

Human-Elephant Conflict Mitigation



A Training Course for Community-Based Approaches in Africa

Trainer's Manual

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Foreword

Human-elephant conflict (HEC) is a complex and pervasive problem that occurs throughout the range of the African elephant wherever elephants and people share the same habitat, often competing for the same resources. HEC is recognized by the IUCN Species Survival Commission's African Elephant Specialist Group (AfESG) as a major threat to the long-term survival of the species.

Recent case studies from across sub-Saharan Africa have shown that communal crop-protection efforts, using an integrated package of simple, low cost and locally-adapted deterrence methods can quickly and effectively reduce local levels of elephant damage. While this can help to reduce site-specific conflict to tolerable levels, sustainable management of HEC will also require measures, such as national land-use planning and policy changes to ensure that affected communities receive a greater share of the benefits and fewer costs from living with elephants. Thus, while the community-based conflict mitigation methods that are the focus of this training course constitute an important "first line of defense", long-term HEC mitigation needs to be supported by activities at higher levels.

Making extensive use of real-life examples and case studies, combined with a strong practical element, this training course aims to provide African wildlife managers and local residents with the basic tools needed for effective community-based HEC management. The course material has been developed by some of Africa's leading experts on HEC mitigation and covers all the essential topics in five comprehensive modules: 1. Responsibility for managing HEC; 2. Elephant behaviour & ecology in HEC situations; 3. Recording, reporting and analysis; 4. Overview of main mitigation measures currently in use and 5. Main steps in developing a community based HEC mitigation strategy. Taken together these modules are designed to equip HEC mitigation practitioners with the knowledge and skills needed to effectively manage conflict at the site level.

I am therefore pleased to give this course the official seal of approval as a "certified training product" of the AfESG.

A handwritten signature in blue ink that reads 'Holly T. Dublin'.

Dr. Holly T. Dublin
Chair
IUCN/SSC African Elephant Specialist Group

March 2007

Acknowledgements

We would like to acknowledge the support of WWF International who funded the development of this document. Sincere thanks also to the United States Fish and Wildlife Service and the UK Department for the Environment, Food and Rural Affairs for providing core funding to the Secretariat of the IUCN/SSC African Elephant Specialist Group during the development of this document.

Suggested citation

Parker G.E., Osborn, F.V., Hoare R.E. and Niskanen, L.S. (eds.) (2007): *Human-Elephant Conflict Mitigation: A Training Course for Community-Based Approaches in Africa*. Trainer's Manual. Elephant Pepper Development Trust, Livingstone, Zambia and IUCN/SSC AfESG, Nairobi, Kenya.

Downloading this course

The course is certified by the IUCN/SSC African Elephant Specialist Group and will be available for download from the following websites: African Elephant Specialist Group <http://iucn.org/afesg/hec>, Elephant Pepper Development Trust www.elephantpepper.org/downloads.html, and the World Wide Fund for Nature <http://www.panda.org/africa/elephants>.

Cover photo: Bull elephants crossing a fence, Sengwa, Zimbabwe. F. V. Osborn

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The Purpose of This Manual

This training manual is primarily designed to train African wildlife managers in human-elephant conflict (HEC) mitigation. This manual is designed to actively involve the participants in the learning process. In addition to trainer presentations there will be group discussions and participant presentations. With participants coming from many different backgrounds, it is anticipated that everyone will benefit from sharing conflict experiences.

There is a strong practical element to this training course, requiring participants to engage in a series of activities. These include measuring crop fields and damage areas and constructing mitigation measures such as fencing and chilli dung bricks. This practical experience is considered essential in gearing managers up to establish their own mitigation programmes. In addition, participants will gain experience of conducting practice interviews and will learn how to use a range of PRA techniques. HEC is mainly about people, and interacting with people is a critical component of any HEC mitigation programme.

Training Objectives

The specific objectives of this training programme are to ensure that participants are:

1. Trained as trainers in community-based human-elephant conflict mitigation techniques;
2. Competent with the theory and practice of community-based conflict mitigation methods;
3. Able to assess and compare the effectiveness of current conflict mitigation techniques; and,
4. Familiar with the history of human-elephant conflict.

Following the course it is anticipated that participants will be fully conversant in the following activities:

1. Training farmers in the concept of community-based HEC management and mitigation;
2. Establishing community-based HEC mitigation sites at suitable locations;
3. Monitoring and evaluating all HEC mitigation activities; and,
4. Adapting HEC mitigation methods to local conditions.

Manual Design

The training manual consists of 5 modules, each tackling a different topic of HEC mitigation. Each module follows the same structure, commencing with a brief introductory presentation outlining the purpose of the module and the key objectives. The bulk of each module consists of a combination of trainer presentations using PowerPoint and group discussions. Case studies are widely used and they are displayed in grey boxes within each module. A list of the key references used in each of the modules is supplied at the end of each section. Two of the modules have associated practical sessions which are detailed at the end of the relevant sections. Each module is summarized below.

1. What is Human Elephant Conflict and Whose Responsibility is it?

In this module we explore the types of human-elephant conflict (HEC) that occur and investigate their impacts upon rural communities. We discuss who has had responsibility for HEC management through history. By means of case studies we then examine current strategies for elephant management across Africa and identify the key problems facing elephant management.

2. Elephant Behaviour and Ecology in Conflict Situations

In this module elephant ecology and behaviour is explored in order to further our understanding of HEC. Elements of elephant habitat selection, distribution, diet and social structure are presented and discussed in the context of elephant conflict, in order to help explain the patterns of crop damage that occur. Understanding the behaviour of crop-raiding elephants will assist in the development of effective mitigation measures.

3. Mitigation Measures used in HEC

In this module we review the HEC mitigation measures currently in use across Africa today. Individual mitigation methods are critiqued and key problems are identified. While these measures reduce the impact of conflict upon rural farmers, they suffer from logistical failings and usually require intervention from wildlife authorities or expertise and financial support from NGOs. Community-Based Conflict Mitigation (CBCM) is a new approach which helps to overcome these failings. CBCM enables rural farmers to address their own conflict issues using a range of low-cost and effective methods that farmers administer themselves. The core methods are presented here. Finally, long-term methods for conflict mitigation are discussed, including land-use planning and generating benefits from wildlife through community-based conservation.

