

Final Report

The Rufford Small Grants Foundation

Title: Mitigating the Human-elephant conflicts around Shwe-U-Daung Wildlife Sanctuary, Myanmar.

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Overview of objectives

Like other elephant range countries, human-elephant conflicts in Myanmar pose a serious threat to wild elephant conservation. Shwe-U-Daung Wildlife Sanctuary (125.8 sq.miles) is located in Tha-beik-kyin township, Mandalay Division. In 1999, elephants began to enter and eat crops around the sanctuary. Since then, conflicts with elephants have continued to increase as the elephant population increases. The human population has also increased in this area over the last two decades by 3.8% annually, as people from other districts move into the area and settle in prime elephant habitat. They primarily resettle in the area because of the gold-mining opportunities inside the sanctuary and for timber extraction. As they settle, they also convert forest into agriculture land.

As in many countries, communities are one of the major threats to neighboring protected areas, but in Myanmar solving the issues effectively is not a government priority and very little capacity or resources are available for mitigating park-people conflicts, including the human-elephant conflict. This project was designed to build the capacity of local communities to mitigate the human-elephant conflicts. By focusing on building the skills and confidence of local community to understand and find solutions, this approach will be sustainable long after the external funding of the project is finished.

The primary objective of the project was to improve communities' ability to cope with elephant damage in a sustainable, community-based way that is not dependent on outside resources. I accomplished this by helping communities share with each other the methods that they currently use to mitigate elephant damage and by introducing to them to new methods that have been successful in other countries. Based on discussions of these methods within and among communities, communities wrote action plans for mitigating the human-elephant conflict that employed existing and new methods. By focusing on village resources and knowledge, supplemented with experiences from communities in other countries, we built on the strengths and capacity that already exist in the village and helped them find community-based solutions, which will be more sustainable over the long-term.

Project activities

Work plan was shown in the following table.

Work-plan Tasks

Work-plan Tasks (2007-09)	O 07	N 07	D 07	J 08	F 08	M 08	A 08	M 08	J 08	J 08	A 08	S 08	O 08	N 08	D 08	J 09
Initial meeting with township authorities, Officials from FD, Sanctuary, etc.	■															
Meetings with village authorities & communities from 9 villages	■	■														
Meetings with village authorities & communities from 5 villages, creation of Elephant Protection Committees (EPCs) (□ = separate meetings with EPCs)		■							■							
Action plans and modifying it; and necessary preparation		■	■							■						
Providing the equipment and materials to EPCs		■	■					■	■							
Training-workshop				■												
Monitoring & suggestion on the activities of 5 project sites for conflict alleviation and deterrence techniques		■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Project evaluation																■

Black squares indicate when activities actually took place.

Note: Activities did not begin until September 2007 rather than June 2007.

Accomplishments of this program are as follows:

Enlisted communities and formed Elephant Protection Committees (EPCs)

In October 2007, a meeting was held with nine village chairmen whom the sanctuary warden and other officials had recommended for participation in the project. Out of nine villages, five villages chose to participate in the project. These villages, Ka-be, Le-mile, Ohn-ta-gu, Kwe-mwe and Du-sit-chaung villages, were the most motivated and willing to work together to look for solutions. In the four villages that chose not to participate, their village chairmen were not as strong in their leadership abilities as in the other five communities and they were unable to convince the communities to work together.

In November 2007, I visited each of the five villages and had community meetings to describe the project. After detailed discussions in meetings with 5-8 representatives from each of the five villages, village representatives created the Elephant Protection Committee (EPC). EPCs were formed within the context of the traditional formal system of village authority and in consultation with the village chairman of each village. They consisted of five people: the village chairman and four other members of the communities who were chosen based on their knowledge and close ties to the forest.

Sharing of mitigation methods among communities

In the November 2007 meetings we shared information about the elephants and different mitigation methods. First, we conducted a resources mapping activity to understand which parts of the village and fields were most vulnerable to elephants. Then we shared the current methods the villages used for mitigation and I shared new ideas from other countries. The EPCs of each village drafted outline of action plans for elephant protection. I helped to complete the action plans and they agreed to implement the activities and measure success.

In December 2007, we finalized the draft action plans and in June the plans were modified to include some new mitigation methods. Contents of each village's action plan included:

- Priority sites around the village where elephants were most likely to enter from the sanctuary into the villages and fields
- Description of a system for people to use loudspeakers to call other villagers when elephant came into villages and croplands
- Specific mitigation activities they would conduct
- Choosing which members would keep records for the community, including where elephant were seen

In brief, the following mitigation methods were chosen in each village:

Village	Light	Sound	Smell	Visual clearing	Planting unpalatable crops
Le-mile	X	X	X	X	X
Ka-be	X	X	X	X	
Kwe-mwe	X	X	X		X
Du-sit-chaung	X	X	X		
Ohn-ta-gu	X	X	X		

- 1) Light, sound, and smell were used in combination with each other in all villages whenever villagers sighted elephants entering the village or croplands

The project contributed loudspeakers to all villages so that they could gather the village together quickly when elephants came to the village. To do this, individuals were posted as look-outs in priority sites. When a look-out saw an elephant, he shouted using the loudspeaker to call for the villages. Then each household would be responsible for different mitigation methods, such as lighting fires, shining flashlights, or beating drums.

