TRAINING PACKAGE FOR ENUMERATORS OF ELEPHANT DAMAGE

A DOCUMENT PREPARED FOR THE IUCN AFRICAN ELEPHANT SPECIALIST GROUP'S HUMAN-ELEPHANT CONFLICT WORKING GROUP

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1. RATIONALE FOR TRAINING

Elephants can be destructive animals because they eat crops, damage water supplies and sometimes injure or even kill people in rural areas of Africa. It is not possible to address this problem very effectively by management action in any area without information about what it is elephants are damaging and where and when these damage incidents occur. To gather this information, some or if possible all, of the area concerned has to be surveyed. People who are to collect the information on elephant problems need to receive basic training and therefore should attend a short course which is both theoretical and practical. Due to people receiving standardized training, the data they collect will be of consistent quality and will therefore be reliable enough for summary and analysis. This will mean that two things can be achieved: (1) comparisons between different areas experiencing elephant problems will be valid and (2) management decisions on 'problem elephants' can be made on the basis of good data and do not have to rely on guesswork.

The following is an outline of a proposed training package for enumerators of elephant damage. It follows a model which was developed in Zimbabwe but is presented in such a way as to be adaptable to local conditions elsewhere in Africa.

1.1 Personnel involved

The course may have to be organized by a town-based person (henceforth called ***'the organizer'***) who does the following:-

- obtains sufficient funding to run a course
- makes out a budget for the course activities and administers it
- interviews and selects a person to conduct (teach) the course
- contacts and corresponds with people who will attend the course/ selects attendees
- orders materials required for the course.

The course itself is conducted by a person who has some research expertise (henceforth referred to as **'*the trainer*'**). The trainer may select one or two local people to assist with interpretation of instructions into the local language.

The people to be trained to collect data on human-elephant conflict are called '***enumerators***'. Henceforth enumerators undergoing training may also be referred to as ***'students'***. As to how many enumerators can be trained at once, it will depend on the (i) the size of the area from which information needs to gathered, (ii) the training budget and (iii) facilities for holding the formal training (classrooms, accommodation etc). As this is a fairly practical course and individual attention may be important, it may be best to limit numbers, especially initially, to a maximum of 20.

A representative of the local wildlife authority (here referred to as a ***'wildlife officer'***) should also attend the course.

Depending on conditions in the country and area concerned, in some cases the trainer may also be the organizer and/or the wildlife officer.

2 LOGISTICS OF TRAINING COURSE

2.1 Duration

This is a two day training course.

2.2 Location

The location of the training venue should be in a rural area, preferably near where elephant raids have occurred on farms. By visiting sites where elephant problems have actually occurred, the practical parts of the course will be more meaningful.

2.3 Materials required

A classroom with seating and blackboard
A flip chart stand with large removable sheets of blank paper
Pencils, pens and writing paper
Enumeration forms
Maps of the area from which data will be collected. These should be small scale (a convenient scale is 1: 50 000). It is best to select one map, which depicts a wide range of physical features in some part of the intended study area. Multiple copies of this map should be obtained so that there is one copy for each person involved in the course, both trainers and students.
There is no manual for students. Students make their own notes

2.4 Other requirements

Transport arrangements for participants to attend course
Overnight accommodation for participants
Transport to carry participants to practical demonstration site(s).

3 COURSE MANUAL FOR TRAINER

3.1 Preliminaries

(TRAINER)

1) Introduce self and assistants; outline nature of course sections and expected duration:

First morning:
- Preliminaries
- Candidate requirements
- Job conditions
- Recording locations and map reading

First afternoon:
- Elephant damage evaluation
- Data recording on incident forms

Second morning:
- Practical demonstrations

Second afternoon:
- Theory test

2) Emphasize participatory nature of course style (not a continuous lecture, questions are welcome)

3) Talk informally about the area and elephant problems as perceived by students (make notes or retain salient points of this discussion for possible recall during training)

4) Explain rationale for course (above) in simple terms. Make clear what the output will be from the data that enumerators will collect. In order to make decisions on how to manage problem elephants (or any other problem animals) we have to know three things about cases of damage (which are called incidents) :

- distribution *(where they are happening)*
- frequency *(when they are happening)*
- severity *(what is being damaged and how badly)*

This involves summaries of all the incidents which the enumerators will record.
The scheme acts as a 'filter' to separate serious incidents from minor ones. If the authorities know which incidents are serious they can attend to them and not waste time on ones where no action will help. We are concerned with identifying problem elephant incidents which are of ***social or economic importance***.

