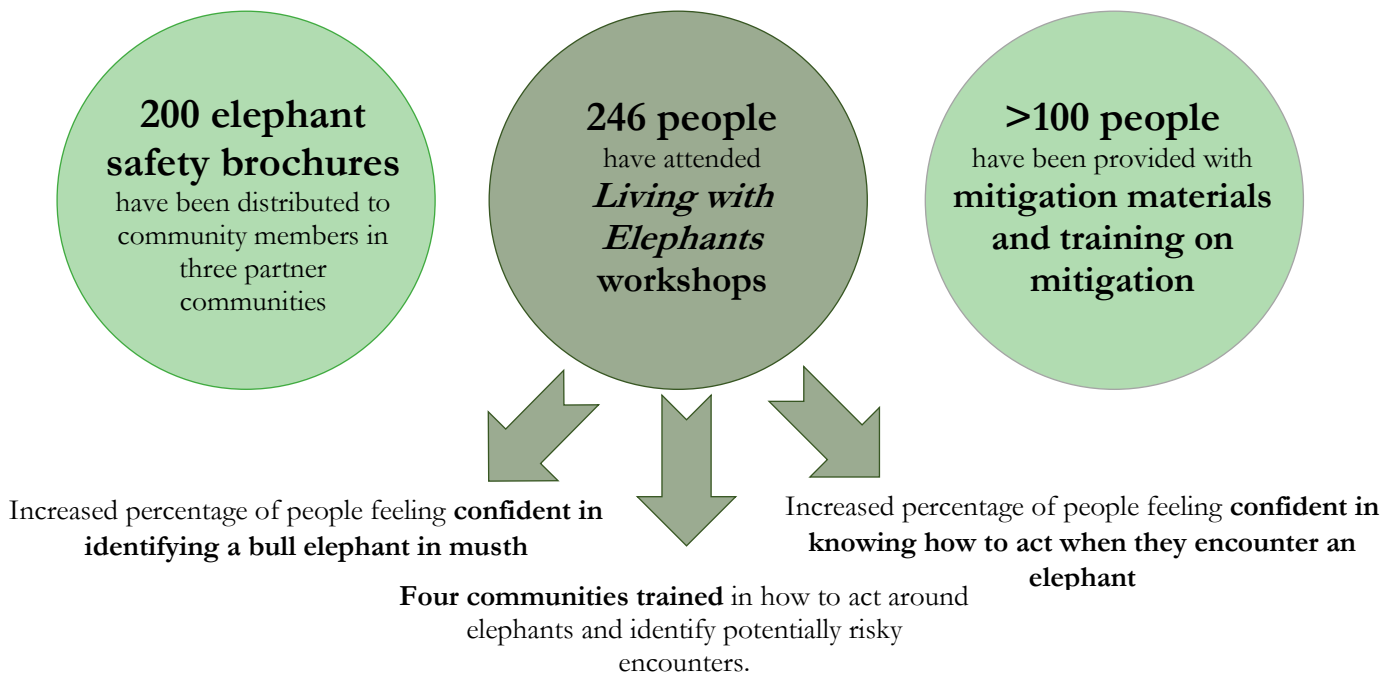
We have two staff members employed from the local community of Khumaga: Thatayaone Motsentwa, Research and Camp Assistant and Mankind Molosiwa, Community Officer. Along with these staff, our Community Outreach Officer, Mr Walona Sehularo is from the nearby town of Maun. Along with the PI, these staff make up our full Botswana-based team. Unfortunately, due to the drought conditions faced in Botswana, our Chilli Plot Assistant, Bashai Boitatotswe, had to be made redundant during the year (see Challenges section for more information). However, we are in conversations with the local community to discuss how the community can come together to make re-opening the chilli plot, run by the community, a possibility to enable chilli to again flourish in the community plot and to increase employment. Throughout the year we have also been able to hire local staff in recurrent maintenance and cleaning roles, however, these staff have been funded through other funding.



