

Evolution of the Human Elephant Conflict Working Group and Synthesis of Key Lessons Learned

A summary from the IUCN Species Survival Commission's African Elephant Specialist Group

<http://www.iucn.org/afesg>

Introduction

Throughout most of its current range, in 37 countries of Africa, the future of the African elephant is inextricably linked to its interactions with the people who share the land (Dublin et al, 1997). While these interactions can be and often are, very positive, it is often the negative interactions, commonly referred to as human-elephant conflict (HEC), that dominate the conservation agenda. Indeed, HEC is a widespread problem in Africa today and occurs across all bio-geographical regions of the species range.

It is the Mission of the IUCN Species Survival Commission's African Elephant Specialist Group (AfESG) "to promote the long-term conservation of Africa's elephants throughout their range". It is a key objective of the AfESG "to provide and improve technical information and advice on the conservation of Africa's elephants to the following:

- a) range state government agencies
- b) non-governmental organizations, including both international and African-based organizations
- c) inter-governmental organizations
- d) non-range state governments

Special efforts are made to target outputs in a manner that meets the needs of the above.

In essence, it is our desire to provide cutting edge advice on means and methods to practitioners enable them to better cope with their elephant management challenges, including human-elephant conflict.

In attempting to meet this mandate, we have undertaken a long but progressive process. Back in the early 1990s this involved more "fire brigade" crisis management type approaches, responding to the needs on a case-by-case basis. By the mid-1990s it became obvious that the problem of HEC was becoming so prevalent and so complex that we needed a more directed approach to providing the services required of our technical expertise and our combined experiences.

Our first step in this direction was to establish the Human-Elephant Conflict Taskforce (HECTF) in 1996. The HETF was formally appointed and worked to an agreed terms-of-reference approved by the members of the AfESG for a period of five years. The formalizing of this function within the Group has proven very useful. The HECTF provided an authoritative reference point to direct enquiries as well as forming the basis for a collaborative core from which to develop our innovative efforts and products. In 2002, the HECTF was transformed into the Human Elephant Conflict Working Group to reflect the serious nature of the problem and the reality that it was not about to disappear any time soon.

While the HECWG has focused on the development of tools and techniques to mitigate and, where possible, to prevent HEC, it has been necessary to view all of our approaches in the larger context of conserving the African elephant on the continent. Africa is a continent faced with rampant poverty, significant and expanding portions of the human population living within former elephant range, rapid fragmentation and loss of habitats due to conversion of land to agriculture and to unsustainable logging practices, civil instability and war resulting, in many places, in the free-flow of arms and ammunition. In order to address HEC in a sustainable manner, it must be addressed in a realistic context. So, this has led the AfESG to look for mitigation measures that result in “win-win” outcomes for elephants and people, alike. This, of course, places many constraints on the measures we can responsibly recommend in the hopes of their actually being adopted.

Throughout this time, the AfESG has proactively provided technical advice to our primary clients as our knowledge increased, our thoughts evolved and our tools were being adapted. This has occurred through response to requests, dedicated site visits, and active participation in the formulation of HEC components within national elephant conservation strategies and management plans. At present, the growing demand for our tools and expertise is rapidly outstripping the available time of our volunteer members.

From understanding to action: a step-wise approach to tackling HEC

The history of the HECWG has followed a stepwise approach, sequentially trying to gain technical understanding of HEC dynamics and then translating this into management and mitigation applications.

The HECWG (formerly the HECTF) began by conducting a general overview of reported HEC across the elephant range states. This included correspondence with members of the AfESG and beyond as well as desk studies to compile knowledge, expertise and literature on all types of HEC, in all habitats and under any circumstances.

From this exercise, a number of 'priority topics' related to HEC were identified. This led to the commissioning of special papers on: (a) comparing quantifiable agricultural damage from elephants with that from other pest species and examining the 'social dimension' of HEC; (b) investigating the problems with spatial analysis of HEC data; (c) examining official policy towards problem elephant control in several countries; and (d) examining the idea of 'habitual problem' individual animals.

At the same time initial 'tools' development began in order to address the shortcomings of reliable and comparable HEC data. This led to the creation of: (a) a standardized data collection protocol for HEC (Hoare, 1999a.), and (b) a training package for selected local people to act as enumerators collecting these data (see Standardized Data Collection protocols, below) (Hoare, 1999b).