5) Get **wildlife officer** to explain to students:

- support from the wildlife authority for the scheme
- selection process used to select students
- candidates selected for the course will be formally employed as enumerators if they pass the test at the end of the course
- the conditions of this employment (pay, hours, contracts, obligations etc.) (as these vary with location guidelines are not given here)

(TRAINER)

6) Explain that data collection for enumerators will involve:

(i) interviewing people who have suffered elephant damage to their property
(ii) recording details of a 'problem elephant incident' on a form
(iii) Making some judgement on the seriousness of the incident
(iv) passing this information on to a local authority or to a researcher in the area, either verbally if it is urgent or on paper via a third party if it is not urgent.

The qualities required for this job are:

- diplomacy, patience and communication skills (to deal with affected people ***[called 'complainants']*** who are often angry and to explain to them the purpose of collecting the information)

- physical fitness (to walk long distances to where incidents happened; to sometimes endure discomfort e.g. wet conditions, presence of wild animals)

- literacy and numeracy (to fill in forms)

- honesty (to report damage accurately and give unbiased judgement on its severity)

DO NOT HAND OUT ELEPHANT DAMAGE REPORT FORM YET

3.2 Locating the incident and map reading

Explain concept of a map:

- a picture from above
- has to be small - the principle of scale; curved earth onto flat paper
- depiction of features: roads, rivers, hills and contours, fields, area boundaries etc.
- points of compass to orientate the map.to the area depicted.

To find any point on a map a reference system is used: two commonest are

- latitude and longitude (two baselines are Equator for latitude and Greenwich Meridian for longitude). All locations are measured relative to these lines.

- UTM grid system. Numbered grid squares placed over the map.

Any co-ordinate systems uses IMAGINARY lines drawn over the map. These lines are IMAGINED to run over the actual ground. This means if someone wants to describe the LOCATION of a place he will quote two figures. Using these figures you can PLOT this place on the map, and then NAVIGATE there with the help of the map.

For relatively small area like conflict zones it is easiest to use UTM system as it works on squares and uses units of 10, like numbers. Each village and area will have names and owners of fields will have names but these only known locally. Use of GRID REFERENCE means anyone can locate any place on any map at any time. With this information he can go exactly to that spot:

- even if he has never been there before and knows no one at that place
- even if there is no one to show him how to get to that place
- even years later.

Reading a map

Hand out a map to each student. EVERYONE IN THE ROOM TO HAVE THE SAME MAP. Explain in MINUTE DETAIL , with the use of flip chart, how a grid reference is obtained. Give many examples, take it slowly, make sure process is participatory. (The recommended way to read a map should be already shown on each map with examples). With a UTM location system the EASTING (vertical line) is quoted first and the NORTHING (horizontal line) is quoted second. (The lat/long system is quoted the opposite way round)

Remove flip chart drawings of map reading and stick these on classroom wall

Point out that maps contain inaccuracies because maps are only produced occasionally and do not keep pace with developments on the ground.

Reliable features on maps are natural ones which do not change: (e.g. contours of the land, rivers)
Less reliable features are the man-made ones which are poorly defined on the landscape and can change (e.g. roads, sizes and edges of fields, boundaries of national parks etc.)

Place names

Explain that on the form enumerators will use, there will also be the names of places and people involved. This is necessary because locally everyone uses names and not numbers when they speak about places. Numbers are for writing, names are for speaking.

Date of incidents

The date that an elephant damaged something and the date the incident was reported to the enumerator (to request him to come and evaluate it) may be different. This is important and both must be recorded. Why? e.g. distinguishing separate incidents; avoiding exaggeration of incidents; gauging tolerance of people to elephants.