Life with elephants can be complex... even in our camp

Conservation outcomes for elephants and humans

- EfA's 42 partner farmers trained to be 'elephant monitors' through pen and paper or verbal reporting
- 246 people have attended Living with Elephants workshops
- Three permanent staff members from Botswana employed on the project
- Approximately 200 elephant safety brochures distributed, with another 100 ready for distribution



Impact of project

This project has, so far, reached approximately 523 people across five communities (Khumaga, Moreomaoto, Phuduhudu, Mokubilo and Maun) and through word of mouth, our directly-reached participants have been able to spread the knowledge learnt to community members who have not been directly reached. Furthermore, the project has directly enabled the employment of three local community members (currently two employed) and one staff member from a nearby town while EfA, through other avenues, has also employed a number of local community members throughout the year in maintenance and cleaning roles.

The majority of people with whom we interact are subsistence farmers who regularly encounter elephants on foot, and in vehicles. These communities have also, until recently, experienced decades without elephants. As such, they have recently been vocal in asking for assistance to understand how to stay safe around elephants and protect their livelihoods from elephant raids. Our work has, and will continue to, help these communities improve safety and income, and also allow them to live peacefully alongside elephants, thus reducing negative impacts on elephants (poaching and/or retribution killing/injuring).

Challenges

Serious drought conditions in the past cropping season (only ~90mm of rain fell, while the average for this area is ~450mm) led to farmers not sowing or abandoning their fields early and as such not being able to record elephant movement data for the project to date. However, the training they have been given will be put to use this cropping season. This rainy season, while in its infancy is looking to be more productive. As such, our elephant monitors (42 local farmers) have prepared their fields (ploughing seeds, repairing fences, etc.). During this preparatory period we have retrained the farmers, ready for reporting. The farmers are now waiting, and hoping for good harvests.

Further, because of the drought, the river has dried up. As a result, our chilli plot, which we watered by pumping river water, had to be abandoned in September. We saw increased costs in pumping water (fuel, pump maintenance and staff time) up to this stage and have since had to cease the employment of our chilli plot assistant. We are currently working with the community trust to find funds locally that will allow the drilling of a well point. Once a water provision solution is found, it is anticipated that the chilli plot running will be handed over to the community, with help and advice offered by EFA.

Measurement of success

Overall, the Project has been a success, which can be measured against the below anticipated outcomes and the listed actual outcomes:

- Interpretive maps showing use of communal lands and highlighting potential hotspots: Awaiting data
- Number of Living with Elephant workshops (aim 2 per community per year): 10 held
- Number of mitigation workshops (aim 2 workshops/year): 4 held
- Delivery of mitigation materials including chilli to 42 farmers: 42 farmers enrolled but because of drought not all required materials – 36 farmers have received materials. In Khumaga, 15 farmers have received mitigation materials and in Moreomaoto 21 farmers have received mitigation materials.
- Number of community members employed (aim 2 part-time and 1 full-time from Boteti region at a minimum): 2 part-time (from the start of the project, however, in September our chilli plot assistant had to be made redundant), 1 full-time and two casuals from Boteti Region and 1 full-time from Maun
- Reduced levels of crop loss due to foraging by elephants: Drought meant that few farmers had crops to be raided, however those that did harvest, said that the crop raiding was reduced when mitigation was used. We are into our second season, though will not have results from this season until ~May 2020.
- Number of meetings (aim 2 per year per community): 2 meetings in each community plus one in Mokubilo and one in Maun to discuss human-elephant conflict, mitigation and the wider EFA work

- Number of meeting attendees (aim 30 or more per meeting): 403 attendees across the six meetings
- Number of infographics distributed (aim 200 per year): while we do not have site specific results to develop an infographic from our results, we developed (in conjunction with EcoExist, a local human wildlife coexistence NGO) an elephant safety brochure, of which 200 have been handed out and a further hundred are ready for distribution.
- Future research proposals that incorporate this project's pilot data: 2, EfA have developed a research proposal for a PhD project which we hope will be filled within the next 12-18 months and have commenced work on a research project, in-house, using Disney funding. For the PhD project to start we will need to find a suitable student and the required funding.