4. The Importance of Recording, Reporting and Analysis of Problem Incidents

In this module we give an overview of recording, reporting and analysis of HEC incidents. We first define qualitative and quantitative data types and identify the positives and negatives of using each system. We then present methods for the monitoring of HEC using both qualitative and quantitative means. Guidance for field work is given and a suggested template for data collection is provided. Finally, we explore the analysis of data for annual reports and for more advanced requirements.

5. Developing Community-Based HEC Mitigation

This final module explains how to go about implementing an HEC mitigation project using CBCM methods. There are several stages, commencing with a pilot survey of current HEC methods, which leads into the selection of methods suitable for your area. Following this we describe the criteria for selecting demonstration sites and the procedure for showcasing the CBCM methods to communities. Finally, we discuss the impacts of conflict upon rural livelihoods and look into options for small enterprise development.

The modules are designed to provide flexibility in planning, conducting, and evaluating the training course. The curriculum is designed to allow trainers to formulate their own training schedule, using this manual as a template. Training references and resource materials for trainers are identified at the beginning of each module.

Course Timing

The course will take 5 days to deliver. A suggested timetable is detailed below:

Day 1: Arrive and registration. Introduction and pre-course evaluation (30 mins).

Day 2 a.m.: Module 1 theory (3 hours 40 mins)

Day 2 p.m.: Modules 2 theory (1 hour 40 mins) and 3 (2 hours)

Day 3 a.m.: Module 4 theory (2 hours 50 mins)

Day 3 p.m.: Practical Exercise 1 (3 hours)

Day 4 a.m.: Practical Exercise 2 (2 hours)

Day 4 p.m.: Module 5 theory (2 hours 30 mins) and Practical Exercise 3 (1 hour)

Day 5 a.m.: Practical Exercise 4 (3 hours) Debrief and post-course evaluation.

Trainer's Manual

The Trainer's Manual provides guidance to the trainer on teaching methods and content delivery. The manual is broken down into the five modules. At the beginning of each module the objectives, methodology, major references and training material, resource requirements and the time required are all detailed.

Each module is broken down into 3-5 specific objectives. Each objective has a separate table with two columns:

1. **Content**, which contains the necessary technical information and key points that should be covered in each session. These serve purely as a guideline and the trainer should read the Participant's modules FULLY to ensure that all points are covered.
2. **Training Methods**, which contains the training methodology (lecture, role play, discussion, etc.) by which the information should be conveyed.

Participant's Manual

The participant's manual contains all the background and technical information to be covered by the course.

Participant Evaluation

The course is evaluated by each participant according to the amount they feel they have learnt during the training. The assessment is conducted using a form that the participants fill in both at the very beginning of the course and at the end. The participant assesses their knowledge on a series of questions about human-elephant conflict and its mitigation. Each form is anonymous, as it is not the intention to assess individuals, but rather to evaluate the course as a whole. The form is displayed at the end of this manual.

Advice for Training

Things to do:

- maintain good eye contact
- prepare each session in advance
- use visual aids
- speak loudly and clearly
- encourage questions and participation
- recap at the end of each session
- bridge one topic to the next
- write clearly and boldly
- summarize each module
- use good time management
- Keep It Simple
- keep the group on focused on the task
- provide clear instructions and check to see if your instructions are understood
- be patient

Things to avoid:

- Don't talk to the flip chart
- Don't block the visual aids
- Don't stand in one spot--move around the room
- Don't ignore the participants' comments and feedback (verbal and non-verbal)
- Don't read from curriculum
- Don't shout at participants

The Organisations Involved in this Manual

Elephant Pepper Development Trust

The Elephant Pepper Development Trust aims to promote the livelihoods of rural farmers living in elephant range through training, the deployment of appropriate conflict mitigation methods and development of agricultural techniques which promote elephant conservation.

Since 1997 Elephant Pepper Development Trust has engaged with rural communities in Zimbabwe to develop practical solutions to conflict with elephants. It has pioneered the use of community-based methods for crop protection, using chilli and a range of locally appropriate techniques that help farmers solve their own problems.

Today Elephant Pepper works in seven African countries and runs training courses in conflict management for African elephant managers. For more details please visit our website at: www.elephantpepper.org

African Elephant Specialist Group (AfESG)

The The World Conservation Union (IUCN) Species Survival Commission's AfESG is one of the most active of the +100 taxonomic Specialist Groups of the Species Survival Commission (SSC). The SSC is the largest of the six commissions of the World Conservation Union (IUCN). It is the mission of the AfESG to promote the long-term conservation of Africa's elephants throughout their range.

Recognizing human-elephant conflict (HEC) as a major conservation priority, the AfESG established in 1996 a five person Human Elephant Conflict Task Force (HECTF) to carry out research into and develop "tools" for the management of HEC in Africa. Since that time the HECTF, subsequently renamed the Human Elephant Conflict Working Group, has produced numerous reports, technical briefs and practical guidelines on HEC. These products include a comprehensive Decision Support System for HEC managers, a standardized data collection protocol and accompanying manual for training local enumerators, a review of compensation schemes for elephant damage, review of problem elephant policies and management options, technical briefs on the use of fencing and other barriers, plus numerous case studies from across the continent. Most products are available in French, English and Portuguese as free PDF downloads from the AfESG's website: <http://iucn.org/afesg/hec>

World Wide Fund for Nature (WWF)

WWF is one of the world's largest and most experienced independent conservation organizations, with almost 5 million supporters and a global network active in more than 100 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable

- promoting the reduction of pollution and wasteful consumption.

