

# Managing human–wildlife conflicts in central and southern Africa

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*The first steps in a coordinated approach to the issue are generating useful lessons and tools for scaling up efforts.*

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**H**uman–wildlife conflict (HWC) is not a recent concern in Africa. Several wildlife species cause important damage to crops and livestock systems, with impacts on human food security, safety and well-being. In extreme cases, attacks by wildlife species such as elephants and crocodiles can cause human injuries and death (Manfredo and Dayer, 2004; Woodroffe, Thirgood and Rabinowitz, 2005; Le Bel *et al.*, 2011).

HWCs have become more frequent and severe in Africa in recent decades due to increasing competition for land in previously wild and uninhabited areas (Lamarque *et al.*, 2009). The underlying causes include human population growth,

increasing demand for natural resources, and the growing pressure for access to land, such as for the extension of transport routes and the expansion of agricultural and industrial activities. Despite low population densities in certain rural areas in central Africa, many forest ecosystems are subject to agriculture and logging, causing negative direct impacts on fauna and fragmenting habitats.

Wildlife and people will continue to share landscapes and resources in central and southern Africa, and it seems certain

**Above:** Local farmers in the lower southeast of Zimbabwe are introduced to the Human–Wildlife Conflict Management Toolbox

that HWCs will worsen unless action is taken. In several countries, inadequate compensation for the damage caused by wildlife has angered local communities, who want solutions urgently, thus bringing HWCs to the political forefront. In some countries in central Africa, HWCs – and demands for solutions to them – were key issues in recent presidential elections.

The conclusions of a review of HWCs in Africa by FAO and the International Foundation for the Conservation of Wildlife (Lamarque *et al.*, 2009) formed the basis of discussions at the 17th Session of the Working Party on Wildlife Management and Protected Areas, held back-to-back with the 16th Session of the African Forestry and Wildlife Commission in Khartoum, the Sudan, in 2008. The Working Party recommended that FAO should support the efforts of countries to manage HWCs by facilitating networking among stakeholders for sharing information; generating guidance on best practices; providing technical guidelines for the development of national policies; and implementing field activities. Since then, several actions have been initiated at the subregional and national levels in Africa. Are we moving in the right direction? This article examines the work underway and points to the way forward.

#### **STRATEGIC PLANS FOR ADDRESSING HUMAN-WILDLIFE CONFLICTS**

Although most countries in central and southern Africa have committed to mitigating HWCs, the necessary political will is not always evident. HWCs should be considered in the development of policy frameworks in the forest and agriculture sectors, but many decision-makers are unfamiliar with the issues, and they often fail to take them fully into account in planning and policy formulation processes.

Nevertheless, there has been progress: since 2008, efforts have been made to develop strategic plans for addressing HWCs in Cameroon, Gabon and Mozambique. Gabon and Mozambique both now have such strategies, and the process

**TABLE 1. Subregional and national strategies for human–wildlife conflict management developed since 2008 in central and southern Africa**

Year	Country	Name of strategy	Comment
2010	Subregional	Central Africa Subregional Human–Elephant Conflict Mitigation Strategy	Developed with technical support from the Central African Protected Areas Network
August 2009	Mozambique	Human–Wildlife Conflict Management Strategy	Approved by a resolution of the Council of Ministers
October 2012	Gabon	National Strategy and Action Plan for Human–Wildlife Conflict Management (Ministère des Eaux et Forêts, 2012)	Approved by the Council of Ministers
Ongoing	Cameroon	National Strategy and Action Plan for Human–Wildlife Conflict Management	Not yet approved by government

**TABLE 2. Handbooks in the Human–Wildlife Conflict Management Toolbox**

Handbook topic	Description
Wildlife	Presents a list of 17 groups of species involved in human–wildlife conflicts
Conflict	Presents the five main categories of conflict caused by wildlife (agriculture; people's health and lives; disturbances to village life; livestock; and access to water)
Solutions	Presents a total of 45 practical solutions
Legislation	Provides information on laws in various countries as well as on international conventions
Evaluation	Proposes a human–wildlife conflict monitoring and evaluation strategy

to develop one is ongoing in Cameroon. In addition to national strategies, the Central Africa Subregional Human–Elephant Conflict Mitigation Strategy was developed in 2010. Table 1 summarizes the subregional and national strategies at the policy and planning levels.