Other ways of locating places

If funds allow, a device called a GLOBAL POSITIONING SYSTEM (GPS) may be used to record locations. A GPS is a machine that receives satellite signals and uses these to calculate the location of the operator. It has been suggested that since a GPS is expensive, the chief enumerator or the supervisor could record the location of each village and household in the study area or the nearest household to the problem incident. The households can be numbered and the incident recorded as being nearest to e.g. "village No. 3 , household No. 10" . This system requires that a simple database of locations be maintained. Although this involves extra work initially, the advantage is the speed with which the data can be subsequently processed.

……Lunch break first day……

3.3 Crop damage assessment

Enumerators must name the crop that was damaged and assess its quality and age as these were *before* the damage occurred. Explain that the quality and age enables us to get an idea of the seriousness of the incident and later roughly calculate the economic loss suffered.

Because the judgement is subjective (explain what that is - made by a person without using numbers), to make it easier for the enumerator, there are only three categories of quality and age:

- QUALITY: good, medium and poor - maybe reflecting different farmers' abilities
- AGE: seedling, intermediate and mature - reflecting different planting times

If for example there is a drought, many crops may be poor and not grow to maturity.

The way that damage is quantified is by pacing on foot. This is a simple technique which is easy to use and is accurate enough for our purposes. A two stage process is carried out:

- the length and width of the *whole field* are paced
- the length and width of the *damaged portion* are paced

Not all fields have straight or well defined edges and patches of elephant damage certainly do not. However, with some instruction (tomorrow) and a little practice and common sense, reasonable measurements can be made. There may be several patches of damage, in which case each should be measured separately and the total recorded.

Remove flip chart drawings of damage assessment and stick these on classroom wall. *Encourage discussion and questions*.

3.4 Other types of elephant damage

Go through the six possible types on the form and say that as much detail as possible must be supplied. Give examples, invite comment and discussion from students.

3.5 Elephants involved in incidents

Enumerators must discuss with the complainant(s) where the elephant(s) came from and went to and go out together to look at their footprints. Sometimes problem elephants raid alone, but often they come in groups. Record if somebody actually saw elephants and how many he/she thought there were. Compare the visual estimate with an estimate of numbers from footprints - often very different. See if large and small footprints can be distinguished as this gives an idea of the type of elephant group that was present (e.g. bulls; cows and calves; or mixed = bulls and cows and calves). Remember the front footprint of an elephant is rounded and the back is oval in shape. The back one is often superimposed on the front one when an elephant is walking. A tracker can point out how to see from footprints whether an elephant was running.

3.6 Comments and forwarding of reports

Use the comments section to expand on any information that may be important. This is an opportunity for enumerators to show their initiative.

In consultation with the wildlife officer decide criteria which merit forwarding of reports. Rapid forwarding means that external help is being requested to take action.

As a guideline the following criteria have been used in Zimbabwe:
firstly a decision is made as to whether to categorize an incident as *serious* or *minor*. examples of serious incidents are:

- a person killed
- a dangerous or wounded animal remaining close to where people live
- crop raiding occurring at the same place every day
- an entire standing crop eaten in one household or village area
- livestock killed
- destruction of property such as a food store or water supply

In these cases the enumerator should communicate details of the incident to an authority by the most rapid means. Ideally a copy of the form should be filled in and sent off, so that the enumerator remains with the original. Forms for incidents which are minor can be retained by the enumerator and forwarded to the wildlife authority at a convenient time (e.g. month end).

…….Afternoon tea break, first day.……

3.7 The elephant damage report form

HAND OUT THE ELEPHANT DAMAGE FORM NOW

Go through the whole form as in the sequence above and ensure that students understand its format and what is expected of them when completing it.

At the crop damage section use the flip charts again to illustrate what separates different incidents;

Different groups have different numbers of animals or different sizes of tracks left behind.

- If the same group of elephants moves around damaging several farms in one night (confirm with footprints) = ONE INCIDENT

- If different groups damage nearby farms on same night = SEPARATE INCIDENTS

- If the same group damages the same farm on different nights = SEPARATE INCIDENTS

Draw these three situations and stick flip charts on classroom wall.