In 2000 WWF launched a new African Elephant Programme. Building on 40 years of experience in elephant conservation, WWF's new initiative supports strategic field interventions to help guarantee a future for this threatened species. WWF's elephant projects focus on: improving wildlife policies and legislation; conserving elephant habitat; reducing illegal killing of elephants and the illegal trade in elephant products; reducing human-elephant conflict; improving the livelihoods of people living alongside elephants; and increasing public support for elephant conservation. <http://www.panda.org/africa/elephants>

Introduction to Course

CONTENT	Training Methods
<p>Introduction</p> <p>The purpose of this course is to train wildlife managers to mitigate human-elephant conflict using community-based approaches</p> <p>The specific objectives of this training programme are to ensure that participants are:</p> <ul style="list-style-type: none">• Trained as trainers in community-based human-elephant conflict mitigation techniques;• Competent with the theory and practice of community-based mitigation methods;• Able to assess and compare the effectiveness of current conflict mitigation techniques; and,• Familiar with the history of human-elephant conflict. <p>Following the course it is anticipated that participants will be fully conversant in the following activities:</p> <ul style="list-style-type: none">• Training farmers in the concept of community-based HEC management and mitigation;• Establishing community-based HEC mitigation sites at suitable locations;• Monitoring and evaluating all HEC mitigation activities; and,• Adapting HEC mitigation methods to local conditions. <p>There are 5 modules:</p> <ol style="list-style-type: none">1. What is Human Elephant Conflict and Whose Responsibility is it?2. Elephant Behaviour and Ecology in Conflict Situations3. Mitigation Measures used in HEC4. The Importance of Recording, Reporting and Analysis of Problem Incidents5. Developing Community-Based HEC Mitigation <p>Training methods will include:</p> <ul style="list-style-type: none">• Trainer presentations	<p>Introduction (30 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Introduce themselves• Ask each participant to introduce themselves• Describe the purpose, training objectives and specific learning objectives of the course• Describe the modules in turn• Explain the type of training methods• Emphasize the necessity for participants (Px) to participate fully in training discussions and exercises.• Discuss Px expectations of the training.

- Group discussions
- Participant presentations
- Reading material
- Practical exercises

Training evaluation

- Pre-and post-test

Training evaluation (20 mins)

The trainer should:

- Inform the Px of the purpose and evaluation of the module pre-test.
- Explain that the post-test will be an opportunity to demonstrate knowledge gained in the course.
- Administer the test.

Module 1

What is Human-Elephant Conflict and Whose Responsibility is it?

Introduction

In this module we explore the types of human-elephant conflict (HEC) that occur and investigate their impacts upon rural communities. We then discuss who has had responsibility for HEC management through history. By means of case studies we then examine current strategies for elephant management across Africa and identify the key problems facing elephant management.

Module Training Objectives

The main objectives are to:

1. Define HEC and direct and indirect conflict
2. Present the history of responsibility for HEC in Africa
3. Review existing policies on HEC at a regional and a national scale
4. Draw common problems and needs for HEC policy

Specific Learning Objectives

By the end of the module participants will be able to:

1. Define HEC and categories it in terms of its impact upon communities;
2. Understand who is responsible for HEC management in selected countries;
3. Identify key problems with national and regional HEC legislation and define what is needed in the future.

Training Methodology

- Trainer Presentation
- Class discussion
- Required Reading

Selected References

Barnes, R.F.W. (1996): The conflict between humans and elephants in the central African forests. *Mammal Review* 26: 67-80.

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.

Hoare, R.E. (1999): Determinants of human-elephant conflict in a land-use mosaic. *J. Appl. Ecol.* 36 (5): 689-700.

IUCN (2005): Central African Elephant Conservation Strategy

Naughton, L. Treves, A. & Rose, R. (1999): *The social dimensions of human-elephant conflict in Africa: a literature review and case studies from Uganda and Cameroon*. IUCN African Elephant Specialist Group, Gland, Switzerland.

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.

Taylor, R.D. (1999): A review of problem elephant policy and management in Southern Africa. *AfESG Human-Elephant conflict Task Force report*. IUCN SSC African Elephant Specialist Group, Nairobi, Kenya.

Wildlife Division (2000): Strategy for the Conservation of Elephants in Ghana. Wildlife Division Forestry Commission P. O. Box M239 Accra – Ghana.

Resource Requirements

- White board
- Marking pens
- PowerPoint projector and Laptop

Time Required

3 hours 40 minutes

Module 1: Introduction

CONTENT	Training Methods
<p>Introduction to Module 1</p> <p>The purpose of this module is to provide a basic framework and understanding of what types of human elephant conflict exist and what policies are in place around Africa to address it.</p> <p>The main objectives are to:</p> <ol style="list-style-type: none">5. Define HEC and direct and indirect conflict6. Present the history of responsibility for HEC in Africa7. Review existing policies on HEC at a regional and a national scale8. Draw common problems and needs for HEC policy <p>By the end of the module participants will be able to:</p> <ol style="list-style-type: none">1. Define HEC and categories it in terms of its impact upon communities;2. Understand who is responsible for HEC management in selected countries;3. Identify key problems with national and regional HEC legislation and define what is needed in the future.	<p>Trainer presentation (10 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Present the purpose and objectives of Module 1.
	<p>Participant presentations (90 mins)</p> <p>The participants should:</p> <ul style="list-style-type: none">• Give a presentation on the location, human and physical geography of their study area, detailing elephant problems and current HEC mitigation.