It soon became obvious, however, that while our studies and investigations increased the understanding of HEC among technical people, field managers still had little in the way of practical assistance for HEC mitigation. The next phase (see, the Decision Support System, below) thus produced a synthesis of African experiences with HEC and a set of recommendations for wildlife managers to address the problem under their particular site circumstances within their own, often very limited, available resources.

Following this, special emphasis was given to investigating techniques that are widely in use as well as new mitigation strategies (e.g. compensation schemes, fencing, improved 'traditional' elephant defences by farmers, mapping requirements for quantifying HEC, the establishment of 'conflict resolution committees'); the summary findings eventually posted as 'technical briefs' on the AfESG's website <http://iucn.org/afesg/hec>.

Information gathering and preliminary findings

The findings of our first phase, of general and specific information gathering, produced a worrying catalogue of HEC case studies and characteristics. It was apparent that HEC was, indeed, a very real and serious problem; occurred across the range of the African elephant regardless of the availability of protected refugia for the elephants and even in areas with very few remaining elephants; almost always involved agricultural losses and a large social dimension amongst affected people; was characterized by complex spatial dynamics across the landscape and involved elephants of all description: lone individuals, bulls and cow-calf groups.

Furthermore, there were many records of false starts and failed attempts to mitigate conflict often followed by even more severe consequences. In desperation, wildlife managers use whatever means available to them. Clearly, there was (and probably still is) widespread use of often inappropriate means and inappropriate use of successful, existing methods to ameliorate problems, generally applied by managers operating under acute pressure from the affected individuals, their communities and their political representatives. In many cases, HEC is being "managed" in the absence of policy, let alone, legal frameworks in most countries (Dublin & Hoare, 2004). An overview of compensation schemes produced a list of failures; most schemes collapsing under corrupt implementation of established procedures or shortages of government resources to pay even in cases where they had clear liability such as in cases of people being killed by elephants in defense of their families and property (Hoare, 2003.).

The number of complaints about elephants was found to be grossly disproportionate to the real level of direct damage attributable to them, especially relative to other pest species. Distortion and exaggeration is probably ultimately linked to a needy local populace looking for solutions to the overwhelming demands of their impoverished rural economies (Dublin & Hoare, 2004). Elephants are large, intimidating, and resourceful adversaries to subsistence farmers. Although the overall proportion of farms affected is usually low, the potential for suffering massive individual losses, especially near harvest time, is a major factor influencing the attitudes of rural communities (Naughton, Rose, & Treves, 1999; Hoare 2000).

There were also successes, innovations and model programmes. In essence, there was a rich history over the past three to four decades of attempts to ameliorate the negative side of human-elephant interactions across the continent.

This was a major step in the growth of the work of the HECWG because it provided an initial overview of the magnitude and extent of the problem. Complex as the findings may have been, they provided a baseline and an important place from which to begin the serious work of developing tools and methods to deal with HEC as and where it occurred. One of the products of this initiative was the development of a database on all documentation – both published and in the grey literature - on the topic. Each and every

document has been professionally abstracted and this collection now forms a subset of the larger African Elephant Bibliography that can be accessed through the website of the AfESG. See: <http://www.elephant.chebucto.ns.ca/>

Developing tools and products

a) Standardized Data Collection Protocols

In light of its growing prevalence over the past few decades, HEC has become an increasingly politicized issue; often times the real level of damage attributable to elephants, especially relative to other pest species, has become badly distorted and exaggerated by a very needy local populace looking for solutions to the overwhelming demands of their impoverished rural economies. In this atmosphere and in a time of rapidly growing democratization, reports of HEC often take on a political dimension at the local level and, not infrequently, at the national level as well. Newspapers across Africa are rife with reports of parliamentary debates on “the elephant menace”. Such circumstances present very real threats for the future of elephants and for any chance to find solutions allowing co-existence – peaceful or otherwise.