#### **THE HUMAN–WILDLIFE CONFLICT MANAGEMENT TOOLBOX**

Despite (albeit limited) progress at the strategic level, the lack of on-the-ground implementation and impact remains a major concern. A dearth of tools and low technical capacity are significant issues for the staff of wildlife services, who are supposed to assist farmers in addressing HWCs. A significant challenge, therefore, is to improve and facilitate access to such tools.

The first prototype of an HWC toolbox was developed for southern Africa jointly by FAO, CIRAD (the French Agricultural

Research Centre for International Development), the BIO-HUB Trust<sup>1</sup> and other partners (Le Bel, Mapuvire and Czudek, 2010). In 2012, FAO, the Central African Protected Areas Network (RAPAC) and CIRAD decided to adapt the prototype to central Africa. The adaptation process had three steps:

1. production and critical review of the toolbox;
2. a test phase conducted in collaboration with WWF, the Wildlife Conservation Society, and Agence nationale des parcs nationaux du Gabon (Gabon

<sup>1</sup> The BIO-HUB Trust is a regional platform developed in Zimbabwe by a consortium (WWF, the African Wildlife Foundation, CIRAD, CIFOR, the Campfire Association and the People and Nature Trust) with a mission to integrate conservation and natural resource management with development through a partnership promoting the innovative transfer of skills, appropriate technologies and knowledge.

**Box 1****Testing the Human–Wildlife Conflict Management Toolbox in Cristal Mount National Park, Gabon**

In 2015, the Wildlife Conservation Society Gabon helped a local community find ways to prevent human–wildlife conflict in the Cristal Mount National Park in Gabon. We used a smartphone equipped with the KoboCollect app to obtain and transmit data to the Central African Forest Observatory for analysis, which showed that animals were destroying entire crops. The frustration of farmers – whose livelihoods depend on such crops – is understandable, and rules forbidding them to hunt protected animals for meat or to protect their crops are difficult to explain and justify.

The toolbox – especially the handbook on solutions – sets out options for preventing, blocking, pushing back or eliminating fauna that damage plantations. The solutions we believed would be most feasible and effective in the case of the Cristal Mount National Park were: fencing the plantations to block animals from reaching the crops; making fires or noises to scare the animals away; and posting guards to keep watch on the plantations at night. We considered these solutions to be best because they were easy to set up and did not require funds (which were unavailable). The lack of funds meant we were unable to offer farmers hi-tech solutions – such as the use of electric fences – that might have been more effective, because it was important that villagers could put the solutions in place and maintain them without ongoing assistance.

We observed that some of the proposed solutions were ineffective, showing the importance of testing different combinations of approaches best suited to local conditions and the capacity of communities to implement them.

*Source:* Angoran (2015).

National Agency for National Parks) at 11 pilot sites in four countries in the subregion (Angola, Cameroon, the Congo and Gabon, see Box 1); and 3. development of an improved version of the toolbox based on field-test results.

“La Boîte à outil d’atténuation des conflits homme-faune” (Human–Wildlife Conflict Management Toolbox)<sup>2</sup> is a set of five thematic illustrated handbooks (Table 2) assembled in a canvas carry bag. It provides information on HWCs in central Africa, the species involved, and guidelines on the steps that can be taken to address such conflicts.

An effective solution for HWCs involving elephants proposed in the toolbox is the use of chilli-pepper dispensers, which were developed and tested in Mozambique, Zambia and Zimbabwe (Le Bel, La Grange and Drouet-Hoguet, 2015). These dispensers fire “bullets” containing chilli-pepper oil at elephants, which are first surprised by the noise and later disturbed by the pepper, making them flee.