Objective 1: Define Human Elephant Conflict

CONTENT	Training Methods
<p>Background to HEC</p> <ul style="list-style-type: none"> • Many species of wild animals consume crops in Africa and elephants are often not the worst offender • Problem animal control has historically contributed to the local extinction of many elephant populations • People and elephants increasingly come into conflict because of shrinking habitat and increasing elephant populations. • Conflict has both direct and indirect costs for rural Africans • Most African countries do not have an adequate policy to address conflict in a comprehensive manor. <p>Direct and Indirect Conflict</p> <ul style="list-style-type: none"> • Define direct conflict and give examples: <ul style="list-style-type: none"> ○ Crop damage ○ Human death and injury ○ Damage to property • Define indirect conflict & give examples: <ul style="list-style-type: none"> ○ Fear of movement ○ Collection of resources ○ Competition for resources 	<p>Trainer Presentation (15 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Briefly discuss the key messages. • Stress them as the major concepts underlying entire course • List keywords from messages on the flip chart as introduced. <p>Trainer presentation (15 mins)</p> <ul style="list-style-type: none"> • Trainer introduces indirect and direct forms of conflict with examples of each

Objectives 2 & 3: History and Current Responsibility for HEC in Africa

CONTENT	Training Methods
<p>History of responsibility for HEC</p> <ul style="list-style-type: none"> • Colonial policies on HEC • Currently responsibility rests with Central Gov't • However, increasingly decentralized approaches <p>Current strategies for managing HEC in Africa</p> <ul style="list-style-type: none"> • Central African Elephant Conservation Strategy • Ghana's elephant conservation strategy • Elephant Management Policy in Southern Africa • Namibia's Elephant Management Strategy 	<p>Trainer Presentation (15 mins) The trainer should:</p> <ul style="list-style-type: none"> • Describe historical policies on HEC and current situation <p>Trainer presentation (30 mins) The trainer should:</p> <ul style="list-style-type: none"> • Present each country / region elephant strategy in turn • Summarise problems for each strategy • Identify needs for each strategy

Objective 4: Common Problems and Needs of Current Elephant Policy

CONTENT	Training Methods
<p>Key problems with legislation:</p> <ul style="list-style-type: none"> • Lack of legislation • Poor response times • Lack of information • Ineffective methods • Low capacity • Few resources allocated <p>Key needs for National strategies</p> <ul style="list-style-type: none"> • Development of clear legislation • Decentralisation • New methods • Collaboration with other countries • More resources • Development of CBC programmes • LUP • Increased awareness 	<p>Group discussion (15 mins) The trainer should:</p> <ul style="list-style-type: none"> • Facilitate a discussion on the key problems with current elephant strategies • Develop a list of problems; ensure that all key points are covered. <p>Group discussion (30 mins) The trainer should:</p> <ul style="list-style-type: none"> • Facilitate a discussion on the key needs for National strategies • Establish a list of key needs, ensuring all points are covered • Get Px to discuss their views on centralized vs. decentralized HEC management

Module 2

Elephant Behaviour and Ecology in HEC situations

Introduction

In this module elephant ecology and behaviour is explored in order to further our understanding of HEC. Elements of elephant habitat selection, distribution, diet and social structure are presented and discussed in the context of elephant conflict, in order to help explain the patterns of crop damage that occur. Understanding the behaviour of crop-raiding elephants will assist in the development of effective mitigation measures.

Module Training Objectives

The main objectives are to:

1. Identify key elements of elephant behaviour and ecology
2. Describe major patterns of crop damage including spatial, temporal and types of crops affected
3. Relate patterns of crop damage to established behaviour

Specific Learning Objectives

By the end of the module participants will be able to:

1. Describe the key elements of elephant behaviour and ecology
2. Identify the major patterns of crop damage
3. Determine the influence of elephant behaviour upon certain crop raiding practices.

Training Methodology

- Trainer Presentation
- Class discussion
- Required Reading

Selected References

Barnes, RFW (1982): Mate-searching behaviour of elephant bulls in a semi-arid environment. *Animal Behaviour* 30: 1217-1223.

Bell, RHV (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

Hoare, RE & du Toit, JT (1999): Coexistence between people and elephants in African savannas. *Conservation Biology* 13, No. 3: 633-639.

Parker GE (2006): The Costs and Benefits of Elephants: Communities and the CAMPFIRE Programme in Zimbabwe. *PhD Thesis*, University of Kent, UK.

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

Poole, J.H. (1996): The African elephant. In: *Studying Elephants*. Kangwana, K. (ed), 1-8. AWF technical handbook 7, Nairobi, Kenya.

Wyatt, J.R. & Eltringham, S.K. (1974): The daily activity of elephants in the Rwenzori National Park, Uganda. *E. Afr. Wildl. J.* 12: 273-289.

Resource Requirements

- White board
- Marking pens
- PowerPoint projector and laptop

Time Required: 1 hour 40 minutes

Module 2: Introduction

CONTENT	Training Methods
<p>Review of Module 2</p> <p>The purpose of this module is to provide a basic framework and understanding of elephant ecology and behaviour and how this influences crop-raiding patterns.</p> <p>The main objectives are to:</p> <ul style="list-style-type: none"> • Identify key elements of elephant behaviour and ecology • Describe major patterns of crop damage including spatial, temporal and types of crops affected • Relate patterns of crop damage to established behaviour <p>By the end of the module participants will be able to:</p> <ul style="list-style-type: none"> • Describe the key elements of elephant behaviour and ecology • Identify the major patterns of crop damage • Determine the influence of elephant behaviour upon certain crop raiding practices. 	<p>Trainer Presentation: (20 mins.)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Discuss the purpose and main objectives of Module 2 • Emphasize the necessity for Px to participate fully in training discussions and exercises.

Objective 1: Identify Key Elements of Elephant Behaviour and Ecology

CONTENT	Training Methods
<p>Key Messages</p> <p>Describe major patterns of elephant ecology and behaviour, including:</p> <ul style="list-style-type: none"> • Versatility of elephants and their range of occupied habitats • Elephant distribution • Impact of human activities • Elephants and water • Social structure • Differences between males and females in relation to home range 	<p>Trainer Presentation/group discussion: (20 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Briefly discuss the key messages. • Display a map of elephant distribution across Africa. • Discuss general behaviour patterns and ask Px why they think these patterns exist

Objectives 2 &3: Describe Major Patterns of Crop Damage and Relate Them Back to Established Patterns of Behaviour

