

FIELD NOTE

Mitigating human–elephant conflict in Africa: a lesson-learning and network development meeting

Matt Walpole,¹ Noah Sitati,² Belinda Stewart-Cox,³ Leo Niskanen,⁴ PJ Stephenson⁵

¹ Fauna & Flora International, Great Eastern House, Tenison Road, Cambridge CB1 2TT, UK; email: matt.walpole@fauna-flora.org

² Durrell Institute of Conservation & Ecology, University of Kent, Canterbury, Kent CT2 7NS, UK

³ Zoological Society of London, Regent's Park, London NW1 4RY, UK

⁴ IUCN/SSC African Elephant Specialist Group, PO Box 68200, Nairobi, Kenya

⁵ WWF International, Avenue du Mont-Blanc 1196, Gland, Switzerland

Introduction

Human–elephant conflict (HEC) is a major conservation challenge in Africa and Asia because it is fueling an increase in killing of elephants and the loss of elephant habitat and range. Solutions lie in identifying appropriate mitigation methods that can improve local livelihoods and local tolerance of elephants, and that provide local communities with tangible benefits from elephant conservation. As a result, HEC is a growing field of conservation activity in both Africa and Asia, a fact reflected in the work of the African and Asian Elephant Specialist Groups.

Mitigating HEC strategically is important not only to increase local support and reduce elephant killing, but also from a moral perspective. Conservation agencies are increasingly accepting the position that wildlife conservation should not make poor people poorer, that those people living with wildlife should not bear a disproportionate share of the costs. The premise that wildlife should not negatively affect local livelihoods and human well-being is becoming increasingly central to both field conservation programmes and international policy (Walpole 2006). Finding solutions to mitigate HEC is a part of that broader drive towards equity.

In the last decade, many HEC projects have emerged and a range of tools has been developed to help mitigate the problem in situ (Thouless and Sakwa

1995; O'Connell-Rodwell et al. 2001; Hoare 2001; Karidozo and Osborn 2005; Parker and Osborn 2006; Sitati and Walpole 2006). Numerous projects are now testing different mitigation methods including alternative planting regimes, economic incentives, early-warning systems, deterrents (especially chilli-based deterrents), and communal guarding. However, few analytical case studies have been published and there has been little opportunity for project managers to come together, compare experiences and learn from each other, particularly between Africa and Asia where histories of human–elephant conflict differ but mitigation methods being tried and tested are similar.

In 2003 WWF organized a meeting in Nairobi of several African HEC projects. Before that the Wildlife Conservation Society (WCS) organized a more general human–wildlife conflict meeting in Uganda that included HEC studies from across the continent (Hill et al. 2002). Both of these meetings offered African project managers an opportunity to meet and learn from each other's work. In 2003 a ground-breaking cross-continental conference was held in Sri Lanka where representatives from projects around Africa and Asia presented their work on a range of elephant conservation issues including conflict and its mitigation (Jayewardene 2004). This conference facilitated cross-continental communication and exchange. However, this large and well-attended meeting did not afford an opportunity to explore and

discuss in detail conflict-mitigation methods, the science behind them, and the evidence of either short- or long-term success using different approaches. Nonetheless, a follow-up meeting led to a team of elephant researchers from different countries in Asia being formed and visiting various project sites in Kenya to learn and share experiences about HEC mitigation strategies.

In 2004, collaboration began between a long-running HEC project in Transmara District, Kenya, and an elephant conservation project in western Thailand. The Elephant Conservation Network and the Zoological Society of London (ZSL) are testing HEC mitigation methods in an Asian context that have been successfully tested in Kenya by WWF and the Durrell Institute of Conservation and Ecology (DICE) (Sitati et al. 2005, 2006; Sitati et al. 2003, 2005; Sitati et al. 2003). The programme also aims to develop a network of HEC practitioners and researchers to communicate and share lessons.