In the early stages, when the HECWG compiled information on HEC throughout the range states, it became obvious that the means and methods used to assess damage resulting from HEC were not in any way standardized. Management authorities were comparing apples and oranges and, not unexpectedly, coming up with pears. No information from any two places was comparable. In response to this, the HECWG began by focusing on the problem of standardizing assessment of damage. This led to the development and testing of our standardized data collection protocols and the training manual for village enumerators, which accompanies it. The data collection protocols are designed to be used at the local level by local players. The training is relatively straight forward and it is possible to also “train trainers” and transfer the approach from village to village with relative ease. The AfESG continues to actively distribute and disseminate the standardized protocols and enumerator training manual and both are readily available in French and English on the AfESG Website.

b) Spatial analysis utilizing satellite imagery and Geographical Information Systems

Due to the spatial complexities of HEC we decided that it was also necessary to begin to expand our spatial analyses of dynamics at the site level utilizing sophisticated GIS techniques. Partnering with staff and students of the Durrell Institute of Conservation and Ecology (DICE) at the University of Kent, we began our pilot study in Tsavo in Kenya and later added a second Kenyan site and a site each in Zambia and Guinea Conakry.

Through the construction of detailed base maps of the site, the process builds a clearer understanding of spatio-temporal factors, ecological, physical and anthropogenic, affecting and driving HEC. The idea was that by gaining a much broader picture of the key explanatory factors, it would be possible to develop more effective, site-specific solutions.

It is important to note that the technique is not a trivial undertaking. It is expensive and requires skilled GIS expertise to handle both the design and analytical approaches. This approach also requires trained individuals on the ground to supplement and “correct” the remote sensing images through in-depth ground-truthing. Such an approach cannot be

successful without strong staffing and collaboration between the field and the GIS laboratory, wherever it may be.

c) The Decision Support System (DSS)

Some time ago, the HECWG also began to grapple with the thorny issues of how to tackle the mitigation of incidents of HEC once identified and assessed. Over a period of several years, the HECWG compiled and catalogued the means and methods of mitigation currently in use, the circumstances of their use and the level of their effectiveness. This information then had to be turned into working knowledge. In other words, they had to work on a means to transfer this information and their expert interpretation to the practitioner in the field, wherever he or she may be and under whatever circumstances they may find themselves.

Our thoughts began to evolve around the idea of developing an "expert" system. The purpose of such systems is to allow practitioners to work through a logical sequence of questions in order to arrive at reasonable answers to the problem on the ground. It is not possible to describe every combination of factors in which HEC may take place and therefore, it was necessary for the system developed to respond to an infinite and indefinable constellation of factors rather than to provide "canned" answers. It was decided that rather than using an electronic platform, which few field practitioners could ever access, it would be more useful to put together a step-by-step process that allows the people at the site of the conflict to develop their own solutions to their own, specific problem. The outcome was our Decision Support System (Hoare, 2001a); also available in French, English and Portuguese and can be downloaded from <http://www.iucn.org/themes/ssc/sgs/afesg/hec/hectools.html>. The document has been widely distributed to practitioners in Africa and beyond.

In addition to our work on practical tools and products, two of the newest ideas currently under development and being instituted promote the transfer of responsibility for HEC mitigation from centralized wildlife agencies to local communities themselves, in both institutional and practical terms.

d) Conflict Resolution Committees (CRC's)

One of the most fundamental questions surrounding HEC is "whose responsibility is it?" Of course, the answer may vary between countries and sites but a new experience in several African countries has shown that a good way to begin the process of HEC mitigation is to form "conflict resolution committees" in affected areas. Once formed, these committees acknowledge the responsibility for HEC to be (a) mandated to and (b) shared by a local partnership of stakeholders. CRC's hear representations from all interested parties about incidents of HEC and, once provided with the relevant technical advice (which may be from an outside agency), take decisions through democratic processes. It should be a sustainable institution because it is likely to become the ONLY body responsible for the problem at the local level.

e) Adaptive, locally-developed, community-based mitigation techniques

A growing body of evidence suggests that subsistence farmers can greatly improve the success of their defences against problem elephants by combining improved co-operation in night-time vigilance with very simple low-cost fencing made from local

materials and supplementing these with the strategic deployment of low-tech olfactory repellents based on capsicum (chilli) (Osborn & Parker, 2002a, 2002b). This approach, whose early results are very encouraging, has been developed into a package by the Elephant Pepper Development Trust (EPDT) that rural African villages in elephant range can implement easily. See: <http://www.elephantpepper.org/downloads.html> . The AfESG is currently working with the EPDT to develop a comprehensive course curriculum and modules for training HEC managers on a wide range of community-based methods.