CONTENT	Training Methods
<p>Key Messages</p> <p>Describe major patterns of crop damage, including:</p> <ul style="list-style-type: none"> • Spatial patterns – edge of protected areas • Temporal patterns – peaks of activity • Crops targeted by elephants • The difference between wet and dry season damage <p>Explore the link between the above crop damage patterns and elephant behaviour:</p> <ul style="list-style-type: none"> • Elephants raid crops at the edge of refuges to minimise risk • Elephants may use habitat refuges during the day from which to raid crops at night. • There is a peak of crop-raiding activity that coincides with the maturing of crops • Elephants are able to damage a wide variety of crops because their own diet is very broad • Elephant crop-raiding is usually nocturnal to avoid detection, and because this fits their usual pattern of feeding activity 	<p>Trainer Presentation / group discussion (60 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Briefly describe the key patterns of crop damage. • List key patterns of crop damage on the flip chart as introduced. • Display temporal peaks of activity as a graph • Promote a group discussion to explain the patterns of crop damage displayed • Ensure the key explanatory points opposite are covered

Module 3

Mitigation Methods Used in HEC

Introduction

In this module we review the HEC mitigation measures in use across Africa today. Individual mitigation methods are critiqued and key problems are identified. A community-based conflict mitigation strategy which overcomes logistical and resource problems, is described. Community-Based Conflict Mitigation (CBCM) is an approach that enables rural farmers to tackle their own conflict issues. CBCM consists of practical methods for crop protection that are both inexpensive and locally available. They are designed to be implemented by communities with limited resources, without the need for outside assistance. Finally, while not the focus of this module, a number of long-term community-based conflict mitigation measures are also discussed.

Module Training Objectives

The main objectives are to:

1. Review the variety of methods employed by farmers in Africa and Asia to defend their crops from elephants.
2. Introduce CBCM and explain how this approach addresses key problems in HEC mitigation.
3. Introduce the Decision Support System (DSS) and long term community-based mitigation strategies.
4. Present long-term community-based strategies for conflict mitigation.

Specific Learning Objectives

By the end of the module participants will be able to:

1. Describe the variety of conflict mitigation approaches;
2. Understand key problems with HEC mitigation, e.g. elephant habituation;
3. Explain the rationale for CBCM; and,
4. Describe long term community-based mitigation strategies.

Training Methodology

- Trainer Presentation
- Class discussion
- Required Reading
- Hand out “Long Term Community-Based HEC Mitigation Strategies”.

Selected References

Hoare RE (1995) Options for the control of elephants in conflict with people. *Pachyderm* (19): 54-63.

Hoare, RE (2001) Management implications of new research on problem elephants. *Pachyderm* 30: 44-48.

Hoare, RE (2001): *A Decision-Support System for Managing Human-Elephant Conflict Situations in Africa*. IUCN/SSC AfESG, Nairobi, Kenya.

IUCN/SSC AfESG Guidelines for the *in-situ* Translocation of the African Elephant for Conservation Purposes: <http://www.iucn.org/themes/ssc/sgs/afesg/tools/trnsgden.htm>

O’Connell-Rodwell, CE Rodwell, T Rice, M & Hart, LA (2000) Living with the modern conservation paradigm: Can agricultural communities co-exist with elephants? A five-year case study in east Caprivi, Namibia. *Biological Conservation* 93 (3), 381-391.

Osborn, FV & Parker GE (2002) Community-based methods to reduce crop loss to elephants: experiments in the communal lands of Zimbabwe. *Pachyderm* (33), July-December 2002 pg 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.

Thouless, CR (1994) Conflict between humans and elephants on private land in northern Kenya. *Oryx*, 28:119-127.

Sitati, N.W. & Walpole, M.J. (2006) Assessing farm-based measures for mitigating human-elephant conflict in Transmara District, Kenya. *Oryx* 40 (3): 279-286.

Resource Requirements

- White board
- Marking pens
- Powerpoint projector and laptop
- Document “Long Term Community-Based HEC Mitigation Strategies”

Time Required

2 hours

Module 3: Introduction

CONTENT	Training Methods
<p data-bbox="250 367 597 401">Introduction to Module 3</p> <p data-bbox="250 443 927 548">The purpose of this module is to provide a basic framework and understanding of mitigation methods employed by farmers across Africa.</p> <p data-bbox="250 590 597 623">The main objectives are to:</p> <ul data-bbox="302 632 971 997" style="list-style-type: none">• Review the variety of methods employed by farmers in Africa and Asia to defend their crops from elephants.• Introduce CBCM and explain how this approach addresses key problems in HEC mitigation• Introduce the DSS and long-term HEC mitigation methods• Present long-term community-based strategies for conflict mitigation. <p data-bbox="250 1039 927 1073">By the end of the module participants will be able to:</p> <ul data-bbox="302 1081 971 1333" style="list-style-type: none">• Describe the variety of conflict mitigation approaches;• Understand key problems with HEC mitigation, e.g. elephant habituation;• Explain the rationale for CBCM; and,• Describe long-term strategies for HEC mitigation.	<p data-bbox="990 367 1409 401">Trainer Presentation (15 mins)</p> <p data-bbox="990 443 1235 476">The trainer should:</p> <ul data-bbox="1042 485 1461 632" style="list-style-type: none">• Discuss the purpose and main objectives of module 3• Encourage all participants to participate in discussions

Objective 1: Review Current HEC Mitigation Methods

CONTENT	Training Methods
<p>Review of current HEC mitigation measures</p> <ol style="list-style-type: none">1. Traditional deterrents2. Conventional deterrents<ul style="list-style-type: none">• Disturbance shooting• Non-electric fencing• Electric fencing• Translocation• Shooting problem elephants3. Experimental deterrents<ul style="list-style-type: none">• Alarm systems• Acoustic deterrents• Barrier systems• Olfactory deterrents	<p>Trainer presentation (30 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Briefly review each group of HEC methods, giving examples of each type
<p>Problems with current approaches</p> <ul style="list-style-type: none">• Expensive materials• Slow response• Dependency on outside help• Habituation to empty threats• Labour-intensive	<p>Group discussion (15 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Initiate a class discussion on HEC mitigation. Participants should be asked what methods are used within their own areas and what problems are experienced.• Write a list of methods and current problems.

