

EXECUTIVE SUMMARY

Data collection and analysis protocol for human-elephant conflict situations in Africa (accompanied by a training package for enumerators of elephant damage)

R.E. Hoare

Background to standardization

Negative interactions between humans and elephants have become known as 'human-elephant conflict' (H E C) and in recent years the subject has been identified as one of the priority issues in elephant conservation. To date studies on elephant damage have been conducted in 14 African countries, generating literature amounting to some 70 titles. This literature reveals that the problem of human-elephant conflict is very widespread in Africa with conflict taking many different forms. Human-elephant conflict in some form occurs over most of the large interface between elephant range and human settlement in Africa, both in the forest component of the elephant range (mainly central and west Africa) as well as in the savanna component (mainly eastern and southern Africa).

Because of the size of the species range and the relative newness of this topic, there has as yet been very little co-ordination of the investigations into human-elephant conflict or synthesis of the results from them. Studies and evaluations of human-elephant conflict have been independently set up, conducted by different methods and the results presented in various ways. Together they have contributed towards a general understanding of elephant problems. We know for instance that : elephants are infrequent pests but damage is more localized and severe than from other pest species; the subsistence agricultural sector in elephant range is often only marginally viable but the 'existence values' of living near elephants consistently evoke vociferous complaint from rural people.

Proposed data protocol

A reasonably standardized system is now urgently required which will present options for quantifying the problem, thus allowing valid comparisons to be made about levels of human - elephant conflict both within and across different biogeographical regions of Africa. The present study proposes how to achieve consistency and quality of data by using a standardized data collection and analysis protocol for human-elephant conflict situations.

The first step was to classify three methods that researchers had used to try to quantify human-elephant conflict. Some had merely recorded problem incidents (i.e. opportunistic data collection) and generated a 'raid frequency index' per unit

area and/or per unit time. Other, more intensive investigations had sampled small agricultural areas (i.e. systematic data collection) and attempted to extrapolate the quantified wildlife crop damage to larger agricultural areas. The latter is more desirable but constrained to small areas by the logistics of the effort required. A third method had been to interview affected people about elephant depredations they suffered over time. This method can be used to survey attitudes but is too inaccurate to quantify damage.

The advantages and shortcomings of each method were considered in designing a compromise method for use in the protocol. The intended scheme has to be able to gather management-relevant data fairly rapidly over large areas at relatively low cost and be locally sustainable for an adequate study period: i.e. a trade-off between research detail and coverage required for management. In order to achieve this compromise, data collection has to be somewhat opportunistic', relying on farmers to report cases of damage. But data recording can remain 'systematic' through the use of trained enumerators who visit the reported site of elephant damage and collect full details using a standard format.

A hierarchy of data collection and analysis is involved in the protocol and is best displayed graphically in a flow chart. At the primary data level, enumerators are trained to visit farmers and people affected by elephant damage, record details and make an assessment of the incident. Enumerators are recruited and trained according to a training package attached to the protocol. The enumerators training course takes approximately two days.

At the secondary data collection and analysis level, a co-ordinator is involved. The co-ordinator supervises the enumerators in the field during the conflict period and condenses data from their reports into an annual summary for the conflict zone. Annual reports are designed to show the distribution, frequency and severity of elephant damage and consist of :

- (i) spreadsheet summaries of incidents (to act as a permanent record)
- (ii) graphical illustrations of these spreadsheet summaries (to make large amounts of numerical data easy to understand)
- (iii) scoring of damage incidents and ranking of problems according to area (to assist in making management decisions)

Annual reports are sufficient for local level management decisions (e.g. where to deploy scouts to scare elephants, how to distribute revenue on the basis of the level of problems, where to plan fencing projects).

Testing the protocol

The primary data level has been used in Zimbabwe for eight years. The practical advantages of this approach is that it involves local people, provides employment

and does not rely only on the complainant's version of events. It has the disadvantage that enumerators have to be trained and engaged in paid employment, something which requires some administration of finance and personnel. For the returns, however, it is a relatively easy and inexpensive scheme to set up and run. The primary assessment of damage in crop fields, relies on pacing on foot by enumerators -- the easiest and quickest field method which yields acceptable accuracy.

Summaries at the secondary level have been used for local-level elephant management in Zimbabwe. They yield good distribution and frequency information, allow adequate severity assessment and also provides for some of the 'social dimension' of elephant problems to be included. A simple system of severity measurement was developed in the present study to allow local wildlife management authorities some decision options. This scheme involves scoring each damage incident on a nine point scale and ranking damage scores for any area by simple addition.

A tertiary data and analysis level was proposed in order to link geo-referenced incident data from enumerators to environmental variables thus allowing research-orientated analyses at a specialized Geographic Information System (GIS) level. The tertiary level has not been tested in many sites but was the subject of a concurrent research project which investigated the feasibility of GIS use in a case study of human-elephant conflict. Strong links and close dialogue were maintained throughout the present study with the consultants on the latter project, ensuring that the protocol's primary and secondary levels would be fully compatible with the specialist GIS level.

There are several practical advantages to this protocol. One is that reporting is directly linked at all times to management by filtering out serious incidents from trivial ones on site and incorporating immediate forwarding of serious reports to a local authority capable of reacting to the problem. Another is that delays and discontinuity of levels of activity above the primary level (which must be sustained throughout the conflict season) do not affect the data. The field supervisor does not necessarily need to have research skills or computer literacy. Data for local use can even be processed manually. More elaborate GIS-based map production and numeric or spatial analyses can be done later using retrospective attachment of environmental and social attributes at many different scales.

If this simple protocol can ensure a supply of consistent data from a number of human-elephant conflict sites around Africa, three objectives can be achieved: (i) management of the problem at a local level can be facilitated; (ii) valid comparisons of the severity of the problem can be made between sites differing in their physical characteristics; and (iii) predictors of conflict can hopefully be used to avoid some of the expansion of the problem.

Summary of findings

- Achieving consistency and quality of HEC data involves employing field enumerators to collect primary data.
- The protocol is dependent on some local administration and management capability to be sustainable for an adequate study period.
- The primary and secondary levels of data collection and analysis do not require specialist personnel and can be used for local-level management of HEC .
- The protocol's primary and secondary levels are fully compatible with a further specialist GIS level which can improve on data presentation and analysis and offer valuable comparisons between different HEC sites.

Summary of recommendations

- In proposals the term “ researcher” is not appropriate. Instead, “co-ordinator” or “supervisor” should be used.
- The protocols should be reviewed for adjustment before widespread deployment
- Memoranda of understanding should be concluded between the AfESG HETF and data providers .
- As far as possible the AED should serve as a repository for H E C data collected
- Trainers training manuals should be developed. The manuals on “Problem animal reporting”, “Electric fencing projects” and “Maintaining electric fences” by WWF SARPO and the experience they gained in the process of developing those manuals could help in this.