Emphasize:

- writing on forms must be legible
- forms must be numbered and stored in sequence.
- when and where new forms will be provided

……*End of first day*……..

FORM 1. ELEPHANT DAMAGE REPORT FORM

REGION …….. …….. …….. …….. **FORM No.** …….. ……..
DISTRICT …….. …….. …….. ……..
SUBDIVISION …….. …….. …….. ……..
VILLAGE …….. …….. **MAP GRID REFERENCE…** …….. …….. ……..
ENUMERATOR NAME …….. …….. …….. **DATE OF INCIDENT** …….. ……..
COMPLAINANT(S) NAME(S) …….. …….. …….. …….. …….. …….. ……..
…….. …….. …….. …….. …….. …….. ……..
DATE OF COMPLAINT …….. ……..

CROP	**DAMAGE**	**QUALITY** (Tick one category)	**BEFORE**	**DAMAGE**	**AGE** (Tick one category)	**OF**	**CROP**
CROP	TYPE	GOOD	MEDIUM	POOR	SEEDLING	INTERM.	MATURE
CROP 1	……..	……..	……..	……..	……..	……..	……..
CROP 2	……..	……..	……..	……..	……..	……..	……..
CROP 3	……..	……..	……..	……..	……..	……..	……..
CROP 4	……..	……..	……..	……..	……..	……..	……..
CROP 5	……..	……..	……..	……..	……..	……..	……..

DIMENSIONS (Paces) OF **TOTAL FIELD** WHERE DAMAGE OCCURRED
LENGTH …….. PACES
WIDTH …….. PACES

DIMENSIONS (Paces) OF **ACTUAL DAMAGED PORTION** OF FIELD
LENGTH …….. PACES
WIDTH …….. PACES

OTHER	**DAMAGE**	TICK	AND	SPECIFY	DETAIL			
FOOD STORE		……..	……..	……..	……..	……..	……..	……..
WATER SUPPLY		……..	……..	……..	……..	……..	……..	……..
THREAT TO LIFE		……..	……..	……..	……..	……..	……..	……..
HUMAN INJURY		……..	……..	……..	……..	……..	……..	……..
HUMAN DEATH		……..	……..	……..	……..	……..	……..	……..
OTHER SPECIFY		……..	……..	……..	……..	……..	……..	……..

ELEPHANTS INVOLVED	NUMBER	VISUAL ID	(Tick)	TRACK ID
GROUP SIZE (TOTAL)	……..	……..		……..
Adult Male	……..	……..		……..
Adult Female	……..	……..		……..
Subadult / Calf	……..	……..		……..

YOUR COMMENTS: …….. …….. …….. …….. …….. …….. ……..
…….. …….. …….. …….. …….. …….. …….. …….. ……..
…….. …….. …….. …….. …….. …….. …….. …….. ……..
Was This Report Forwarded?
To Whom? …….. …….. Where? …….. …….. …….. ……..
When? …….. …….. How? …….. …….. …….. ……..

4 PRACTICAL DEMONSTRATIONS

Take students out in small groups to farming area. Stop unannounced on several occasions at random places and ask students to identify the map reference for the spot. Ask them how they arrived at the answer (e.g. directions and distances travelled, presence of visible natural features etc.) Discuss all map symbols and what they correspond to in the field (e.g. colours, shading, contour lines, trigonometric points etc). Point out the importance of understanding map scale. UTM based maps have small subdivisions of 1 km or less which are ideal for pinpointing locations. Recap on all theory work about maps which was covered in the classroom. Ask students to assist each other in practical exercises and identify those students experiencing difficulties with understanding this section.

Visit a village and select a place where crops are being grown. Do a mock crop damage assessment exercise with all relevant features (sections 3.2 - 3.7). Use role play among students to facilitate the practical exercise. Highlight interview difficulties and try to develop principles of an interview technique which does not upset complainants.

Discuss how community members can contact the enumerators easily; what speed the enumerators can get to incidents (e.g. at a brisk walk across country a person can cover about 7km per hour) and how enumerators send urgent messages about serious damage cases to a wildlife authority, given the available communications in the area.