Next Step

Aim 1: Throughout the 2020 cropping season we will collect data on the movement patterns of elephants through the community farm lands through farmer-scientists. Further, thanks to a follow up IEF grant we will aim to do the following in 2020:

1. Obtain movement and demographic data of elephants utilizing communal lands, for the benefit of informing coexistence strategies for local subsistence farmers and advising national stakeholders on land allocation for agriculture and wildlife corridors
2. Decrease human-wildlife competition by applying knowledge from above to a) decrease negative interactions between humans and elephants, b) increase the understanding of elephant behavior in rural communities, thus decreasing the threats to human lives and livelihoods, c) reduce levels of crop loss due to foraging by elephants and d) increase participation of community members in local decision making through citizen science.

Aim 2: We will continue to work in Khumaga, Phuduhudu and Moreomaoto by delivering workshops and other education initiatives to keep community members safe from elephants and other wildlife and allow people to live alongside wildlife with fewer challenges and less incentives to poach or harm and kill wildlife in retaliatory attacks.

Aim 3: We are continuing to work with the farmers of the three communities to improve mitigation techniques. We are currently working with a group of farmers between Khumaga and Moreomaoto who wish to install a solar-powered electric fence around a cluster farm (containing the fields of many households) that is designed to keep elephants and other crop raiders out. EfA can provide the knowledge and are looking into assisting by providing the electrical components of the fence (funding permitting). This cluster fencing initiative holds strong promise and if successful will be expanded in the months and years to come.

Aim 4: We will continue to provide employment to two community members and one other Botswana citizen so that they can experience the benefits of conserving their wildlife. We have also hired a tracker from Phuduhudu to assist with the activities noted under Aim 1.

Associated Organizations

Oxford University's Wildlife Conservation Research Unit (WildCRU) – Elephants for Africa and WildCRU work together on developing and delivering workshops to communities that border the Makgadikgadi Pans National Park

Department of National Parks and Wildlife (DWNP) – Elephants for Africa maintains the DWNP chilli plot on their behalf (as funding shortages prevent DWNP from doing so), DWNP allow access to the Park for research inside the Park boundaries and supports EfA where possible (presenting to EfA's Environmental Clubs, etc.)

Publications and presentations

Dr Rebecca Dannock presented “Elephants for Africa's Community Coexistence Project” to attendees at the international Tuskers Elephant Workshop, South Africa on the 23rd of January 2019.

Dr Rebecca Dannock presented “Elephants for Africa's Community Coexistence Project” to tourists at the neighboring lodge Leroo La Tau, Botswana on the 4th and the 8th of September 2019.

Thatayaone Motsentwa and Dr. Kristine Meise attended and presented information on the success and failures of different elephant mitigation strategies to community members at the Human-Wildlife Conflict meeting in Mokubilo, organized by Birdlife Botswana and Department of National Parks and Wildlife on the 23rd and 14th of September 2019.

Dr Kristine Meise and Walona Sehularo presented “Elephants for Africa's Community Coexistence Project” to tourists at the neighboring lodge Leroo La Tau, Botswana on the 5th and 22nd of October 2019.

Dr Kate Evans gave a talk to animal keepers “Male elephants, the Makgadikgadi and working towards coexistence”, Smithsonian National Zoo in Washington DC, USA on the 1st of October 2019.

Dr Kate Evans opened the Smithsonian Conservation Biology Institute Fall Lecture series with “Male elephants & female farmers; conflict to resolution”, Virginia, USA 3rd of October 2019.

Dr Kate Evans gave a public lecture titled “Male elephants & female farmers; conflict to resolution” at Jacksonville Zoo and Gardens, Florida, USA on the 4th of October 2019.

Dr Kate Evans a public lecture at the Memphis Zoo event ‘Elephants for Art’, USA on the 5th of October 2019.

