



## Elephant / human conflict mitigation research bears early fruit...

**Above left:** August 2009 - A volunteer starts to prepare a field in an area that has never successfully produced crops due to raiding elephants.

**Above middle:** January 2010 – With the mitigation measures in place the fields as they are now have produced the first ever crop.

The African Elephant *Loxodonta africana* is the largest land animal on Earth consuming up to 130kgs of food per day whilst foraging and roaming over great distances.

Crop raiding by elephants is widespread across Africa posing serious social, political, economic and conservation problems. This “disruptive” behaviour has become increasingly significant as human populations expand and encroach on elephant habitat.

Lethal control by wildlife agencies removes individual problem animals but does not necessarily deter other individuals or herds, and these agencies cannot respond to all incidents. The responsibility of human-elephant conflict mitigation is therefore placed on the communities themselves.

There are two general means to mitigate elephant / human conflict: passive barrier methods (such as ditches, fences, walls and hedges) and/or active deterrents (including shouting, banging tins and drums, throwing stones, lighting fires and burning chillies).

Human conflict with elephants is a significant problem for rural communities surrounding the Mosi-oa-Tunya National Park and the neighbouring Dambwa Forest. Elephants can destroy a family’s entire crop yield in a single night; and they are also a risk to property and life. Community attitudes to elephants and wildlife conservation in general are made negative due to the repeated conflicts making long term management of these wild areas difficult for the relevant government agencies.

### Objective of study

- This project is aimed at researching effective and sustainable land management strategies that will reduce human / elephant conflict for the communities neighbouring the Mosi-oa-Tunya National Park and Dambwa Forest.
- To undertake a training program with affected communities on successful mitigation measures that they are able to sustainably implement.

The school in the village of Maunga in Dambwa Forest has been unsuccessful over many years in growing crops to assist in feeding the children that attend. This site therefore presents an ideal location to investigate the effectiveness of a number of mitigation measures whilst also engaging the children and wider community in the conservation program.

Elephants are most prolific within the area in terms of population size and likelihood to engage in crop raiding activities during the dry season (Mar – Oct). As such, the plots have been planted and maintained during 2009 and into the rainy season to establish them prior to the return of the herds in 2010. The crops will be maintained during the dry season and all elephant activity around the fields recorded. This will include evidence of their presence without any damage to crops as an indicator of the success of the mitigation measures implemented.

Four plots of land were marked out, each measuring 20m x 20m. Three of these plots are 10m apart with the fourth plot being 100m away as the mitigation measure used on this plot could have an effect on the others.

1. **Plot number one** is a 'control' plot with no mitigation measures being implemented.
2. **Plot number two** has a trench around it of differing widths on each side and with a fallow buffer zone on two of the sides where the crop is not planted to the edge of the trench.
3. **Plot number three** has a wall built around it, constructed from mud mixed with wood, branches and grass from the surrounding area. These materials are accessible for the villagers and will be easy for them to maintain. The African Centre of Holistic Management in Zimbabwe has found that relatively small barriers can stop elephants from raiding crops as they are unable to see well beyond the barrier.
4. **Plot number four** has chillies planted around the edge of the crops. Past studies conducted by the Elephant Pepper Project (Livingstone) have shown some success in deterring elephants as they avoid fields with this noxious plant grown around crops.

The project started in August 2009 by preparing the fields. In the last five months the crops have grown very well and relatively undisturbed. All four plots have had minimal interruption from visiting elephants to date. The timing of planting these test plots is not usual for the area and this early success means that timing of planting is also going to play a crucial role in the overall management plan.

So successful has been this first crop that the school is able to sell excess produce and Lion Encounter, the local operator of the African Lion Rehabilitation & Release into the Wild Program from which the staff and volunteers needed to get this project started have come from are now buying the excess food creating an income for the school to assist its finances.

Observing the crops and how they have survived thus far it would seem that a combination of plot 2 and plot 4 is likely to be the most successful mitigation measure but the fields face their greatest challenge as we move into the dry season and the herds return to the area in their numbers in search of food.