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*Community artisans receive training in the manufacture and use of EL@OUT,\* an “ambush” version of a chilli-pepper dispenser made of wood designed to discourage elephants from damaging crops*

<sup>2</sup> The toolbox, which is available only in French, can be downloaded at <http://ur-forets-societes.cirad.fr/produits-et-expertises/produits/boite-a-outil-bo-chf>

\* All reproduction and distribution rights of EL@OUT are reserved. Videos on the production and use of EL@OUT are available at <http://ur-forets-societes.cirad.fr/produits-et-expertises/produits/el-out-elephant-box>



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*Damage caused by elephants to a plantain plantation in Remboué, Gabon*

To promote this tool, FAO, in collaboration with CIRAD, the Ministry in Charge of Wildlife in Gabon and Fruitière Numérique (a not-for-profit organization), organized a capacity-building session in Gabon to provide local artisans with know-how on the manufacture and use of pepper dispensers. The aim was to stimulate the low-cost, local manufacture of the tool and to train local communities in its use. Despite the significant progress made, the tool is still largely at the experimental stage, and farmers require additional support in efforts to prevent and mitigate HWCs.

#### **MONITORING HUMAN-WILDLIFE CONFLICTS USING SMARTPHONES**

Sharing information and experiences is essential for preventing and mitigating HWCs (Madden, 2006), and CIRAD has developed a monitoring system using smartphones to collect, manage and report on HWCs (Le Bel, Chavernac and Stansfield, 2016). The first tests used FrontLine SMS in the framework of HWC projects in Mozambique and Zimbabwe. An improved monitoring system that uses smartphones and the KoBoCollect application<sup>3</sup> was launched in April 2014 in central Africa with the support of CIRAD, FAO,

RAPAC and the Central African Forest Observatory (OFAC). Data on HWCs are entered directly onto a form generated by the KoBoCollect app (either offline or online) and sent from the smartphone (via Wi-Fi or a mobile phone network) to the OFAC server, thereby centralizing all collected information. The HWCs are geolocated using either the automatic or manual recording of global positioning system coordinates, and the information is encrypted (with logins and passwords) to protect it. OFAC hosts the collected data and also processes and analyses them and disseminates the results via a monthly newsletter. KoBoCollect is an innovative approach to managing HWCs, with its user-friendly features, precision

<sup>3</sup> [https://kc.kobotoolbox.org/ofac\\_chf](https://kc.kobotoolbox.org/ofac_chf); see also article on page 53.

**The Human–Wildlife  
Conflict Management Toolbox**

through geolocation, and simplified data entry (Ilama, 2015).

The monitoring system is being tested at about 30 HWC observation sites in seven countries: Cameroon, the Central African Republic, Chad, the Congo, the Democratic Republic of the Congo, Equatorial Guinea and Gabon. A network for sharing monitoring information among HWC managers is envisaged in the future.

### COMMUNITY-BASED HUMAN–WILDLIFE CONFLICT MANAGEMENT

The various tools now available can enable communities to take action and to be the driving forces in finding solutions to HWCs. To help communities use the Human–Wildlife Conflict Management Toolbox efficiently, a six-step guide was prepared for the development of community action plans for HWC management

1

*The six steps in developing  
community action plans for human–  
wildlife conflict management*