As part of this collaboration, meetings were planned in Africa and Asia to discuss and share HEC mitigation methods and experiences. Focusing on a small number of projects where such methods have been rigorously applied, tested and evaluated, these meetings would synthesize the most up-to-date findings in this field in both continents while expanding the network of practitioners pioneering these approaches.

The first of these meetings was held in Nairobi, 27–28 September 2006. It was supported by Fauna & Flora International (FFI), ZSL, DICE and WWF. This meeting brought together HEC practitioners and researchers from a range of institutions and projects across Africa, with representation from the Asian HEC community.

Aim and objectives

The aim of the Nairobi meeting was to improve the science and understanding of HEC and its mitigation, and the contribution it makes to elephant conservation and local livelihoods. The objectives were:

- to share and critically review selected HEC case studies, primarily from eastern and southern Africa, in which trials on mitigation methods have been run and objectively tested
- to identify synergies, common findings, differences and challenges in studying and mitigating HEC, and to highlight best practices
- to explore the practicalities of establishing an African learning network for community-based

elephant conservation and conflict mitigation (as the first step towards a wider Afro-Asian learning exchange network), and to identify a strategy for developing such a network

A number of HEC projects are under way in Kenya and Tanzania, supported by organizations including the Born Free Foundation, WCS, Frankfurt Zoological Society, Kenya Wildlife Service and the Tanzania Wildlife Research Institute, all of which were represented at this meeting. In total, 40 representatives from five African elephant range states (Kenya, Tanzania, Uganda, Zambia, Zimbabwe) and three Asian elephant range states (Cambodia, Indonesia, Thailand) attended. As KWS is based in Nairobi, it had a strong presence alongside various Kenyan NGO projects. KWS is currently developing a national elephant strategy in which HEC mitigation will be a major component, and this meeting offered potential to influence development of the strategy.

Structure and content of the meeting

Thirteen cutting-edge case studies were presented, focusing mainly on the mitigation methods used and their efficacy (table 1). Each case study described:

- the local context of HEC and its impact on local livelihoods and wellbeing, and on elephant conservation
- the historical development of the project and the mitigation methods used; why these methods were chosen and who chose them
- how the mitigation strategies employed were or are being monitored and/or tested, and reasons for the success or failure of project trials
- any effects that the HEC mitigation methods have had in reducing HEC; whether they have improved local livelihoods and well-being and elephant conservation
- any negative changes that have resulted from project interventions, and any other changes that have influenced the outcome of project interventions

The case studies described mitigation methods ranging from fencing and guarding to the increasingly widespread use of chilli-based deterrents, and to other novel approaches such as the use of bees. In addition there were broader topics discussed such as the economics of HEC management and the 'bigger picture' issues that need to be taken into account alongside technical solutions to the problem.

Table 1. Case studies presented during the Nairobi meeting

Case studies	Presenter
HEC mitigation trials in Transmara District, Kenya	Noah Sitati
Human–elephant conflict: WWF case studies from Cameroon and Tanzania	PJ Stephenson
Human–elephant conflict around Amboseli National Park, Kenya	Winnie Kiiru
Human–elephant conflict and mitigation trials in Laikipia District, Kenya	Max Graham
Human–elephant conflict mitigation in Kenya: KWS perspective	Patrick Omondi
HEC mitigation trials in Zimbabwe: can bees deter elephants from raiding crops?	Malvern Karidozo
Systematic recording and assessment of HEC in western Serengeti, Tanzania	Lucas Malugu
Investigating the potential for chilli as a wildlife-resistant crop in Zimbabwe	Guy Parker
Cost-benefit analysis of land-use types in Transmara District, Kenya	Anne Kiplimo
The Elephants, Crops and People Project, Queen Elizabeth National Park, Uganda	Michael Keigwin
New developments in the study and management of HEC in Africa	Richard Hoare
HEC problems and solutions at Kui Buri National Park, southwest Thailand	Mattana Srikrajang
The Elephant Conservation Network/ZSL HEC mitigation project in West Thailand	Belinda Stewart-Cox

After each morning and afternoon session, the moderator highlighted the key issues then facilitated a group discussion to synthesize knowledge gained from each case study and to identify best practices for mitigating HEC (research, monitoring, implementation, testing). At the end of the workshop, participants discussed the most pressing contemporary issues in HEC, and how to develop an exchange and learning network.