Objective 2: Introduce CBCM and Describe Rationale

CONTENT	Training Methods
<p>Community-Based Conflict Mitigation</p> <p>The concept of CBCM came about from the realisation that rural communities could not rely upon outside agencies to solve their conflict problems, but equally their own traditional methods of conflict mitigation were weak and vulnerable to habituation. Thus CBCM is a series of effective, low cost HEC mitigation techniques that rural farmers can administer as and when they require.</p> <p>The rationale for CBCM</p> <ol style="list-style-type: none">1) Inexpensive2) Effective3) Decentralised4) Locally available5) Adaptable6) Variable <p>Introduce the CBCM tool box for managers:</p> <p>Increased vigilance</p> <ul style="list-style-type: none">• Guarding fields• Alarm systems <p>Barrier deterrents</p> <ul style="list-style-type: none">• Simple fencing• Chilli Grease <p>Active deterrents</p> <ul style="list-style-type: none">• Noise makers• Chilli bricks <p>Summarise the important points of CBCM:</p> <ul style="list-style-type: none">• CBCM enables rural farmers to tackle their own conflict problems without needing outside help.• Farmers will need to actively guard their crops• CBCM methods should be used in combination.• CBCM is NOT a silver bullet that will solve conflict completely. However, it will help to reduce the impact of elephant crop damage.• CBCM should complement existing mitigation approaches.• Diversification and development of new tools is to be encouraged at all CBCM sites.	<p>Trainer Presentation (30 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Introduce CBCM• Describe the rationale of CBCM• Introduce and describe the tools for managers• Summarise the key points of CBCM

Objective 3: Introduce DSS and Long Term Community-Based HEC Mitigation Strategies

CONTENT	Training Methods
<p>The DSS</p> <p>Determining what works best in a given HEC situation:</p> <p>Introduction to the Decision Support System (DSS)</p> <ul style="list-style-type: none"> • HEC information • Options for HEC mitigation • Common principles of HEC • Critique of HEC methods • Development of a management plan 	<p>Trainer Presentation (30 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Introduce the participants to the DSS and run through the key points • Inform participants of where the document is available
<p>Long term HEC mitigation strategies</p> <ul style="list-style-type: none"> • Land use planning • Offsetting the costs of conflict • Compensation schemes • Community insurance schemes • Benefits from wildlife 	<p>The trainer should:</p> <ul style="list-style-type: none"> • Introduce the concept of long-term HEC mitigation strategies • Present participants with the document “Long Term Community-Based HEC Mitigation Strategies”.

Module 4

Recording, Reporting and Analysis of Problem Incidents

Introduction

In this module we give an overview of recording, reporting and analysis of HEC incidents. We first define qualitative and quantitative data types and identify the positives and negatives of using each system. We then present methods for the monitoring of HEC using both qualitative and quantitative means. Guidance for field work is given and a suggested template for data collection is provided. Finally, we explore the analysis of data for annual reports and for more advanced requirements.

Module Training Objectives

The main objectives are to:

1. Outline why monitoring is important for managing conflict
2. Describe quantitative and qualitative data and discuss relative merits in relation to HEC
3. Present methods for quantitative HEC data collection
4. Present methods for collecting qualitative data on HEC
5. Present methods for data analysis

Specific Learning Objectives

By the end of the module participants will be able to:

- 1) Determine the importance and merits of different types of HEC monitoring
- 2) Implement a HEC monitoring programme incorporating qualitative and quantitative data collection
- 3) Summarize HEC data into an annual report
- 4) Present an advanced analysis to stakeholders and NGOs

Training Methodology

- Trainer Presentation
- Class discussion
- Required Reading

Selected References

Hoare, RE (2001): *Data collection and analysis protocol for human-elephant conflict situations in Africa*. IUCN/SSC AfESG, Nairobi, Kenya. <http://www.iucn.org/themes/ssc/sgs/afesg/hec/hectools.html>

Hoare, RE (2002): *A training package for enumerators of elephant damage*. IUCN/SSC AfESG, Nairobi, Kenya. <http://www.iucn.org/themes/ssc/sgs/afesg/hec/hectools.html>

Naughton-Treves, L. (1998) Predicting patterns of crop damage by wildlife around Kibale National Park, Uganda. *Conservation Biology*, 12(1):156-168.

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

Parker GE (2006): *The Costs and Benefits of Elephants: Communities and the CAMPFIRE Programme in Zimbabwe*. *PhD Thesis*, University of Kent, UK.

Resource Requirements

- White board
- Marking pens
- Powerpoint projector and laptop

Time Required

2 hours 50 minutes theory

5 hours practical

Module 4: Introduction

CONTENT	Training Methods
<p data-bbox="250 415 522 447">Review of Module 4</p> <p data-bbox="250 489 946 594">The purpose of this module is to provide a basic framework and understanding of how to report, record and analyse problem incidents.</p> <p data-bbox="250 636 597 667">The main objectives are to:</p> <ul data-bbox="298 678 941 1014" style="list-style-type: none"><li data-bbox="298 678 862 741">• Outline why monitoring is important for managing conflict<li data-bbox="298 751 930 814">• Describe quantitative and qualitative data and discuss relative merits in relation to HEC<li data-bbox="298 825 894 888">• Present methods for quantitative HEC data collection<li data-bbox="298 898 941 961">• Present methods for collecting qualitative data on HEC<li data-bbox="298 972 781 1014">• Display methods for data analysis <p data-bbox="250 1056 930 1087">By the end of the module participants will be able to:</p> <ul data-bbox="298 1098 938 1381" style="list-style-type: none"><li data-bbox="298 1098 862 1161">• Determine the importance and merits of different types of HEC monitoring<li data-bbox="298 1171 938 1266">• Implement a HEC monitoring programme incorporating qualitative and quantitative data collection<li data-bbox="298 1276 902 1308">• Summarize HEC data into an annual report<li data-bbox="298 1318 919 1381">• Present an advanced analysis to stakeholders and NGOs	<p data-bbox="990 415 1425 447">Trainer Presentation: (20 mins)</p> <p data-bbox="990 489 1235 520">The trainer should:</p> <ul data-bbox="1039 531 1450 741" style="list-style-type: none"><li data-bbox="1039 531 1450 594">• Discuss the main objectives of Module 4<li data-bbox="1039 604 1450 741">• Emphasize the necessity for Px to participate fully in training discussions and exercises.