5 FURTHER USE OF THE INFORMATION

Show participants how they are part of a 'protocol' or standard plan of information gathering which has a 'hierarchial' or layered structure. Their work is at the first or 'primary' level and as such is the most relevant and useful of all. Their results are processed further by researchers and summaries for large areas can then be used at district or national level by wildlife management authorities.

An illustration of how the whole data gathering and processing works in theory is given below **(Fig. 1)**. This data protocol is the subject of another AfESG report. Entitled *' Data collection and analysis protocol for human-elephant conflict situations in Africa'*

For the purposes of illustrating how incidents on enumerators forms are summarized, an actual example is given from a place in Zimbabwe where a problem elephant reporting scheme operates. Incidents in a small subdivision of a district (called a ward) are summarized in an easily understandable format (a spreadsheet) **(Fig. 2)** and are evaluated with scores, according to their seriousness. Damage scores are based on adding the individual scores given for crop age , crop quality and extent of damage (*the actual data from enumerators forms*) . Incidents in the same ward are summed to see how each area compares with others in the same district.

Three different ways of ranking the seriousness of elephant damage in the district are given **(Table 1)**. Elephant problems in different wards in the same district can then be compared objectively. Management action can be taken according to whatever ranking people feel is appropriate. Note especially that a greater number of incidents does not necessarily mean that area suffered more damage. An area with a few serious incidents may actually suffer more damage than an area with a lot of minor ones. This shows how collecting information directly from the site of elephant problems is beneficial. It 'filters' out the most affected areas. What happens if this scheme is not used is that information is unverified and complainants who complain loudest or who are most influential get attended to by authorities. Deserving people who may actually have suffered most, may get ignored.

……*Lunch break second day*……..

