

REDUCING CROP-RAIDING BY ELEPHANTS

Why is crop-raiding such a problem?

Elephants cause a wide variety of problems for rural African communities. They damage crops, destroy property such as grain stores and fencing, kill and injure people, kill livestock, compete with people for water and wild fruits, and cause widespread fear and panic when they are close to villages. But of all these problems crop damage is considered to be the greatest. This is because farmers rely upon their crops to feed their families for the entire year. Elephants have the ability to destroy an entire field of crops in a single night, which would be disastrous for the farmer.

How do elephants damage crops?



Farmers who grow their crops close to the boundaries of National Parks or wildlife areas are most at risk from crop damage. Elephants tend to raid crops when they are ripe and ready to harvest because they are at their most nutritious at this time. Bull elephants tend to raid crops more frequently than family herds. They will usually enter fields at night in small groups. Elephants eat most types of crops but their favourite foods are maize and fruit trees.

How can farmers defend their crops?

Farmers tend to use their own traditional methods of crop protection. These include beating drums, shouting, burning fires and cracking whips. The problem is that elephants get used to such tactics and learn to ignore them once they realise that they will not be hurt.

Farmers may also get help from government game scouts who travel to villages where elephants are a problem and scare them away from the fields by shooting over their heads or occasionally killing an elephant. However, there are two problems with this approach. First, elephants get used to the noise of gunshots which no longer scare them. Second, the game scouts have difficulty reaching the places in which crop damage occurs, because such villages tend to be remote and difficult to get to. This means farmers cannot rely upon outside help with protecting their crops.

Electric fences have been used in some areas to great effect. These can be powered by the sun, using photovoltaic cell technology (See Action Sheet 68). However, they are very expensive to build and to maintain and are therefore beyond the reach of many rural communities. They are also not 100% effective at keeping elephants out: in time, elephants can usually find a way to break through them.

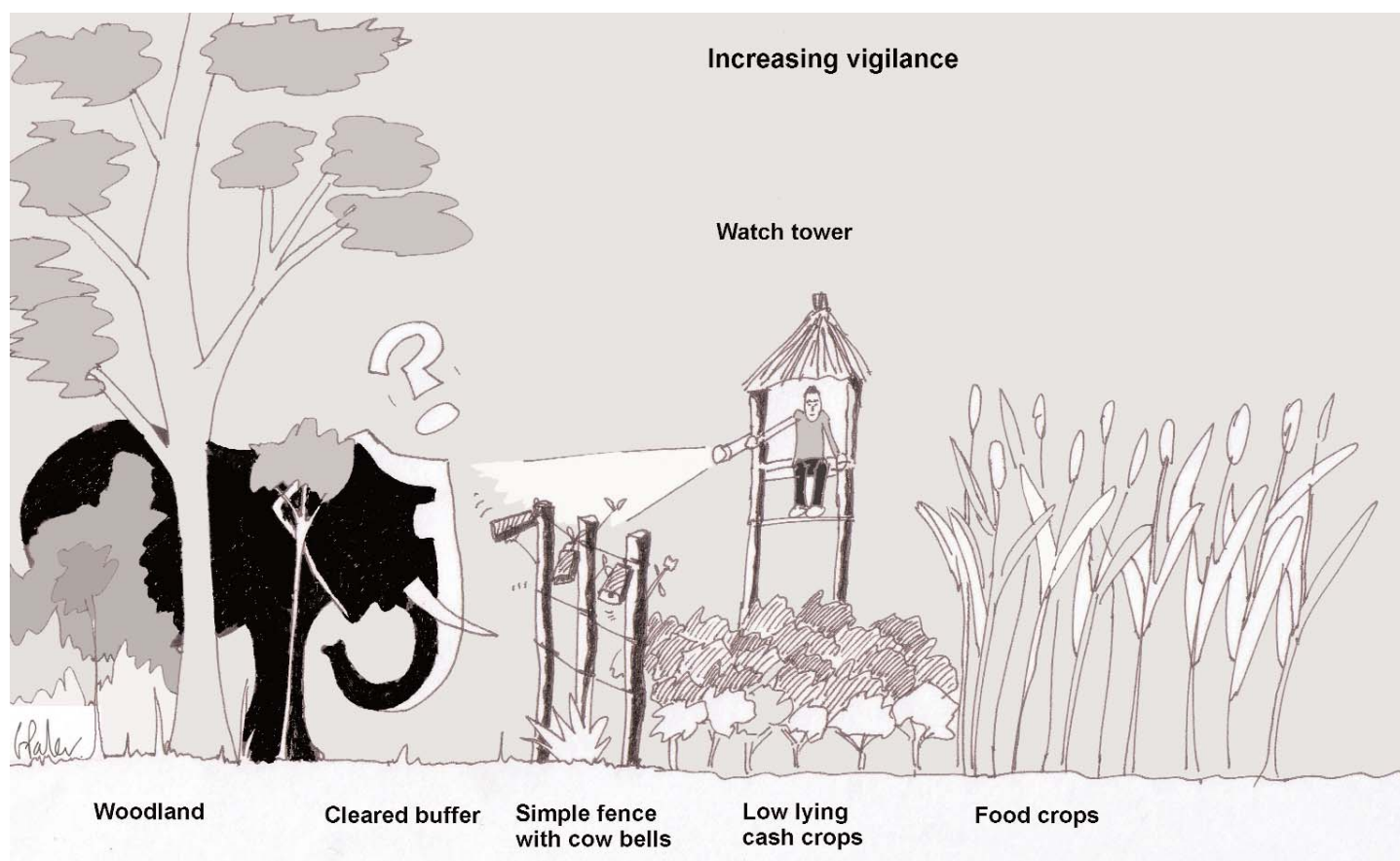
Box 1: Major problems with current crop protection measures.