Objective 1: Why Monitoring is Important

Content	Training methods
<p>Why Monitoring is Important</p> <ul style="list-style-type: none"> • Lots of HEC studies exist but it is difficult to compare results • Need for a standardized data collection protocol • Conflict is an emotive topic – need objective data • Need to capture both physical damage and wider indirect impacts of HEC 	<p>Trainer Presentation: (20 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Discuss the key messages. • Stress them as the reason for needing HEC monitoring • List keywords from messages on the flip chart as introduced.

Objective 2: Discuss Quantitative and Qualitative Data & Relative Merits

Content	Training methods
<p>Data Collection</p> <p>Quantitative data</p> <ul style="list-style-type: none"> • Definition • Examples of quantitative data • Critique quantitative data <p>Qualitative data</p> <ul style="list-style-type: none"> • Definition • Examples of qualitative data • Critique qualitative data 	<p>Trainer Presentation/group discussion: (30min)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Introduce and define each type of data • Ask Px for examples of each data type • Go through presented examples of each data type • Present a critique of each data type

Objective 3: Present Methods for Quantitative Data Collection

Content	Training methods
<p>Key Messages</p> <p>Quantitative data collection</p> <ul style="list-style-type: none"> • Crop damage reporting form <ul style="list-style-type: none"> ○ Report details ○ Crop information ○ Estimated field size ○ Estimated damage area ○ Elephant assessment • A strategy for quantitative data collection <ul style="list-style-type: none"> ○ Defining your study area ○ Deciding upon reporting coverage ○ Selecting enumerators ○ Identifying enumerator’s report areas 	<p>Trainer Presentation: (30min)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Describe quantitative data collection by going through each section of the crop damage assessment sheet in detail • Refer to practical exercise on crop damage assessment – to be conducted at the end of this module • Discuss the strategy for data collection.

Objective 4: Present Methods for Qualitative Data Collection

Content	Training methods
<p>Qualitative Data Collection</p> <p>Qualitative data collection:</p> <ul style="list-style-type: none"> • SSI interviews • Ranking methods <ul style="list-style-type: none"> ○ Direct ○ Pairwise ○ Matrix • Advice for community training 	<p>Trainer Presentation/group discussion (30min)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Describe the methods of qualitative HEC assessment in turn • Discuss different criteria for matrix ranking of problem animals • Go through advice for community training point-by-point and discuss • Refer to practical exercise on crop damage assessment – to be conducted at the end of this module

Objective 5: Present Methods for Data Analysis

Content	Training methods
<p>Rationale for Data Analysis</p> <p>Analysing data is important because:</p> <ul style="list-style-type: none"> • Enables summary of data • Displays patterns and trends • Helps to disseminate information to interested parties <p>Annual summary of conflict data:</p> <ul style="list-style-type: none"> • Area worst affected • Timing of crop damage • Which crops affected • How severe is damage <p>Advanced data analysis:</p> <ul style="list-style-type: none"> • Rationale for advanced data analysis • Quantitative data analysis <ul style="list-style-type: none"> ○ Frequency vs. area ○ Age class of crops ○ Group size of elephants 	<p>Trainer Presentation/group discussion: (40min)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Ask Px why they think data analysis is important • Go through importance of data analysis <p>The trainer should:</p> <ul style="list-style-type: none"> • Present key points of annual summary using relevant maps, graphs and tables. <p>The trainer should:</p> <ul style="list-style-type: none"> • Present key points of ‘advanced data analysis’ using relevant maps, graphs and tables.

Practical Exercises

Two practical exercises will be conducted in conjunction with this module:

Exercise 1: Crop Damage Reporting. This practical exercise will be held in fields in which actual crop damage has recently occurred. If no crop damage has recently occurred, a simulation can be set up. The exercise will involve questioning the farmer about the incident, gaining background knowledge on the location and time of incident. It will also involve measuring the field and quantifying the extent of the damage and evaluating the number of elephants responsible. Time required: 3 hours (approx.).

Exercise 2: PRA Interview Techniques. PRA interview techniques will be practiced in groups at the site of the training. Px will practice all qualitative crop damage reporting techniques, including asking questions about different types of crop damage, using different ranking methods to prioritise problem animals and conflict issues, and triangulating the methods used. Time required: 2 hours (approx.).

Module 5

Developing Community-Based HEC Mitigation

Introduction

This final module explains how to go about implementing an HEC mitigation project. There are several stages, commencing with a pilot survey of current HEC methods, which leads into the selection of methods suitable for your area. Following this we describe the criteria for selecting demonstration sites and the procedure for demonstrating the new CBCM methods. Finally, we discuss the impacts of conflict upon rural livelihoods and look into small enterprise development.

Module Training Objectives

The main objectives are to:

1. Research the HEC mitigation methods suitable for your site
2. Select a suitable combination of methods to implement
3. Locate and establish a demonstration site
4. Explore means of developing alternative livelihoods.

Specific Learning Objectives

By the end of the module participants will be able to:

1. Critique and select mitigation methods using a range of criteria
2. implement a demonstration site for mitigation methods
3. Identify potential for enterprise development and alternative livelihoods

Training Methodology

- Trainer Presentation
- Class discussion
- Required Reading

Selected References

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 (July-December 2002): 32-38.

Parker GE (2003): *Ensuring Farmer's Livelihoods and Food Security Around Kakum Conservation Area, Ghana: Management of Human-Elephant Conflict*. International Consultant's Final Report. UN/FAO, Accra, Ghana.