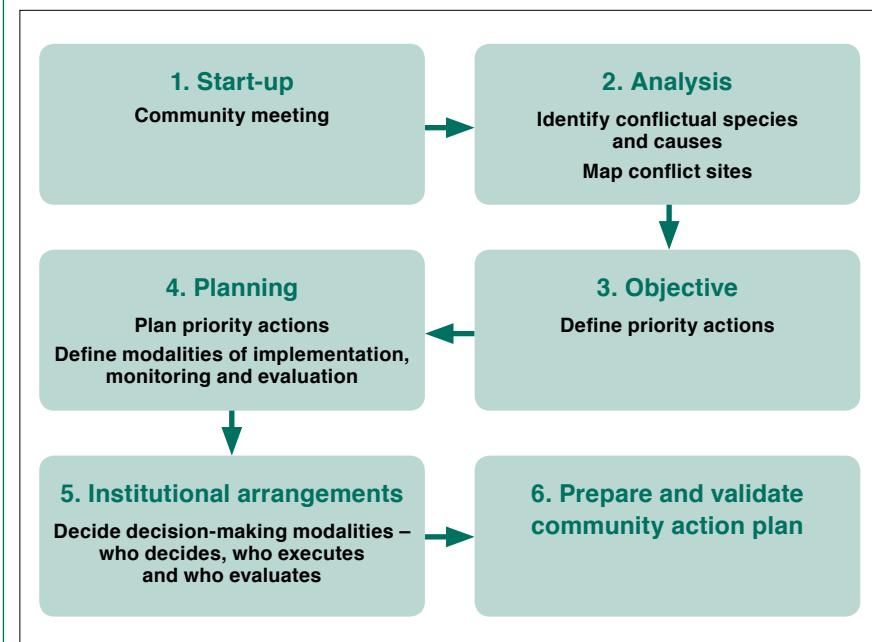
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(FAO, 2016; Figure 1). The aim of the guide is to help communities in planning their use of the toolbox and the tools therein; it will also help them develop a shared vision of preventive measures for HWCs and to organize, facilitate and coordinate actions to mitigate them. To date, five HWC community action plans have been developed in Angola, the Congo and Gabon.

### LESSONS LEARNED

The recent experience acquired in HWC management has generated the following lessons, among others:

- **Political will and the involvement of regional or national bodies is a necessary condition for successful HWC mitigation.** Even though many HWC management initiatives began in southern Africa, more progress appears to have been made in central Africa, possibly due to greater political will and the formal involvement and commitment of regional and national institutions.
- **The cross-fertilization of ideas and concepts among regions and subregions helps improve tools and policies.** Central Africa has advanced in its approach to the mitigation of HWCs due largely to the tools developed in southern Africa. Today, the information is flowing the other way, with efforts in southern Africa making use of the experiences obtained and tools developed in central Africa.
- **Adaptive approaches are best equipped to deal with emerging issues.** The guide to developing community action plans for HWC management was developed in



response to a need for a strategic approach to the use of the Human–Wildlife Conflict Management Toolbox, and the toolbox was developed in response to a need among affected communities. By responding directly to needs, this adaptive approach has been able to quickly address a significant issue.

- Local traditions and perceptions can be a barrier to effective HWC management.** For example, local people affected directly by HWCs find it aggravating that wildlife is protected at their expense. In Angola's Cabinda Province, people continue to think that the historical practice bequeathed by the colonial administration of “driven hunting”<sup>4</sup> organized by government is the best means for managing HWCs. In other cases, problem animals are sometimes believed to be bewitched humans transformed into animals, constraining possible solutions.

## CONCLUSION

HWC is a challenging issue in central and southern Africa that needs to be addressed at various levels. Some countries have demonstrated political will by developing clear HWC strategies, but the extent of practical action is often insufficient to mitigate HWCs and reduce their impacts on human well-being and wildlife conservation. HWC has thus become a political issue – which can be seen as an opportunity for elevating it in the agendas of politicians and encouraging decision-makers to pay more attention.

The lack of field impact can be explained partly by a lack of adapted tools for managing HWC. The production of the Human–Wildlife Conflict Management Toolbox, the smartphone app for monitoring HWCs, and the guide to assist local communities in developing HWC action plans is helping fill this gap.

<sup>4</sup> Driven hunting is a form of hunting in which game is “driven” towards stationary hunters.

It is now time, therefore, to provide local communities with more assistance in developing HWC action plans and putting suitable tools into practice. Such support would go a long way towards mitigating HWCs in central and southern Africa and establishing a sound basis for the beneficial cohabitation of humans and wildlife. ♦

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