Dr Kate Evans launched the BOSSxMeissen Holiday 2019 Campaign, “Raising awareness of Elephants for Africa's work and the importance of environmental education in conservation” in Dubai, UAE on the 30th of October 2019.

Dr Kate Evans presented “Ecosystem drivers of elephant movement”, Gothenburg Global Biodiversity Centre, Sweden on the 4th of November 2019.

Walona Sehularo presented “Elephants for Africa’s Research and Community Coexistence Project” to attendees of the Social Science Workshop in Maun, on the 7th of November 2019.

Dr Kristine Meise presented “Elephants for Africa’s Research and Community Coexistence Project” to American Students at the Island Safari Lodge in Maun, on the 7th of December 2019.

Dr Rebecca Dannock and Dr Kristine Meise presented “Elephants for Africa: Research and Community Outreach to Improve Human-Elephant Coexistence” to tourists in the local area to increase awareness, multiple presentations, in September to December 2019.

Dr Kate Evans did a live interview about the challenges of elephant conservation, KAZA FM, South Africa on the 3rd of December 2019.

Dr Kate Evans attended and spoke about “Elephants for Africa’s work and the importance of environmental education in conservation” at the BOSSxMeissen Holiday 2019 launch, Johannesburg, South Africa on the 04th of December 2019.

Dr Kate Evans was interviewed on radio regarding the “Challenges of elephant conservation and the importance of engaging the global community” Radio 2000, South African on the on the 4th December 2019.

Online footprint

You can learn more about Elephants for Africa through our online channels noted below. Through our website you can view news articles and also sign up to Elephants for Africa’s newsletter.

Website: <http://elephantsforafrica.org>

Facebook: @elephantsforafrica

Instagram: @elephantsforafrica

Twitter: @E4Africa



The EfA team on the banks of the dry Boteti River in late September 2019

Financial report

Item	Budget	Spend	Over/Under Spend
Community Officer salary	\$315	\$419	\$104
Research Assistant Salary	\$490	\$566	\$76
Chilli Plot Assistant salary	\$480	\$378	-\$102
Fuel	\$1,000	\$1,066	\$66
Lodging, meals and incidentals	\$1,309	\$1,385	\$76
Out-of-camp, lodging, meals, and incidentals	\$320	\$376	\$56
HQ telecommunications	\$150	\$150	\$0
Field office telecommunications	\$147	\$167	\$20
Supplies for workshops	\$400	\$393	-\$7
Pens and books	\$100	\$108	\$8
Protective equipment	\$313	\$0	-\$313
Chilli burning tins	\$176	\$0	-\$176
Chilli plot maintenance	\$800	\$976	\$176
Total	\$6,000	\$5,984	-\$16

Attachments submitted separately

- ✓ 6 x high resolution images, those in this document plus one extra
- ✓ 1 x video clip
- ✓ Media Coverage –
 - Our work, including that partnering with IEF has been featured in an article on Africa Geographic's website, which lists IEF as a supporter of our work. A PDF of the article is attached with this submission, the article can also be found at: <https://magazine.africageographic.com/weekly/issue-260/life-with-elephants/> (attached)
 - We have also had other aspects of our work make online news:
 - Wildlife Lessons, Time for Kids, <https://www.msn.com/en-us/kids/people-places/wildlife-lessons/ar-BBVVSZAR>
 - How your luxury purchases can help save elephants in Africa, The National, <https://www.thenational.ae/lifestyle/luxury/how-your-luxury-purchases-can-help-save-elephants-in-africa-1.950318>
 - Memphis Zoo employee works with elephant organization in Africa, brings knowledge back home, Daily Memphian, <https://dailymemphian.com/article/4237/Memphis-Zoo-employee-works-with-elephant-organization-in-Africa-brings-knowledge-back-home>
 - Opinion by human-wildlife conflict specialist: Botswana has found her voice about elephants – but will we listen?, Africa Geographic, <https://africageographic.com/blog/opinion-human-wildlife-conflict-specialist-botswana-found-voice-will-listen/>