Discussions and conclusions arising from the meeting

Following is a synthesis of the main themes and lessons that emerged from the presentations and subsequent discussions:

- *Simple, community-based methods of crop protection*, especially those combining chilli or tobacco deterrents with greater vigilance, continue to be promising in various sites across Africa. However, to remain effective, combinations of methods must be used to provide the required effect. There is no silver bullet; no one strategy will work everywhere.
- *Comprehensive land-use planning*, locally and nationally, can go a long way towards reducing conflict, for example, zoning to maintain elephant migration by ensuring connectivity between main elephant ranges, creating buffer zones between cultivation areas and elephant refuges, and integrating fields better into more easily defendable units.
- *Community-based wildlife management* schemes or sanctuaries offer a lot of potential for improv-

ing local livelihoods, improving attitudes towards elephants and their habitat, and reducing HEC.

- *The role of immigrants* (that is, people not originally from the area and not used to living with elephants) in HEC was raised by a number of presenters. It appears that the start of major HEC problems often coincides with the arrival of immigrants into an area. This has been a recurring theme across the continent and is linked to the importance of land-use planning outlined above.
- *Political instability and insecurity* and other forms of human–human conflict can disrupt the implementation of HEC mitigation strategies.
- *Ownership of the problem* (that is, whose responsibility is HEC?) is a fundamental question. A standard reaction by communities affected by HEC is to expect the government ‘to solve the elephant problem’. When government does not do so, animosity towards wildlife in general, and elephants in particular, often escalates. Therefore an important first step is to persuade affected communities to accept some responsibility for tackling the problem. They are unlikely to do so for long however, unless they receive tangible benefits from elephants, such as tourism revenues.
- *Community-based strategies incur costs*. If communities affected by HEC are expected to bear these costs in the long term, they must receive a greater share of benefits earned from elephants.
- *Revenue generation from wildlife schemes* encourages community support for elephant conservation and HEC mitigation. However, poor governance (such as misappropriation of funds destined for affected communities) creates resent-

ment and discourages local efforts to manage and protect wildlife, including elephants.

- *Outdated or non-existent national policies and legislation* (wildlife, land-use planning, agricultural promotion, livestock development, etc.) often stymie efforts to mitigate HEC. A more integrated approach to policymaking is required.
- *Communicating the HEC problem* including its economic implications effectively and accurately to politicians and decisionmakers is a challenge. HEC continues to be misunderstood and politicized.
- *The sustainability of site-based HEC mitigation projects* is an issue. There may be little or no community and government interest or capacity to maintain activities after external support has ended. Long-term monitoring of the effects of HEC and its mitigation may also be difficult to sustain in sites where there is no ongoing research project.
- *To ensure lasting outcomes* for both people and elephants, it is necessary to move beyond the site level towards more integrated cross-sectoral approaches to conflict mitigation. Such approaches need to simultaneously address the various technical, socio-economic and political issues at different levels, from site to national. This requires the involvement of more stakeholders and solid support from government at all levels. The IUCN/SSC AfESG is currently investigating the possibility of piloting such approaches in a few countries.

The study of HEC is still a work in progress. As situations evolve, so will the challenges change. More research and lesson-learning will help understand the driving factors and help develop more effective strategies.

Key questions that repeatedly arose were these:

- Are the methods replicable in other contexts?
- How do we define and measure the success of HEC interventions in the short, medium and long term, and from whose perspective?
- How do we ensure the social, economic and environmental sustainability of HEC interventions after a project, especially an externally funded project, has ended?