FIGURE 1 SCHEMATIC OF PROPOSED HUMAN ELEPHANT CONFLICT DATA COLLECTION AND ANALYSIS PROTOCOL

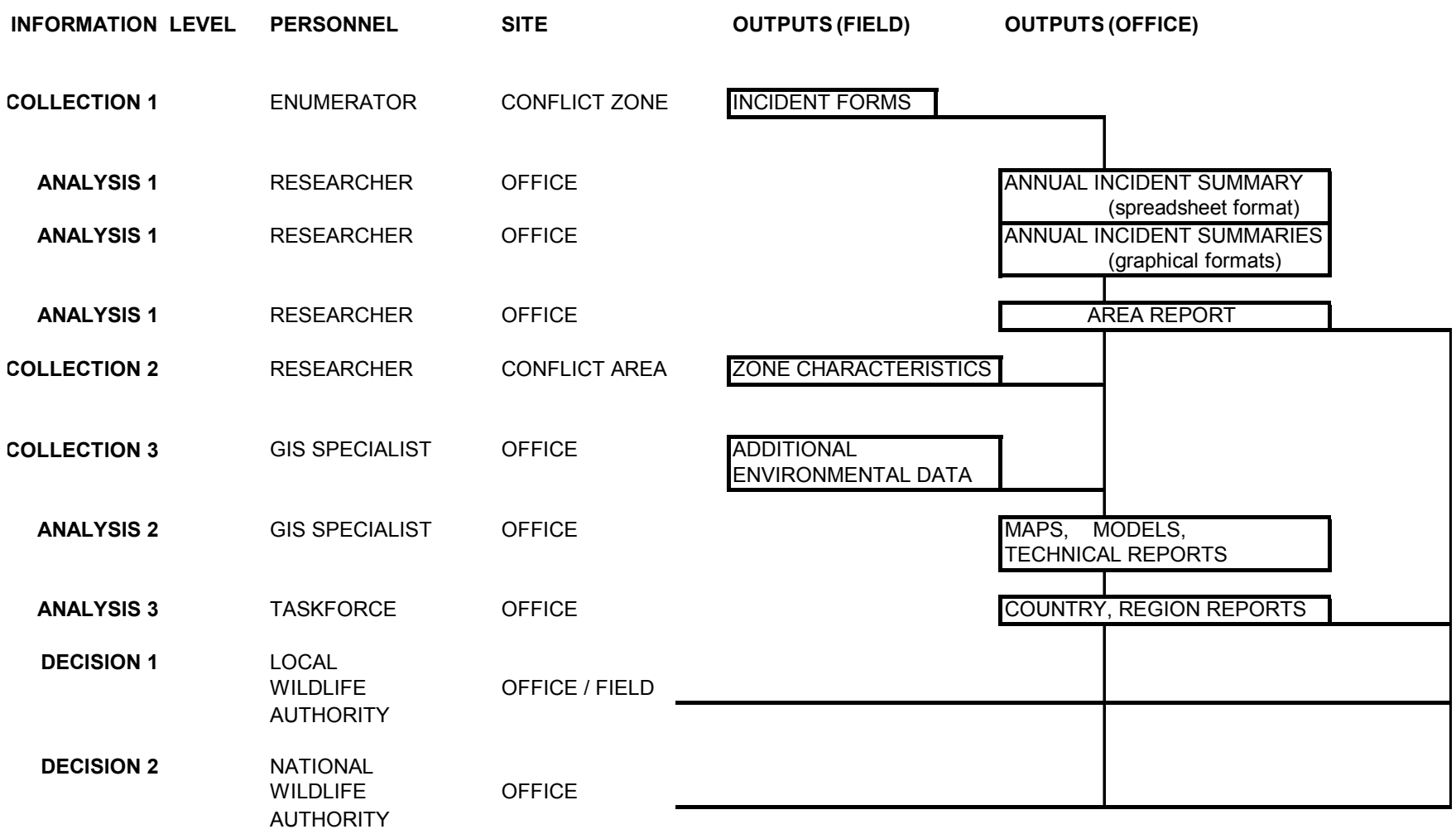

Figure 2

EXAMPLE OF ANNUAL SUMMARY OF PROBLEM ELEPHANT INCIDENTS IN SPREADSHEET FORMAT WITH DAMAGE SCORES CALCULATED FOR EACH INCIDENT AND SUMMED FOR THE AREA

KEYS

CROP TYPE	CROP AGE	CROP QUALITY	DAMAGE CATEGORY	DAMAGE SCORE	ELEPHANTS INVOLVED	GROUP TYPE
1=MAIZE						
2=COTT			1=<5%			
3=GNUTS			2=6-10%			
4=MILLET			3=11-20%			M=BULL
5=VEG	1=SEEDL	1=POOR	4=21-50%	<5 = LOW		MM=BULLS
6=MASAU	2=INTER	2=MED	5=51-80%	6 - 8 = MED		CC=COWS
7=OTHER	3=MATURE	3=GOOD	6=>80%	>9 = HIGH		MH=MIXED

AGE + QUALITY + DAMAGE = SCORE

DATA EXAMPLE

DATE OF INCIDENT	VILLAGE NAME	MAP REFERENCE	CROP TYPE	CROP AGE	CROP QUALITY	DAMAGE CATEGORY	DAMAGE SCORE	NUMBER ELEPHANT	GROUP TYPE
31-Jan-98	Mufudzi	878064	2	2	2	1	5/L	2	MM
31-Jan-98	Mufudzi	878064	1	2	2	1	5/L	2	MM
31-Jan-98	Mufudzi	878064	1	3	1	1	5/L	3	MM
06-Feb-98	Budzinike	872048	7	3	2	1	6/M	2	MM
06-Feb-98	Budzinike	872048	1	2	3	1	6/M	2	MM
06-Feb-98	Budzinike	872048	1	2	1	1	4/L	2	MM
06-Feb-98	Budzinike	872048	1	3	1	1	5/L	2	MM
06-Feb-98	Budzinike	872048	3	2	2	1	5/L	2	MM
07-Feb-98	Budzinike	875045	2	2	3	1	6/M	2	MM
04-Mar-98	Budzinike	875045	1	3	1	1	5/L	1	M
04-Mar-98	Budzinike	879049	1	3	1	1	5/L	1	M
04-Mar-98	Budzinike	875045	2	3	2	1	6/M	1	M
31-Mar-98	Kayongo	844016	2	3	1	1	5/L	1	M
31-Mar-98	Kayongo	844016	1	3	1	1	5/L	1	M
18-Jun-98	Gamanya		1	2	1	3	6/M	2	MM
18-Jun-98	Gamanya		1	2	1	3	6/M	11	MH
23-Jun-98	Gamanya		1	3	1	4	8/M	6	MH
23-Jun-98	Gamanya		1	3	1	4	8/M	6	MH
23-Aug-98	Kayongo	836012	5	3	1	1	5/L	4	MM
24-Aug-98	Budzinike	883039	5	3	1	1	5/L	6	MM
26-Aug-98	Kayongo	834012	5	3	2	3	8/M	3	MM
26-Aug-98	Kapenyongo	833012	5	3	2	3	8/M	4	MM
26-Aug-98	Kayongo	834012	5	3	2	5	10/H	3	MH
26-Aug-98	Kayongo	833012	5	3	1	3	7/M	2	MM