One farmer in Ohn-ta-gu also shared two devices he had developed in the previous year or two. One device was a noisemaker made from plastic and tin cans – a small windmill with plastic blades that when they turn they hit the tin and make noise to scare away elephants. The other device was a trigger alarm – nylon thread strung around a cropfield. The thread is attached to a stone inside a tin can near the house. When an elephant or other animal, such as a wild boar, hits the nylon thread, it pulls on the stone, causing it to move and hit tin can which they can hear in the house. The farmer who developed these shared his expertise with two villages who wanted to try, Le-mile and Du-sit-chaung. It was very successful in the villages over the project time.

The villages also burned rubber, cattle dung, and chilies because, as long as the wind is blowing in the right direction, the elephants do not like the smell. A mixture of chili, pepper oil, tobacco, and grease was also smeared on the string fences because it also has a smell that elephants do not seem to like. Burning rubber was a new method that I introduced them to that people had used in Thailand. They liked these methods when I arrived to monitor and asked them about the methods. In June, another idea from Thailand was tried, stringing CDs along the fence to reflect people's flashlights at night. In one village, they also tied flashlights to bamboo poles that faced the sanctuary to scare away elephants. All these methods were successful in keeping the elephants from entering the villages and croplands.

- 2) Visual clearing

Visual clearing was only used in Le-mile and Ke-Be. Le-mile cleared every 6 months and Ke-Be cleared annually. In visual clearing, the villagers cut the shrubs, tall grass,

and small trees in unused land between the agricultural fields and the forests for about 300-400 m. The three other villages could not use this method because their fields go right up the sanctuary boundary.

The clearing method was new based on my knowledge from talking with communities and the park staff that the elephants like to hide in the forest and only come to the fields at night. I hypothesized that if the scrub brush was cleared then the elephants may hesitate to cross it and it would be easier for the villagers to scare the elephants back into the forest at night.

3) Planting unpalatable crops – Le-mile and Kwe-mwe

In Le-mile and Kwe-mwe, some farmers planted unpalatable crops such as sesame, ground nuts, chilli, rubber, etc. However, as sugar cane is a very profitable crop, most farmers choose to continue to plant sugarcane and are not that interested in alternative crops.

Implementation of action plans

I made monthly visits to each village with my field assistant to facilitate and monitor implementation of the action plans. All households in each village were actively involved in preparing the materials and equipment to drive the elephants away, and were enthusiastic about the advantages of working together and carrying out the action plans.

Training of EPC and Sanctuary staff

A one-day training-workshop was conducted in January 2008. Fifteen villagers (three from each village) and five officials (one from forestry department, three sanctuary staff, and one from the agricultural department) participated. Mapping, measuring, recording and keeping of every conflict incident were taught. All participants had contributed their conflict experiences, learnt from each other, and finally they were able to revise and modify their action plans in June 2008 for the cultivating season. And also EPC maintained the sighting records of wild elephants where found in the forest. In these books, the EPC records how often they see elephant, how many elephants they or other villagers see in forest and where they were in forest. Everyone in the village knew that if they spotted elephant or elephant sign they should report it to one of these people for the EPC record.

Wrap-up activities

In September 2008, we ended the project period with three public meetings (1-3 villages at each meeting) to discuss success of action plans in mitigating elephant damage and plan future actions. They also analyzed the information in their record books, compared methods of scaring elephants away, shared experiences.

Additional activities

Education activity

While the original proposal did not include educational activities, I and the two Sanctuary staff who assisted me conducted environmental talks to all five communities. At these talks, I also showed the results of my Master's research from the previous two years, including the socio-economic survey and their attitudes towards SUD sanctuary.

Signboard activity

I also arranged some signboards at site (3) and those were posted beside the roads where used to cross by wild elephants. This was to mitigate the problem of cars and motorbikes hitting elephants when they crossed the road.

SUD staff capacity-building

Two staff from SUDWS assisted me in all activities. Through this their capacity was greatly improved. They learned how to lead community meetings and work as facilitators. They helped the communities write the Action Plans. They learned how to monitor elephant-human conflict and maintain records as well as teach community members these skills.

Project impact

Currently, the Village Elephant Protecting Committees are functioning, local resources for deterrent methods are actively used, community members have been well organized to protect the crops and households, the action plans are being modified, and a monitoring system is in the process of being developed.

The combination of light, sound, and smell is very effective in driving the elephants away in all villages. However, the visual clearing, particularly at Le-mile where they cleared every six months, was completely effective. After clearing, Le-mile has had no elephants successfully enter the village or cropland. Although elephants were spotted coming close, villagers were able to drive them away and no damage occurred.