Testing Tools and Methods: Lessons learned

By necessity and for the most part, the development of all of the tools and methods described above has been of a pioneering nature. However, we have learned well that “necessity is the mother of invention” and this has provided impetus to our work. Throughout the development phases of our various tools and methods, we have employed a phased, pilot study approach. In addition to our constant collaboration with the wildlife management authorities, it has been extremely important to partner with conservation organizations, such as WWF International, the Wildlife Conservation Society and others, who have staff based at the site actively involved in applied research, management and mitigation of HEC. Although this step-by-step piloting of our tools and methods has often been the result of funding realities for such activities, it has not been all bad. Through trial and error all concerned have had an opportunity to learn, to create, to evolve and to adapt. We continue to do so.

Specific lessons on Tools and Methods

a) Use of Standardized Data Collection Protocols

Our standardized data collection protocols and enumerator training packages are increasingly being put to work in the field. At present, our collaborators include practitioners in all four of our African elephant sub-regions (West, Central, Southern and Eastern) as well as more recent expansion into South and Southeast Asia. The proactive dissemination of standardized protocols for measuring HEC at the site level has provided us with important feedback from our collaborators and has provided us with the following lessons:

- the use of standardized protocols for data collection has been a major step forward in judging the severity and extent of HEC at the site level, both within and between sites;
- A compromise between keeping such a system within manageable logistic limits (e.g. approximately 10 employees) and obtaining statistical validity from results could be achieved if the area fully covered was around 1500 km² (Sitati et al, 2003)
- the absence of trained enumerators, at the site, severely constrains use of this tool but the training of enumerators is possible and their employment is cost-effective;
- the supervisor of the enumerators is a critical player in making it all work without whom data continuity and quality rapidly declines;

- standardized protocols will always require some “adaptation” for local conditions but these should be limited to logistical not procedural changes to avoid the risk of reducing the inherent value of standardization;
 - data analysis for use in mitigation strategies can be done simply at a local level and does not depend on computer literacy;
 - the wider the use and application of the AfESG protocols, the greater our ability to modify them to meet the broadest spectrum of needs.
- b) Satellite Imagery Mapping*
- The lessons learned from this pilot project revealed that: GIS data should only be developed after the HEC monitoring process has begun at each site. It is only at this point that the boundary of the HEC site can be defined and the amount of time needed to produce the GIS data for each site can be calculated;
 - it may be difficult to obtain cloud-free Landsat 7 images of forest sites in West and Central Africa;
 - it was impossible to identify small-scale subsistence farms when they were surrounded by a matrix of grassland or areas affected by grazing and wood collection. This is particularly important given that many of these farms are in areas where HEC occurs;
 - where contour maps are not available it will not be possible to produce fine-scale and consistent Digital Elevation Models (DEMs), which are very important for spatial mapping of an HEC site; and in future, we must consider recommendations emanating from the additional applications of these techniques and consider improved or alternative methodologies.

c) Use of the Decision Support System (DSS)

Although we still consider use of our DSS to be in its infancy, we have already had valuable feedback from practitioners and managers in the field. This has provided us the following insights:

- the DSS can be of major help to national management authorities experiencing HEC in multiple sites across the country and although it is primarily designed to be used at the field manager level, it is also useful at various policy levels, in research studies, for potential financial donors and as a reference work on HEC;
- the DSS offers an important tool for managers in the field who have little contact with their own headquarters, let alone the outside world and, therefore, have to come up with their own solutions “on the spot” and often under conditions of extreme pressure from affected individuals and communities in which they also must live and work;
- even with the networking capacity of the AfESG, it has been difficult to ensure that copies of the DSS get to where they are most needed. While electronic transmission has been out of the question for the majority of sites, even the distribution of hard copies has presented significant problems. Despite hundreds of copies being produced and distributed by the AfESG, they have often been “captured” in headquarter offices of both management authorities and NGOs and often never get to the person in need;
- much more “testing” across a wide variety of sites is required to fine-tune the DSS and this is constrained by the distribution problems, above; and the DSS must be considered a “living product”, which can always benefit through use and

constructive feedback in an ever-adaptive fashion relying on practical trial and error by practitioners in the field.