Parker GE (2006): The Costs and Benefits of Elephants: Communities and the CAMPFIRE Programme in Zimbabwe. *PhD Thesis*, University of Kent, UK.

Resource Requirements

- White board
- Marking pens
- Powerpoint projector and laptop

Time Required

2 hours 30 minutes theory

4 hours practical

Module 5: Introduction

CONTENT	Training Methods
<p data-bbox="250 415 521 447">Review of Module 5</p> <p data-bbox="250 489 932 594">The purpose of this module is to provide a basic framework and understanding of how to implement a conflict mitigation scheme</p> <p data-bbox="250 636 597 667">The main objectives are to:</p> <ul data-bbox="298 678 943 930" style="list-style-type: none">• Research the HEC mitigation methods suitable for your site• Select a suitable combination of methods to implement• Locate and establish a demonstration site• Explore means of developing alternative livelihoods. <p data-bbox="250 972 932 1003">By the end of the module participants will be able to:</p> <ul data-bbox="298 1014 943 1224" style="list-style-type: none">• Critique and select mitigation methods using a range of criteria• implement a demonstration site for mitigation methods• Identify potential for enterprise development and alternative livelihoods	<p data-bbox="995 415 1409 447">Trainer Presentation: (20min.)</p> <p data-bbox="995 489 1235 520">The trainer should:</p> <ul data-bbox="1044 531 1446 741" style="list-style-type: none">• Discuss the main objectives of module 5• Emphasize the necessity for Px to participate fully in training discussions and exercises.

Objectives 1 & 2: Researching and Selecting Suitable HEC Methods

CONTENT	Training Methods
<p>Rapid Surveys</p> <ul style="list-style-type: none">• Conduct a rapid survey of current methods used in your area – farmer interviews• Consider the following selection criteria for HEC methods:<ul style="list-style-type: none">○ Cost and technology○ Spatial arrangement of fields○ Community cooperation○ Climate	<p>Trainer Presentation/group exercise: (60 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Lead px through the key messages (opposite)• Discuss interview techniques and recap major points (from Module 4)• Get Px to consider the HEC methods suitable for their own site using criteria (opposite)• Px to briefly present selection for their own sites
<p>Elephant Pepper CBCM methods</p> <ul style="list-style-type: none">• CBCM methods have 3 elements:<ul style="list-style-type: none">○ Barrier○ Alarm○ Deterrent• Should include all 3 elements in CBCM• Responsibility for CBCM should be established at the beginning o the project.	<p>The trainer should:</p> <ul style="list-style-type: none">• Introduce Elephant Pepper package and explain why 3 elements are crucial

Objective 3: Locate and Establish a Demonstration Site

CONTENT	Training Methods
<p data-bbox="250 373 529 405">Demonstration Sites</p> <ul data-bbox="298 449 883 701" style="list-style-type: none">• Demo sites have 2 purposes:<ol data-bbox="396 485 870 554" style="list-style-type: none">1. Display HEC mitigation methods2. Demonstrate effectiveness• Demo site should be selected on 3 criteria<ol data-bbox="396 596 769 701" style="list-style-type: none">1. High risk of crop damage2. Community participation3. Accessibility <p data-bbox="250 743 586 774">To establish a demo site:</p> <ul data-bbox="298 785 951 1100" style="list-style-type: none">• Conduct a community meeting with the following points:<ol data-bbox="396 854 951 1100" style="list-style-type: none">1. Methods reduce crop damage BUT not 100% effective2. Must use combinations of methods3. Methods should be adapted over time4. Farmers need to be in the fields at night5. Methods will be self-funded and maintained <p data-bbox="250 1148 561 1180">To introduce methods:</p> <ul data-bbox="298 1190 961 1514" style="list-style-type: none">• Describe the purpose behind each method<ol data-bbox="396 1226 961 1514" style="list-style-type: none">1. Simple fence will be used to add deterrents to2. Bells will be used as an alarm system on the fence3. Chilli is an effective deterrent because elephants have a good nose. Chilli will be smeared on the fence and burned in dung bricks.	<p data-bbox="992 373 1425 405">Trainer Presentation: (30 mins)</p> <p data-bbox="992 449 1235 480">The trainer should:</p> <ul data-bbox="1040 491 1463 968" style="list-style-type: none">• Describe the key purpose of a demo site• Explain criteria for selecting a demo site• Present the key messages for establishing a demo site• Describe the processes of the community meeting• Explain the purpose for each of the methods• Explain there will be a practical exercise following the theory session

Objective 4: Explore Means of Developing Alternative Livelihoods

CONTENT	Training Methods
<p>Conflict and livelihoods</p> <ul style="list-style-type: none">• Conflict seriously affects the livelihoods of rural communities• Usually farming activities produce a marginal livelihood• There is rarely any alternative economic activity available <p>Small enterprise development</p> <ul style="list-style-type: none">• Encouraging small enterprise development can:<ul style="list-style-type: none">○ Reduce the impact of conflict upon rural farmers○ Reduce the area under agriculture and so limit future conflict <p>3 case studies:</p> <ol style="list-style-type: none">1. Ginger in Ghana2. Chilli in Zimbabwe3. Elephant Dung Paper in Kenya	<p>Trainer Presentation/group discussion: (40 mins)</p> <p>The trainer should:</p> <ul style="list-style-type: none">• Present key messages• Describe impacts of small enterprise development• Present 3 case studies• Encourage Px to discuss small enterprise options for their own areas

Practical Exercises

Two practical exercises will be conducted in conjunction with this module:

Exercise 3: Practicing Rapid Survey Techniques. Px should form pairs at the training centre and practice the rapid survey questions displayed in section 5.1.1 of the Participant's Manual. Time required: 1 hour.

Exercise 4: Establishing a Demonstration Plot using the Elephant Pepper's CBCM methods. In this exercise the Px should go through the process of selecting a demonstration site. They should then establish a fully functioning demonstration plot for CBCM methods, including a simple fence with alarms, chilli grease and chilli dung bricks. Time required: 3 hours.