- Farmers cannot rely on outside help from game scouts.
- The traditional methods that farmers use are no longer effective because elephants are no longer scared of them.
- There is no money for villages to buy electric fencing.
- Elephants are able to sneak into fields without anyone knowing they are there.

So how can we reduce crop damage from elephants?

It is possible to reduce the amount of crop damage that elephants cause using simple, inexpensive methods. The Elephant Pepper Development Trust in Zimbabwe has developed a range of methods which have been very successful at protecting people's crops. Their system relies on two approaches. First, there are a series of alarms and barriers that warn a farmer that elephants are trying to damage his crops. These increase the farmer's vigilance and make it difficult for the elephant to reach the crops undetected. Second, there are active deterrents that the farmer can use to chase the elephants out of the fields.

1. Alarm systems alert a farmer to the presence of elephants. A simple fence is constructed at the edge of the fields, using live poles where possible, and string. The fence surrounds the entire field area without any gaps. Poles are placed 5m apart with three strands of string in between. Cowbells are tied to the string so that any large animal that tries to enter the fields will set the bells ringing and alert the farmer to their presence. An area of 5m beyond the fence should be cleared of shrubs and grass so that it is easier to spot the elephants.



Farmers should build watch towers along the boundary of the field to make it easier for them to view the perimeter of the fields. Farmers should club together and form a cooperative guarding group in which small teams of 3-4 farmers take it in turns to guard everyone's fields. The guards are selected on rotation, and this means that people will only have to guard the crops when it is their turn.

Box 2: So why is chilli an effective deterrent?

- Chilli peppers create a hot burning sensation in the nose and eyes
- Elephants have a very sensitive sense of smell and so chilli causes the elephants pain
- Chilli causes pain to elephants, so they cannot get used to it as they do with other deterrents.

2. Active deterrents are designed to scare the elephants away from the fields. When farmers realise there are elephants close to, or in, the fields they can use the active deterrents. Chilli dung bricks should be burned to create a noxious smoke. Bangers make a loud noise to chase the elephants away, especially if thrown in their direction.

Farmers shining torches may also drive the elephants away. The important thing is to act quickly and shock the elephants into retreating.



Box 3: How to make chilli dung bricks.

- Collect 5-6kg of elephant or cattle dung in a bucket.
- Grind 1-2kg of hot dry chilli
- Mix chilli and dung together, using a little water to make a paste.
- Compact the dung mixture into a brick mould, then remove and leave to dry for several days.
- Burn the dung brick at night. It will produce a noxious smoke for 3-4 hours.

What else can I do?

You can also make your crops less vulnerable to elephant crop damage by growing unpalatable cash crops like chilli, tea and cotton, which are less likely to be eaten by elephants. Elephants and other animals do not like the taste of these crops as much as food crops, so they are less likely to be damaged. An advantage with chilli is that the harvested fruits can also be used to make deterrents such as the chilli dung bricks.

Choose the crop that is best suited to your area. These cash crops shouldn't replace your food crops, but should be grown as well. You should plant the unpalatable crops at the edge of the fields, and your more vulnerable food crops at the centre of the fields. This will make it more difficult for the elephants to reach the food crops, and you will have time to spot them before they can do damage.

In order to reduce the risk of elephant crop damage it is best to use a combination of methods, as described above. Be vigilant and work as a team to keep elephants and other wild animals away.

ACKNOWLEDGEMENTS: This Action Sheet was written by Guy Parker, using the following sources:

Resources

Sitati, N. W., Walpole, M. J., Smith, R. J. & Leader-Williams, N. (2003): Predicting spatial aspects of human-elephant conflict. *J. Appl. Ecol.* 40: 667-677

Osborn, F.V. & Parker, G.E. (2002): A community-based system to reduce crop damage by elephants in the communal lands of Zimbabwe. *Pachyderm* 33: 32-38

Osborn, F.V. & Parker G.E. (2003b): Towards an integrated approach for reducing the conflict between elephants and people: a review of current research. *Oryx* Vol. 37 (1): 80-84.

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FOR MORE INFORMATION

Contacts

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Africa Now - www.africanow.org