Monitoring human-wildlife conflict

What is this Action Sheet about?

In order to control conflict effectively, we first need to know where and when the conflict is happening. This Action Sheet is about ways of monitoring human-wildlife conflict. This is important because it tells us the location and the type of conflict that occurs. This can help us to direct our deterrent efforts to where they are most needed. In addition, monitoring can tell us whether our deterrent methods are working or not.

Conflict with wildlife is a very common problem but it can vary greatly from place to place. For example, in one village buffaloes may damage crops every night, while in a neighbouring village a few kilometres away there may be no crop damage at all. Conflict also varies over time: a village may suffer only one crop damage incident in one year, but then suffer twenty or thirty incidents the next year. Therefore, to understand the patterns of conflict we first need to know where, and when, and how much crop damage is occurring.

How do we monitor HWC?

The easiest way to assess conflict would be to ask those farmers affected. But previous studies have shown that such reports may be exaggerated, and therefore not reliable. In addition, each farmer may report different details, so it would not be possible to compare one report with another. Instead, it is better to train a team of reporters to assess the conflict that occurs.

Each time a wild animal causes problems, a trained reporter must visit the area and make a report based upon what he or she finds. The reporter should use data sheets to ensure that the same information is collected each time (see attached data sheet). This will allow us to compare incidents from different villages and see which the worst is.

Box 1: Direct and indirect conflict.

Wildlife conflicts can be separated into two different types:

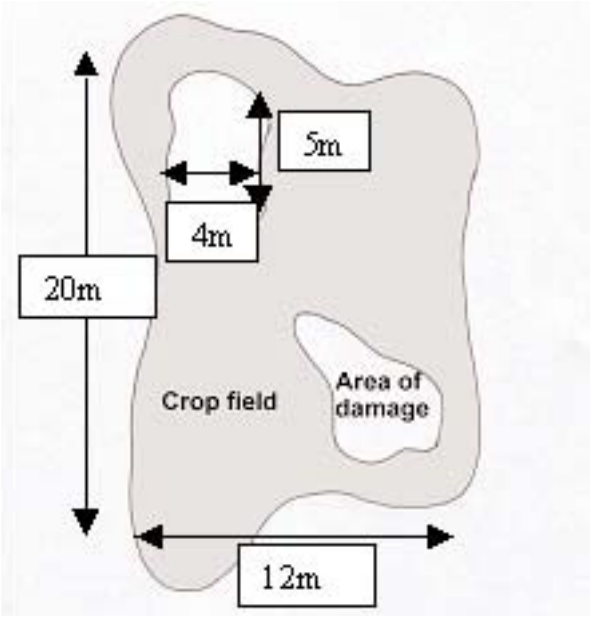
- ***Direct conflict*** affects a person's livelihood and includes incidents where crops have been damaged, livestock have been killed, or people have been killed or injured. Direct conflict can be easily recorded by counting or measuring the damage done.
- ***Indirect conflict*** includes wider issues such as competition for wild fruits and water, which are needed by both people and wildlife, or the fear of walking at night because dangerous animals are nearby. Indirect conflict is much more difficult to measure because it deals with issues like fear and competition rather than actual damage. However, it should still be described in note form.

What information should we collect?

The reporter should fill a wildlife conflict reporting form, as attached, for every incident of HWC. The methods for reporting direct and indirect conflict are described in turn below.

Direct conflict

The two important things to measure for each conflict incident are: first, the location; and second, how much damage occurred in each incident. The location can be taken with a GPS or it can be described using village or place names and directions, for example: "the lion killed three cows 2km north west of Soka village". In addition the reporter should record the date and name of farmer. These details are essential, and MUST be filled in accurately, as they allow the report to be followed up in future.



The quantity of damage depends upon the type of conflict incident. It may be either the number of livestock killed, as described in the example above, or the area of crops damaged.