SCORES

SCORE TOTALS FOR WARD

LOW = 14
MED = 9

Table 1. Example of summarized data for a study district in Zimbabwe (Muzarabani District) where a problem elephant reporting scheme has been run. Wards (administrative areas of 100 – 500 km^2) each had one enumerator. Incident data has been subjected to a simple analysis whereby wards are ranked for 1998 according to various criteria of problem elephant activity: (i) total number of incidents (ii) number of serious incidents (iii) overall damage score of incidents. A mean of the three ranks is given. Management decisions can be prioritized according to the desired rank

WARD	Total Incidents (No.)	Serious Incidents (No.)	Damage Score POINTS	Total Incident RANK	Serious Incident RANK	Damage Score RANK	MEAN RANK
Kapembere*	34	3	144	1	3	1	1
Muringazowa	23	1	103	2	4	2	2
Gutsa	18	4	78	3	2	6	4
Dambakurima	17	1	88	4	4	5	5
Chadereka	15	5	90	5	1	4	3
Chiweshe	14	0	95	6	5	3	6
Hoya	12	0	51	7	5	8	8
Chawarura	12	1	63	7	4	7	7
Hwata	9	1	48	8	4	9	9
Machaya	1	0	5	9	5	10	10
TOTALS	**155**	**16**	**765**				

* for a breakdown of incidents in this ward, see Figure 2

6 THEORY TEST

It is necessary for the students to be examined on the above material to see if instruction by the trainer was satisfactory and if the level understanding amongst students was adequate for them to be employed. Students who do not reach a pass mark need to be identified and a decision made as to whether to give them extra tuition or not consider them for employment as enumerators.

The trainer should draw up a test paper. The following are suggestions of the kind of questions that need to be asked in a written test. Questions should be unambiguous and the nature of the question orientated to practical issues (i.e. the collection of data).

- What do we call the person who suffers elephant damage to their property?
- Can the date of the damage incident and the date of complaint be different? Yes/No
- What are the categories of crop age?
- What are the categories of crop quality?
- When is the main crop raiding season in the area?
- What method should you use to measure the size of the damaged part of a field?
- Give a map grid reference for points named, A, B, C - trainer to choose place names
- How do the footprints of an elephant differ between front and back?
- Three neighbours complain about elephant damage from three elephants on the same night. How many forms do you fill in?
- The same person complains of elephant damage on three nights in succession. How many forms do you fill in?
- Give four examples of serious incidents of elephant damage.
- Do you forward every report immediately?

DO NOT DRAW UP THE TEST PAPER IN 'MULTIPLE CHOICE FORMAT'. THIS ENCOURAGES GUESSWORK. THE HANDWRITING, VOCABULARY AND GRAMMAR USED IN THE STUDENT'S TEST PAPER WILL GIVE THE TRAINER A FURTHER INDICATION OF THE CANDIDATE'S ABILITY

Further reading

Hoare R. E. and Mackie C.S. 1993. Problem animal assessment and the use of fences to manage wildlife in the communal lands of Zimbabwe. WWF MAPS Project Paper No. 39. WWF Southern Africa Programme Office, P O Box CY 1409 Causeway, Harare, Zimbabwe.

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