d) Conflict Resolution Committees (CRC's)

Feedback on CRC's effectiveness is as yet limited but there has been widespread advance approval for the idea, something that is quite rare with new HEC mitigation proposals. Interestingly, the idea evolved separately in three countries. CRC's appear to be working well in those and are now being promoted and tried out in several others. Several early lessons include:

- In one case, the failure of a season's rains diminished the enthusiasm of the local CRC. When crop damage by elephants was low, their level of engagement declined; their interest was seemingly directly correlated to the severity and extent of HEC in the area.
- Experience to date suggests that CRC's should be restricted in size, with membership definitely unpaid and composed of the following types of people (with relevant additions or omissions to suit local conditions):
 - district administration personnel
 - local Wildlife Service and/or Forest Department officials
 - local farmers or community members
 - traditional leaders
 - assisting NGO representatives

Other key lessons learned

- There is very little evidence to suggest that levels of problem-animal activity are dependent on local elephant numbers or densities (Hoare, 2001b).
- Hoare (1999c) proposes 'a male behaviour hypothesis' to explain the irregular and unpredictable nature of HEC incidents. However, evidence does not support the premise that shooting crop-raiders is effective in the long run (Hoare, 2001b; Osborn, 1998) because of a so-called problem component in elephants – as problem elephants are removed, they are quickly replaced by others. Translocating elephants to another location, carries with it the risk of merely transferring the problem elsewhere or the animals may return to their former home ranges (Hoare, 2001b; Dublin & Niskanen (eds.), 2003).

General conclusions and next steps

After a decade of dedicated work on HEC, the AfESG has certainly gained some valuable insights. Feedback from our "clients" is key to the evolution of the tools and methods under development. With each and every input we receive, fine-tuning follows and effectiveness, hopefully, increases. Some general lessons learned include:

- the existence of a standing working group, such as the HECWG, has allowed both an internal and external connecting point for the exchange of views and experiences, as well as the building of capacity and collegiality which, in turn, promotes creativity, innovation and institutional memory over the long-term;
- to allow sustainable management of HEC situation, managers must be supported by clear policies and legal frameworks at the national level;

- integrated national land-use policy and planning that includes considerations for both people and elephants can go a long way towards reducing HEC;
- problem elephant management must have strong local participation and preferably be integrated with other elephant management activities;
- management authorities and practitioners on the ground should always aim to reduce the problem to tolerable levels rather than expect to eliminate the problem altogether
- quantification of direct elephant damage is relatively straightforward in comparison to gauging the intangible costs of living near the threat of elephants;
- levels of HEC often are **perceived** by the affected community to be much more severe than the actual level of the problem, as revealed by systematic gathering of information but it is the perception that is of primary concern for the management of the situation;
- mitigation involves using many apparently unrelated measures in a 'package' and working with both people and elephants;
- different mitigation methods used together produces 'synergy' and this is the ultimate aim;
- there are no miracles but coexistence between elephants and humans is possible;
- solutions will only be enduring where, on balance, “win-win” solutions can be found for people and elephants, alike. In fact, relatively high densities of elephants and people can co-exist if land transformation is not too widespread and if elephants are not subjected to high levels of deliberate disturbance and; lastly
- in all cases, this requires solid support from all levels of government, strong commitment on the part of wildlife management authorities, the development and implementation of integrated land-use plans, informed use of available tools and methods and a climate of trust between the diversity of negotiating parties on the ground.

Taken together these lessons point the way towards more sustainable long term strategies for managing HEC. In light of the many constraints faced by most African elephant range States today, it is unrealistic to expect the national wildlife management authorities to be able take care of HEC problems wherever they occur. The key to successful mitigation lies in enabling and empowering local people to take greater responsibility for the management of HEC problems. However, in the long term the focus must shift away from a purely reactive site-level approaches to more holistic strategies that tackle some of the “root causes” of conflict, such as poor land use planning and lack of benefits from elephants to those who bear most of the costs of living with them. This will require a number of technical, socio-economic and policy issues to be addressed simultaneously at site, district and national levels as components of an integrated national conflict mitigation programme. As a next step to improve the prospects for co-existence between people and elephants in Africa, the AfESG is investigating how such national integrated systems could be developed in two pilot countries, Burkina Faso and Tanzania.

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