The table below compares the number of conflicts before my master's research, during my master's research, and during the project period. It is difficult to draw many meaningful conclusions from the numbers, although Le-Mile clearly shows the success of regular visual clearing. It should also be noted that before the project period, every village had humans killed or hurt in elephant conflicts, but during the project period, no human injury occurred and house and crop damage occurred only in some of the villages.

One reason it is difficult to compare the number of conflicts before and after the project is that before my master's research, conflicts were self-reported by villages to park staff so it is unknown how many conflicts may have gone unreported. Also, before the project

began, in January 2008, ten elephants were captured by the Myanmar Timber Enterprise (MTE). The MTE was given permission to do this in order to decrease the number of elephants in the sanctuary and mitigate conflict with humans. The villagers believe that this activity caused the elephant groups to splinter. Instead of groups of 7 or 8 elephants coming into the villages at one time, after the capturing activities, elephants came singly or maybe a mother with a baby more frequently.

Number of conflicts between 2000 and 2009

Village	Total No. of conflicts	Between 2000 and May 2006	Master's data (June 06-Nov 07)	During project (Dec 07-Dec 08)
Ka-be				
<i>Total</i>	8	0	3	5
Crop	1	0	0	1
House	7	0	3	4
Human	0	0	0	0
Du-sit-chaung				
<i>Total</i>	7	5	0	2
Crop	4	2	0	2
House	0	0	0	0
Human	3	3	0	0
Le-mile				
<i>Total</i>	16	4	12	0
Crop	8	2	6	0
House	5	0	5	0
Human	3	2	1	0
Ohn-ta-gu				
<i>Total</i>	10	3	1	6
Crop	5	0	0	5
House	1	1	0	1
Human	4	2	1	0
Kwe-mwe				
<i>Total</i>	11	4	4	3
Crop	7	1	2	3
House	2	1	1	0
Human	2	2	1	0

Community evaluation of project

While project success can be measured the decrease in the number of conflicts and the increased security of people's life and limb, the response of the communities to the

project is another measure of project success. In January 2009, I conducted final evaluation survey of the participating communities and all EPC members. The results are very positive.

Community evaluation survey

Question	Answers (%) (n=95)
Are you aware of this program?	100% yes;
Did you participate in those activities?	84% yes; 12% No, but his/her family members participated; 4% No;
Purposes or goal of this program?	64% correct answer; 22% something correct; 8% not correct answer; 6% don't know;
The name of committee set up in your village?	76% correct answer; 22% not correct answer; 2% don't know;
How many times spoken with EPC members about this program?	82% spoken; (22% is 10-20 times; 40% is 5-10 times; 20% is less than 5) 18% No spoken;
What is your opinion on this program, success or not?	19% Can be success 58% May be, at present doing something is better than nothing doing 17% it is difficult to be success; it is depended on long-term good leadership. 6% No idea

EPC member evaluation survey

Question	Answers (%) (n=32)
Do you like the meetings conducted by this program? Why?	100% Yes – got knowledge, more friendly, many lessons learnt, believe citizenship
Do you like to follow the action plan? Why?	100% - Yes, it included many good things such as mapping on routes of elephants, necessary preparation, working together, etc. it is essential within community.
Which methods do you like to protect the crops and households from elephant?	56% - Combined methods (Fires, sound, visual clearing) 24% - Unpalatable crop planting 20% - visual clearing
Do you like capturing the elephants?	68% - yes, because reduce the elephant number 32% - No, because of some elephants

	dead, not good for country, Myanmar people. It is valuable species. Should make the plan to stay together.
Do you think that activities are improving in protecting crops and households from elephants in the village before and after this program?	96% - different/improve a lot before and after the program 4% - don't know

Project limitations and lessons learned

While I believe the project was very successful in meeting its objectives and goals, there were some limitations. The foremost was the lack of women's involvement. It was difficult for women to participate because the people believe that elephants do not like women because of the different pregnant time between elephant and women. They believe the elephant is jealous of the female human because of her shorter gestation period and they believe that the elephants may attack if there are women near them. Therefore, men do not want women to participate in driving elephants away.

I also need to acknowledge that given the lack of control villages, I cannot know by how much the methods mitigate the elephant-human conflict. I know that there were fewer conflicts after the project began than before and that the villages feel that the mitigation actions were successful.

I also want to mention that I believe that the time I spent in the communities conducting my MS research prior to the initiation of this project was critical to the project's success. This investment in understanding the communities' history, socio-economic status, resource use, and attitudes toward the sanctuary and the elephants was critical for me to develop constructive working relationships with the communities and the sanctuary staff.

Next steps

If the project were to end now, I believe that the five communities would have the tools and interest to continue working together to mitigate human-elephant conflict. However, just over one year is a very short time period for the project and I believe that with more support the villages will improve in their ability to adapt the action plans, keep records, and share their experiences with other villages. At this time, we have an excellent foundation upon which to build within the five communities and an opportunity, based on their success, to begin to work with additional communities. Now that some communities have seen results, other communities will be interested and motivated to conduct similar activities.