Recommendations

Several recommendations emerged from the meeting, which those involved in HEC research, management and mitigation (including range state governments, NGOs and individuals) might find useful:

- Move towards a multisectoral or integrated approach to mitigating HEC.
- Develop more effective tools to communicate HEC issues to politicians and decisionmakers.
- Update existing conflict-mitigation tools, such as the IUCN/AfESG Decision Support System.
- Share HEC data sets within each country to make sound arguments at national levels.
- Involve the private sector in improving the design and innovation of HEC mitigation.
- Develop a network of those who work with elephants, for sharing information and experience.
- Establish funding priorities for HEC mitigation and management work for the donor community.
- Develop standard tools or guidelines for incorporating social research into HEC to help researchers harmonize data collection across the elephant range states.

Next steps

The meeting achieved its objectives of sharing lessons and identifying common findings and challenges. The discussion regarding a mechanism to facilitate a learning network was not conclusive, although it did suggest that practitioners were keen to stay connected. Participants committed themselves to stay in touch, to share information, and to explore in more detail a means of keeping the network alive and expanding its membership.

Two further outputs are planned. First, the papers presented will be published as proceedings with a synthesis of the findings and conclusions from each case study and recommendations from the discussion sessions. This will complement and build on existing literature and tools, and thus be of both scientific and practical value to other researchers and HEC project practitioners. The proceedings, expected to be completed by early 2007, will be distributed in print and electronic form to reach a wide readership.

Second, plans are under way for a follow-on meeting to be held in Thailand in early 2008. This will repeat the process of the Nairobi meeting, but in an Asian context with African representation, and will further contribute to building the foundations for a cross-continental information exchange network among HEC mitigation practitioners.

Acknowledgements

We are grateful to the donor agencies that made this meeting possible, in particular the Dutch Ministry of Foreign Affairs, which supports FFI's Biodiversity and Human Needs Programme, and the UK's Darwin Initiative for the Survival of Species, which funds the Thailand Elephant Project and previously funded the Transmara Project in Kenya. Additional support was provided by WWF and the Frankfurt Zoological Society. We would also like to thank Joy Juma for all her efforts in coordinating the preparation and organization of the meeting, and all the participants for their instructive contributions.

References

- Hill CM, Osborn FV, Plumptre AJ, eds. 2002, *Human wildlife conflict: identifying the problem and possible solutions*. Wildlife Conservation Society, New York.
- Hoare RE. 2001. *A decision support system for managing human–elephant conflict situations in Africa*. IUCN/SSC African Elephant Specialist Group, Nairobi.
- Jayewardene J, ed. 2004. *Endangered elephants past, present and future. Proceedings of the symposium on human–elephant relationships and conflicts, Sri Lanka, September 2003*. Biodiversity and Elephant Conservation Trust, Colombo, Sri Lanka.
- Karidozo M, Osborn FV. 2005. Can bees deter elephants from raiding crops? An experiment in the communal lands of Zimbabwe. *Pachyderm* 39:26–32.
- O'Connell-Rodwell CE, Rodwell T, Rice M, Hart A. 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* 93:381–391.
- Parker GE, Osborn FV. 2006. Investigating the potential for chilli *Capsicum* spp. to reduce human–wildlife conflict in Zimbabwe. *Oryx* 40:343–346.
- Sitati NW, Walpole MJ. 2006. Assessing farm-based measures for mitigating human–elephant conflict in Transmara District, Kenya. *Oryx* 40:279–286.
- Sitati NW, Walpole MJ, Leader-Williams N. 2005. Factors affecting susceptibility of farms to crop raiding by African elephants: using a predictive model to mitigate conflict: mitigating crop raiding by African elephant. *Journal of Applied Ecology* 42:1175–1182.
- Sitati NW, Walpole MJ, Smith RJ, Leader-Williams N. 2003. Predicting spatial aspects of human–elephant conflict. *Journal of Applied Ecology* 40:667–677.
- Thouless CR, Sakwa J. 1995. Shocking elephants: fences and crop raiders in Laikipia District, Kenya. *Biological Conservation* 72:99–107.
- Walpole MJ. 2006. Partnerships for conservation and poverty reduction. *Oryx* 40:245–246.