Crop damage can be measured by pacing the damaged area, as shown in the diagram. Reporters should use paces to first estimate the length and width of the field that contains crop damage. Usually the farm will not be a neat square, so the average width and lengths should be taken (see diagram). To calculate the area of the field, multiply the width measurement by the length: 20 x 12 = 240m^2. Do the same for each individual area of damage, and calculate the area separately, e.g. 4 x 5 = 20 m^2.

It is also important to enter the *type of crop* that has been damaged. If one field with several crops growing together has been damaged then enter the crops on one line.

You can also estimate the *crop age* using simple categories: **seedling** – when the crop is at early stage of growth; **intermediate** – when the crop is growing but does not yet have fruits; and, **mature** – when the crop is producing fruits.

If possible describe the type and the number of the animals that caused the damage. This can usually be worked out from the footprints and from talking to the farmer.

Indirect conflict

It is difficult to measure indirect conflict, because the problems are more related to people's behaviour or emotions. The best way to record indirect conflict is to interview the person who was affected and then write a description of what they tell you. Write as much detail as possible, and try to describe the location as you would for direct conflict. For example:

"I talked to Mrs Yarazire of Kadzi village on 24th November 2005. She told me she had trouble collecting water from the river yesterday because there were elephants there. She went to the Kadzi river at Uchawa wells at dusk, but could not reach the water because there was a group of elephants drinking there. She thinks there were 5-6 elephants. She was scared so she returned home without water."

Such information can be added to the 'comments' section of the report.

What do we do with the information we collect?

The information we collect should be analysed so that it can be used to help to identify the areas with the greatest problems. The first thing we should do is plot the positions of all incidents on a map. This can done using GIS and a computer, or using laminated paper maps. From this it will be possible to see where the majority of incidents have occurred. Two measures are used to compare the conflict between villages: 1) the ***frequency*** or number of incidents; and 2) the ***quantity*** or amount of damage.

The ***frequency*** of conflict incidents in each village tells us how often conflict occurs, and is an easy way to compare conflict between villages. But it does not tell us *how much* damage has been done. For this, the quantity of damage in each village must also be calculated.

The ***quantity*** of the damage that has occurred in each village may be the total area of crops that have been damaged, or it may be the number of livestock that have been killed.

How will this information be useful to us?

The information for direct and indirect conflict can then be used to identify the villages worst affected by problem animals. These sites will then become the focus of future wildlife deterrent schemes. See Action Sheet 4: 'Reducing crop damage by elephants' for details of how to protect your crops.

In addition, when you begin using methods to control problem animals, the monitoring information will help you to see whether the methods are working. For example, does the amount of crop damage in a village become less after you start using deterrents? If so this will indicate that your methods are having some effect.

ACKNOWLEDGEMENTS: This Action Sheet was written by Guy Parker, with reference to the following sources:

Bell, R.H.V. (1984): The man-animal interface: an assessment of crop damage and wildlife control. In: *Conservation and wildlife management in Africa.* Bell, R.H.V. & Mcshane-Caluzi (eds.), US Peace Corps seminar, Malawi.

Naughton-Treves, L. (1998): Predicting the patterns of crop damage by wildlife around Kibale National Park, Uganda. *Conservation Biology* 12 (1): 156-158.

Parker, G.E. & Osborn, F.V. (2001): Dual season crop damage by elephants in northern Zimbabwe. *Pachyderm* 30: 49-56.

Elephant Pepper Wildlife Conflict Reporting Form

1. Report Details

Report date
Incident date
Reporter

Ward
Village
Farmer

2. Details of Conflict

2a. Crop Damage

Crop	Age	Total field size	Area of damage

2b. Damage to property

2c. Damage to Livestock

3. Problem Animals

Problem animal:
No. animals:
Sex of animals:

Direction of entry:
Direction of exit:

Information from:

Visual	
Farmer	
Spoor	

4. Problem Animal Control

Method of PAC:
No. of persons:
ID of persons:
Reaction time of elephants:

Time PAC started:
Time PAC finished:

5. Comments: