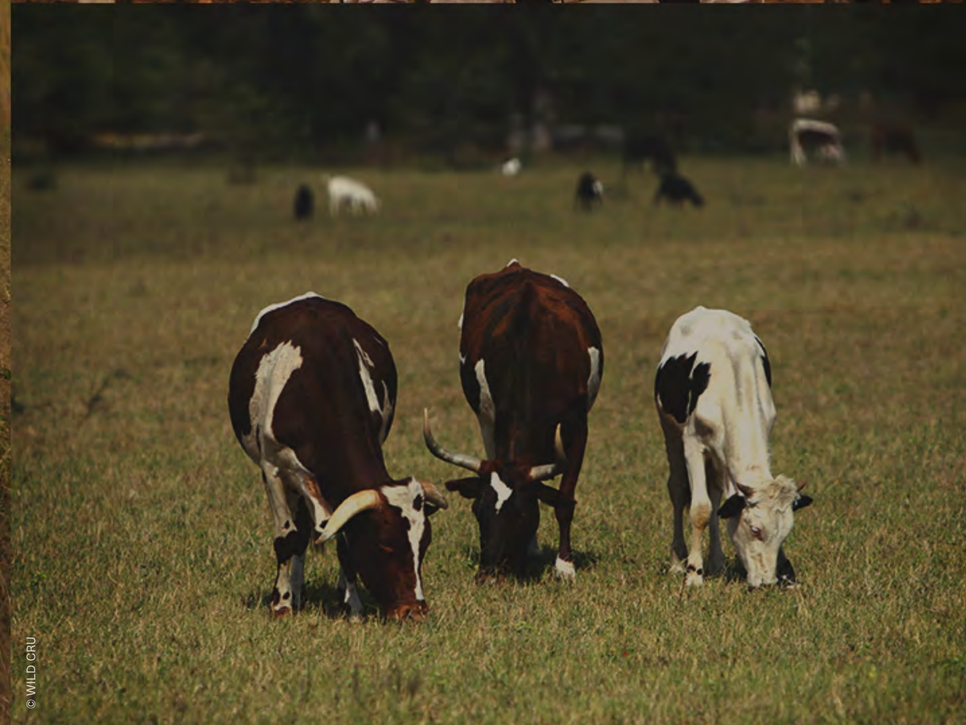
Food and Agriculture Organization of the United Nations

IUCN SSC Human-Wildlife Conflict & Coexistence SPECIALIST GROUP

HUMAN-WILDLIFE CONFLICT & COEXISTENCE
/ CASE STUDIES

DEVELOPING A COMMUNITY GUARDIAN PROGRAMME TO REDUCE LIVESTOCK DEPREDATION



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INTRODUCTION

Hwange National Park in Zimbabwe is one of the largest protected areas in the Kavango-Zambezi Transfrontier Conservation Area (KAZA), forming part of the Kavango-Hwange lion conservation unit, which is one of the last lion population strongholds in Africa. The national park lies at the edge of the Kalahari ecosystem with the western boundary of the protected area formed by the border to Botswana.

This case study concerns the Trans-Kalahari Predator Programme (TKPP), which is one of Oxford University's Wildlife Conservation Research Unit's largest projects, focused on the predators of southern Africa and their conservation and interactions with people. The TKPP was originally called the Hwange Lion Research Project, formed in 1999, in Zimbabwe, with its primary focus being to research large predators, but when it was extended into neighbouring Botswana in 2013, it was renamed to the TKPP (for ease, this case study will refer to the TKPP throughout). The TKPP has monitored the lion population in a 5000 km^2 area in the Northeast of the national park. However, in 2010, a key focus was established to understand the extent of human-lion conflict in the three regions (Tsholotsho, Mabale and Mvuthu-Shana), surrounding the national park.

KEY INSIGHTS & LESSONS LEARNT
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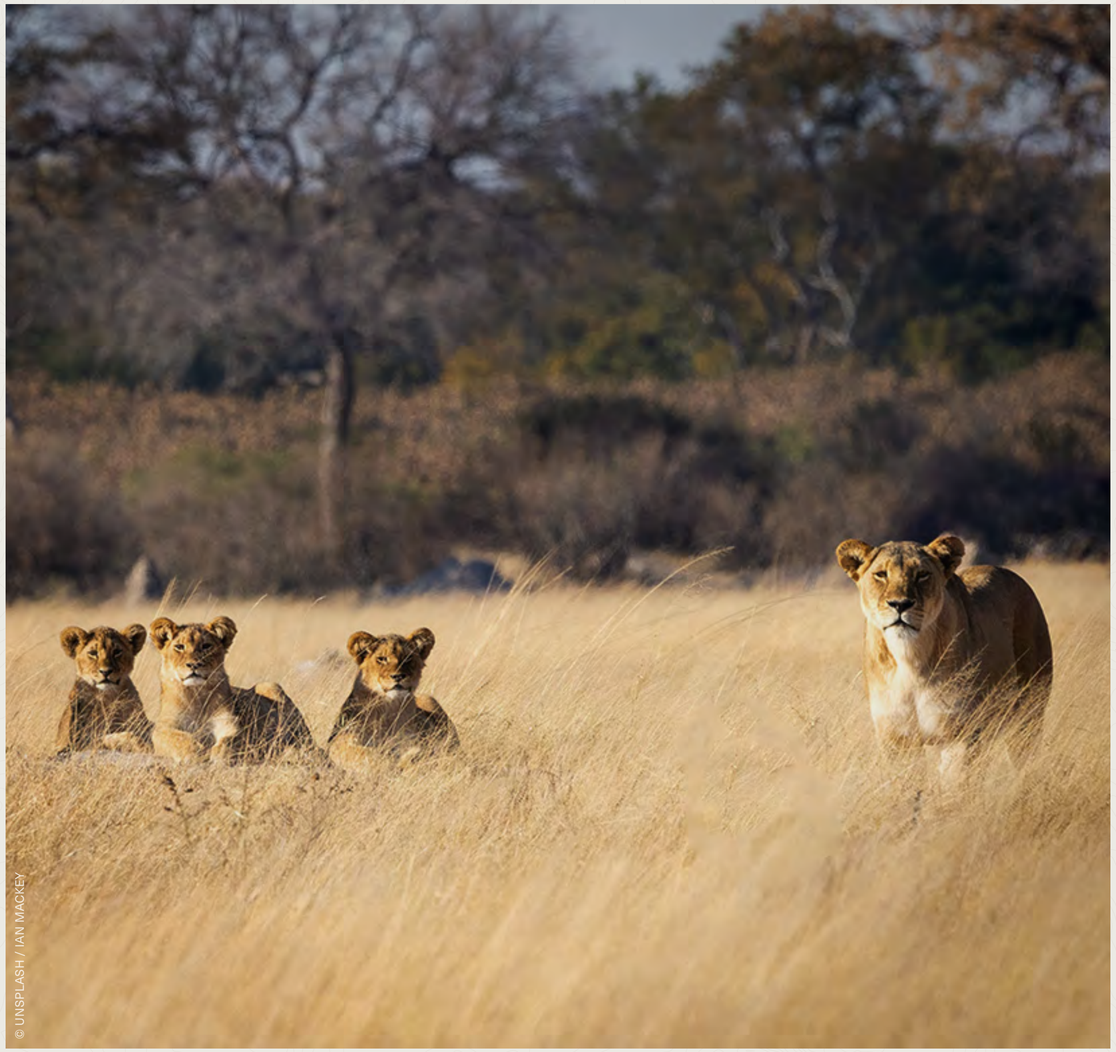

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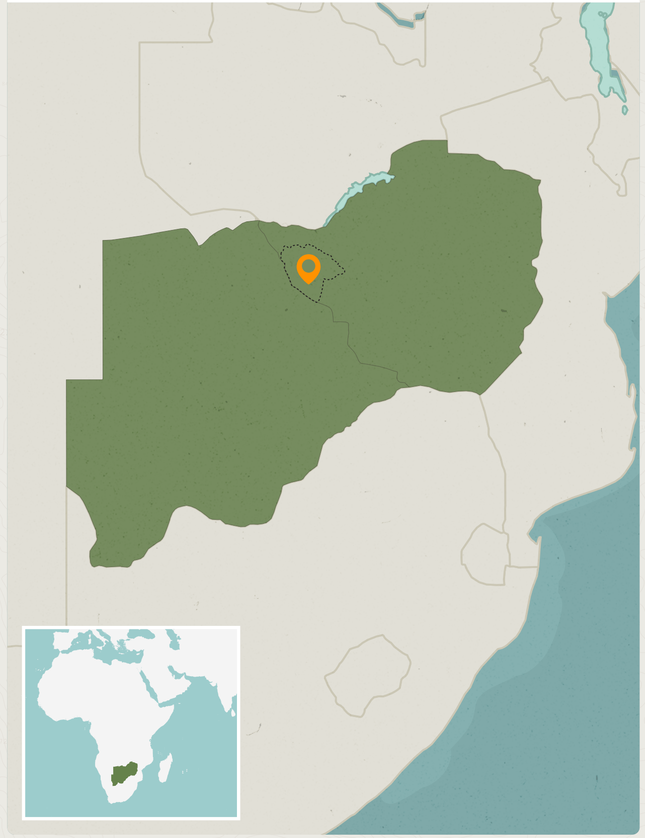
ZIMBABWE & BOTSWANA

HWANGE NATIONAL PARK, ZIMBABWE



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Free Vector Maps 2022. World Map [online] [Cited 5 January 2022] https://freevectormaps.com/world-maps/WRLD-EPS-03-0001

PROBLEM ANALYSIS

The long-term TKPP had established that large predators primarily remained within protected areas, with no evidence that large predators were permanently present within communal lands. Large predators found within the Hwange National Park included lions *Panthera leo* and hyaenas *Hyaenidae*, while the African wild dog *Lycaon pictus* and cheetah *Acinonyx jubatus* were present in low numbers. The TKPP analysed data on large carnivore depredation on livestock, which highlighted that lions and hyaenas were primarily responsible for the depredations.

DEPREDATIONS MAINLY OCCURRED WHEN LIVESTOCK WERE AWAY FROM THEIR PROTECTIVE ENCLOSURES AT NIGHT, WITH A HIGHER FREQUENCY OCCURRING DURING THE WET SEASON.

Having established the predator behaviour in the region, the TKPP turned to better understanding the situation from the community's perspective. In 2010, and again in 2017, an extensive survey was conducted in Tsholotsho and Mabale, which are two communal areas on the border of the Hwange National Park (n=632 farmsteads surveyed). Results from the survey revealed that intangible consequences of the interactions with lions (e.g. fear) were important in shaping local attitudes towards lions.

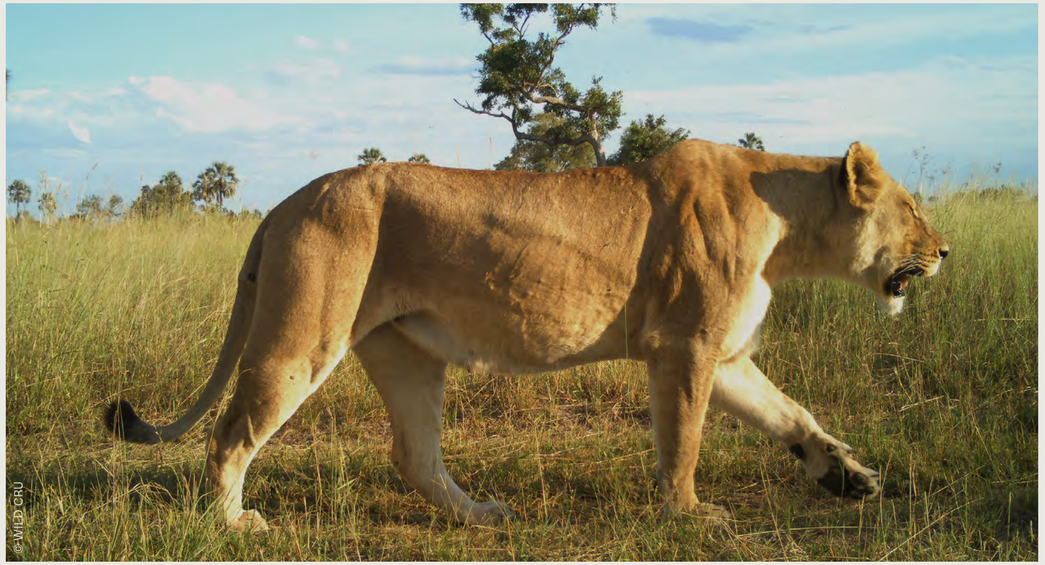
ALTHOUGH THERE WERE IMPACTS BETWEEN HUMANS AND WILDLIFE IN THE AREA, THERE WERE ALSO DISAGREEMENTS BETWEEN DIFFERENT STAKEHOLDER GROUPS.

The local communities living around the area felt that the national park's personnel did not promptly and adequately react to livestock depredations. This led to the blaming of different organisations for the situation, and tensions between the local communities and the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) arose. This situation was exacerbated by the exclusion of local communities from wildlife areas and their loss of agency to manage wildlife conflict situations during colonial times. Current day policies have failed to adequately engage and include local communities in wildlife management.

PROCESS

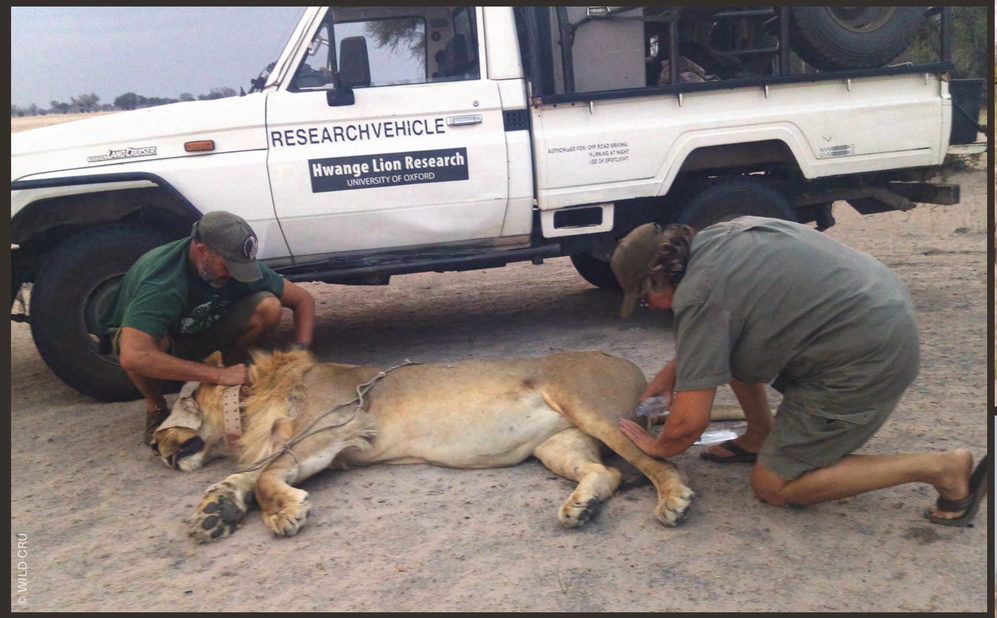
One of the TKPP's programmes is broadly based on the Lion Guardians project being conducted in Kenya, where local *Morans*, or warriors, act as guardians to deter potential problem lions and protect them from retaliatory killing by community members. Cultural aspects of livestock husbandry differ between Maasailand and western Zimbabwe, which in turn determined how a locally relevant guardian programme could be established in Zimbabwe. From 2011 to 2012, the TKPP held a series of discussions with village chiefs and elders to determine the possibility of piloting a similar programme.

THROUGH DISCUSSIONS, THE TKPP BECAME AWARE THAT 50 TO 100 YEARS AGO, PEOPLE IN THE REGION BEHAVED SIMILARLY TO THE GUARDIANS IN KENYA. THE LOCAL PEOPLE WOULD CHASE LIONS FROM THE COMMUNITY AREAS, BUT THERE WAS ALSO RESPECT FOR LIONS AS THEY HAD A CULTURAL EXISTENCE VALUE.



The TKPP asked community members how their forefathers mitigated conflict with lions, identifying valuable lessons that could be applied in the Zimbabwean context, so as to create a community guardian programme that would be culturally appropriate and inclusive.

Having decided that a guardian programme might be appropriate for addressing the human-wildlife conflict situation in the area, a theory of change was co-developed with community leaders and community members, defining the problem that needed to be addressed and what such a programme aimed to achieve, with key targets and the implementation steps in order for it to be successful.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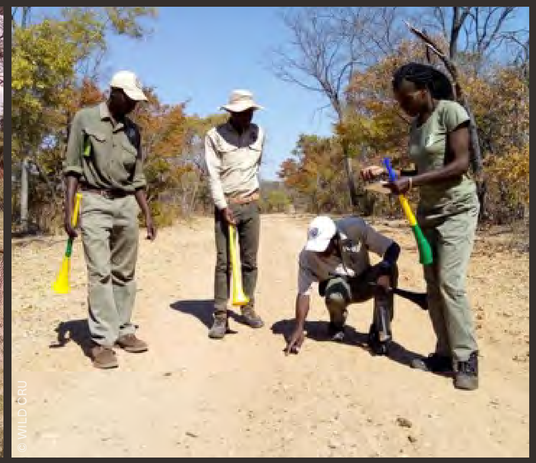
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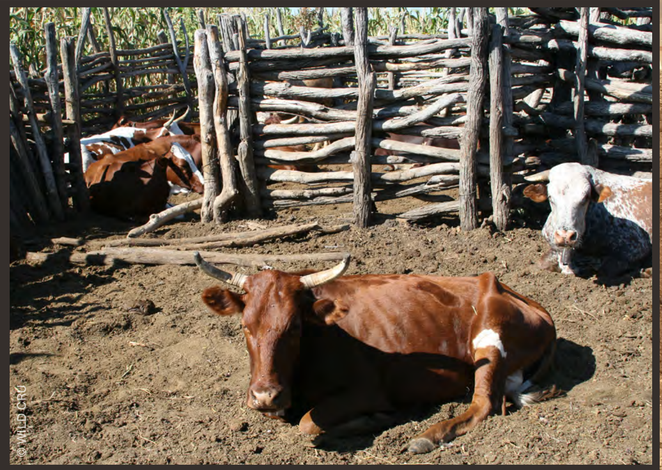
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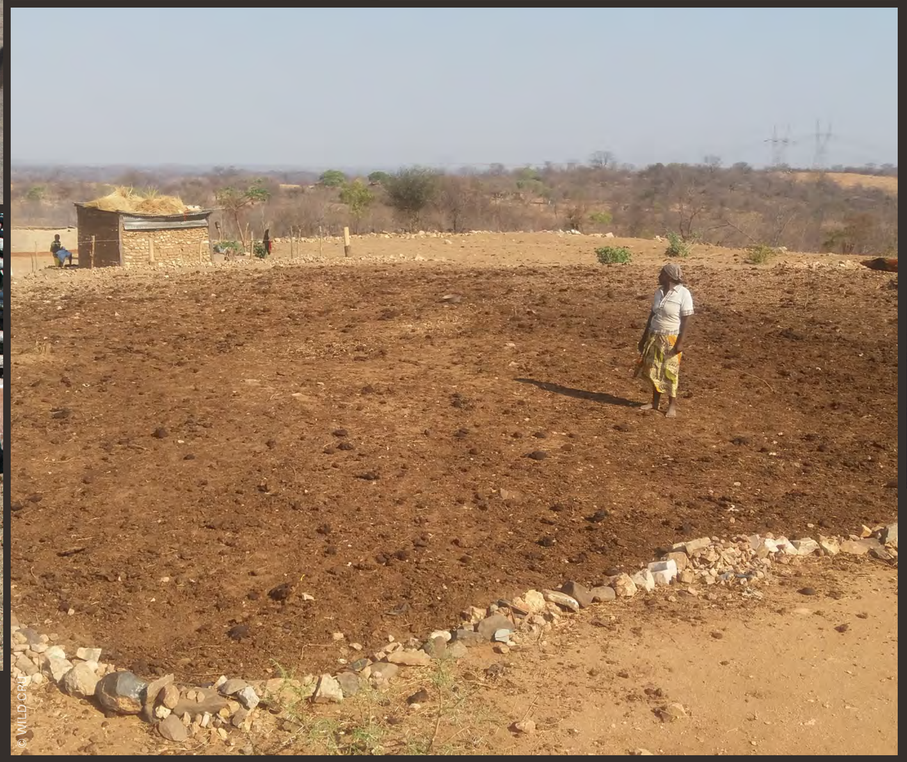
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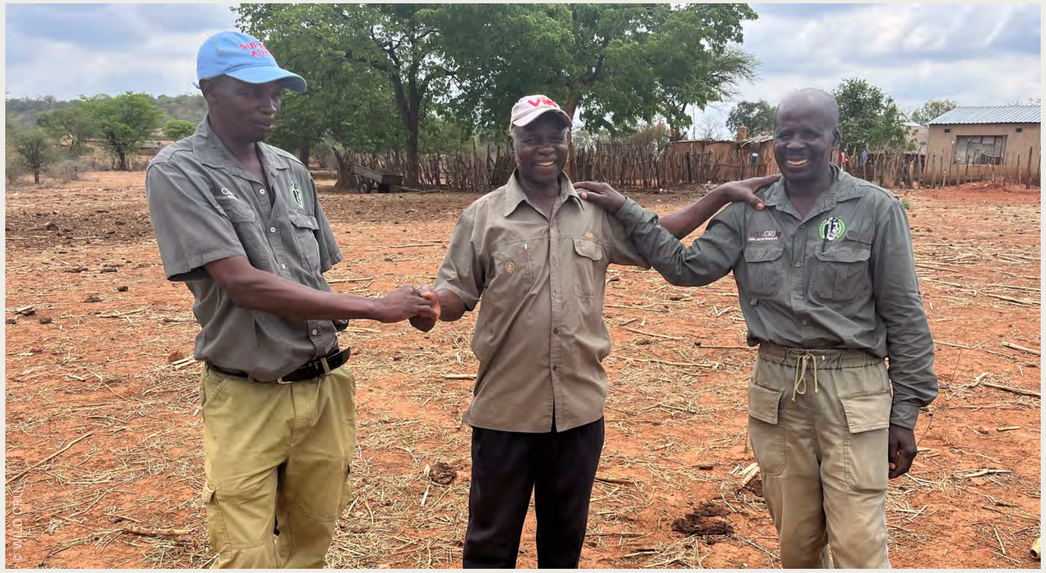
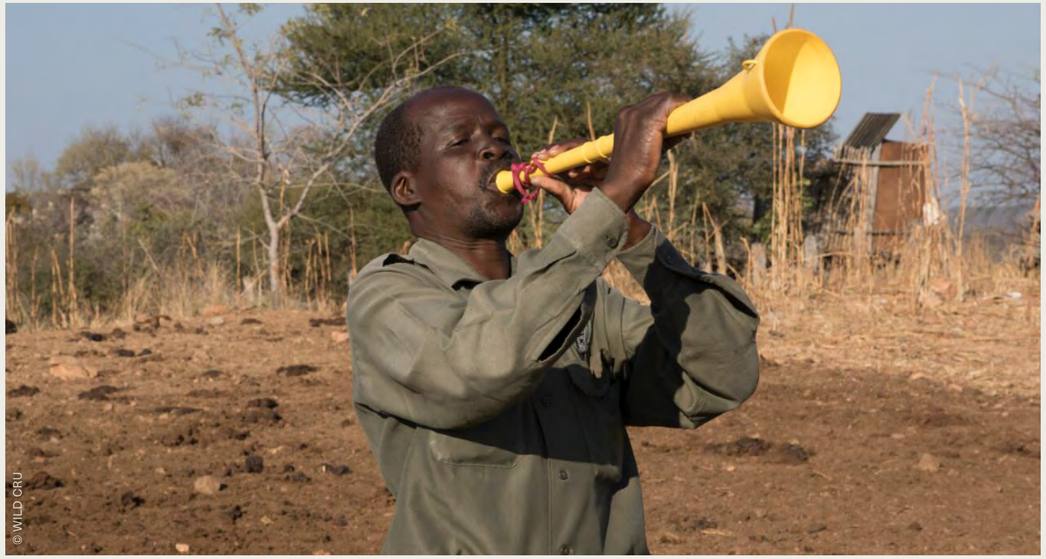
ACTIVITIES

In 2013, the “Long Shields Lion Guardian Programme” (hereafter “LSLGP”) was launched as part of the TKPP in Tsholotsho and Mabale. Forty-two villages (1 459 households, which is about 50 percent of the total households) were selected to be part of the LSLGP. The LSLGP recruited local men (n=8) and women (n=2) from the community, to serve as community guardians, identified through referrals by the community leaders.

THE GUARDIANS WERE BOTH YOUNG AND OLD MEMBERS FROM THE COMMUNITY, BRINGING VARIOUS SKILLS AND KNOWLEDGE TO THE ROLE, AND WERE RESPECTED WITHIN THEIR COMMUNITY.

The guardian's role was to provide an interface between conservation and the community. They collected information on how livestock were being protected in the area, recorded wildlife sightings, attended any conflict incidents to gather information about the event and provided immediate help, advice and training to community members regarding livestock protection. Guardians actively patrolled the communal areas, monitoring for animal movement and often, when on patrol, recovered lost livestock and returned them to the owners. The TKPP fitted GPS satellite telemetry collars to

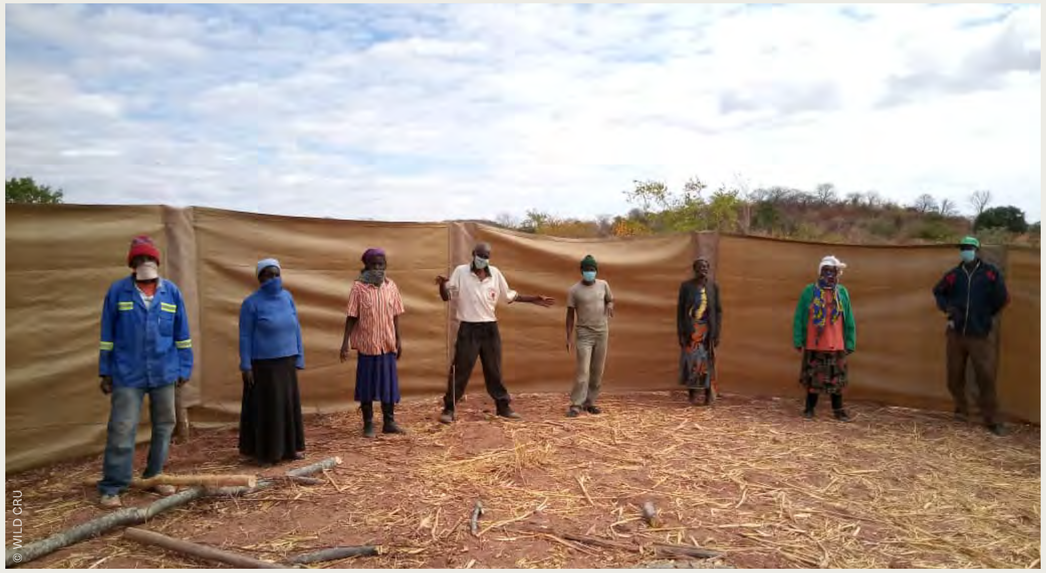


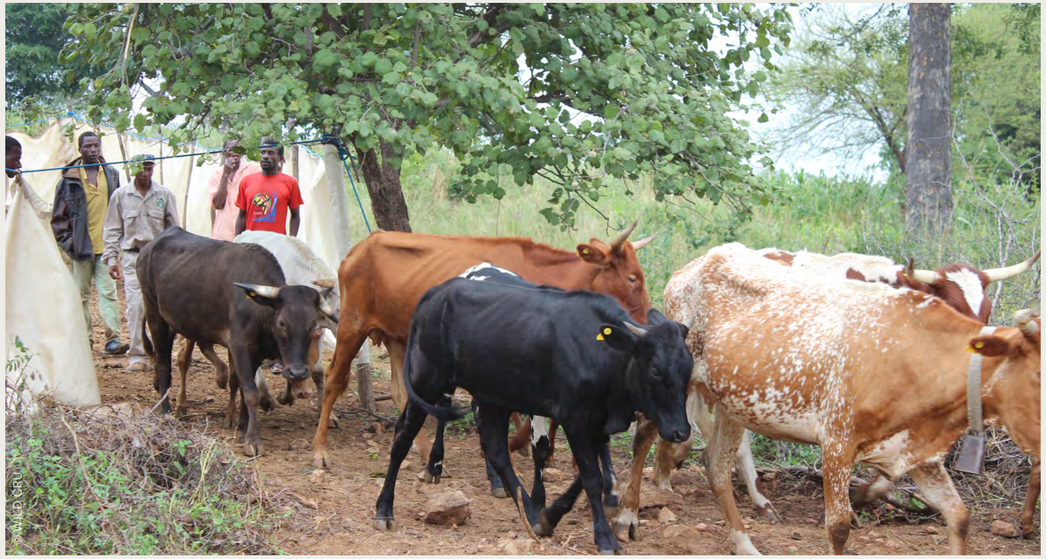


‘potential problem lions’ (whose home range overlapped significantly with local communities and they were more likely to cause problems), living close to the boundary of the park. The collars provided an early-warning system whenever the lions would move into the community land from the national parks. The guardians monitored the lion's movement and advised farmers on the best actions to avoid any losses. When a collared lion crossed a park boundary from the national park into communal lands, the guardians were alerted via mobile phone. Using WhatsApp, and by visiting homesteads in the vicinity, the guardians then alerted community members to move their livestock to a safe area. During consultations, farmers mentioned that this aspect of the LSLGP has helped them avoid problems with lions. In order to deter lions from community areas, the guardians hazed trespassing lions using noise makers such as vuvuzelas (a long horn blown by fans at soccer matches in South Africa). When the guardians were alerted about the presence of a lion, they gathered community members and moved to the GPS location of the lion. Once the lion had been located, they would gather in a line and blow the plastic horn, making noise, flushing out the lion from the area. The effectiveness of this method has been evaluated and evidence suggests hazing lions using a vuvuzela is an effective tool against depredation in this area. However, the success of such a tactic was dependent on multiple factors, including the proximity to the park, the size of the pride (small prides are easier to deter) and the stability of prides (socially stable prides are easier to deter).

Preventing the reoccurrence of depredation through this method was also dependent on how often the lions had been hazed, how often the lions had killed livestock and how much time the lions had spent in close proximity to people.

Despite the guardians keeping GPS collared lions out of communal lands, predation on livestock still occurred as not all lions were GPS collared, and other predators such as spotted hyaenas were not monitored at all. Predation occurred predominantly on livestock that were left outside protective enclosures at night, or housed in poorly constructed enclosures, pointing to a need to improve livestock protection. The TKPP implemented the use of mobile communal bomas pioneered by the African Centre for Holistic Management near Victoria Falls. The mobile bomas were constructed with opaque PVC canvas supported by wooden poles and suspended on ropes, and boma sites were rotated between arable fields on an approximately two-week cycle to facilitate fertilisation of crop land. The opaque walls of the boma appeared to deter predators from entering and attacking livestock.





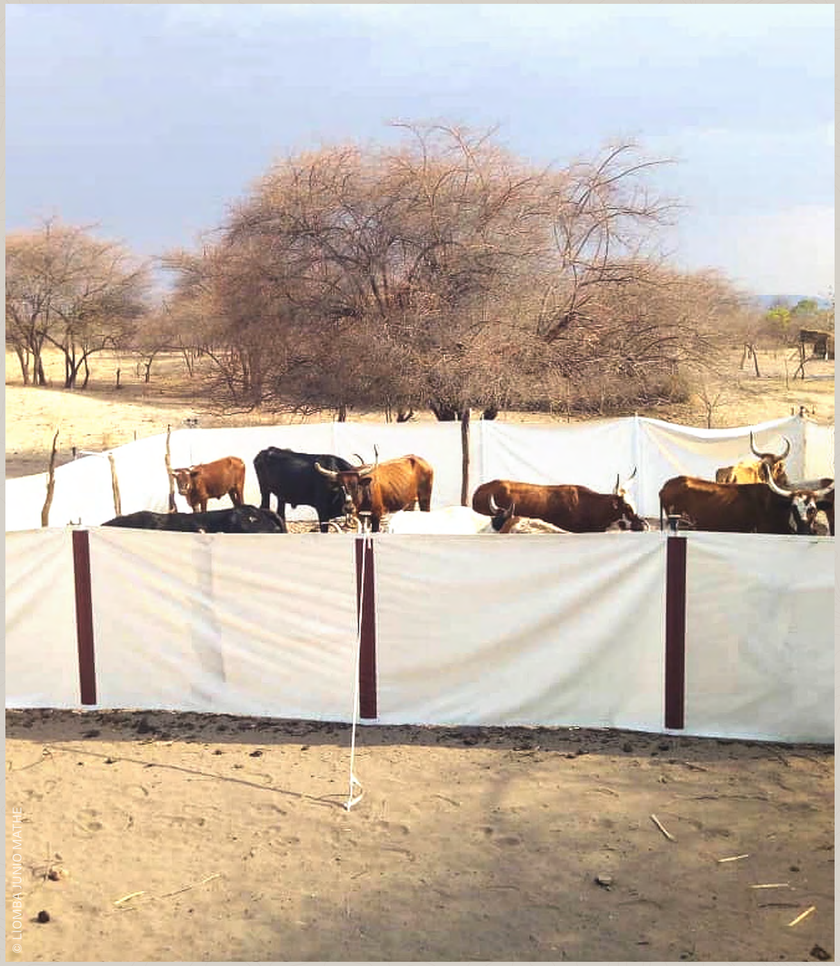
Earlier versions of mobile bomas were 25 x 25 metres and could accommodate up to 250 cattle overnight, although smaller sizes and construction methods have since been trialled. Crop production on mobile boma fertilised fields has been evaluated and suggests that crop yields can be increased by up to 50 percent, using this method. This provides a significant benefit to communities using bomas and provides a clear incentive to improve livestock husbandry and protection.

TO ENCOURAGE FULL ADOPTION, THE COMMUNITY WAS GIVEN SOLE MANAGEMENT OF THE BOMA, DECIDING WHICH FIELDS THE BOMA SHOULD BE PLACED IN AND FOR HOW LONG DURING THE DRY SEASON WHEN FIELDS WERE LEFT FALLOW.

THE CHALLENGES OF REPLICATING A SUCCESSFUL PROJECT

Following the success of the LSLGP and mobile bomas in Zimbabwe, researchers from the TKPP aimed to replicate the programme in two other regions in Botswana (Chobe Enclave and Khumaga) where human-wildlife conflict was prevalent, and they provided vital connectivity sites in the KAZA region. Despite impacts between large predators and people being similar in the two countries with lions predating on livestock, there were many differences compared to the Zimbabwe component of the TKPP, from governance and legislation in place, to certain community and geographic aspects. A similar process was espoused, of employing local community guardians from the villages, whose role was to monitor the area for large predator presence and attend livestock depredation incidents to gather data.

One component of the TKPP in Botswana that did not replicate well was the use of mobile bomas. Despite farmers in the region kraaling their cattle at night, adoption of the mobile bomas was limited. In comparison to Zimbabwe, agricultural fields and cattle posts were situated far apart in the Botswana study regions, which is a product of the land allocation process in Botswana, whereby the Ministry of Agriculture already separates livestock and crops. Consequently, people were unwilling to put their livestock in a field at night which was at a significant distance away from their normal kraal and their homestead. Cultural barriers also prevented community members from kraaling their cattle communally, as the mixing of cattle from different families was believed to cause bad luck in the local cultural beliefs.



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In the Chobe Enclave region, most agricultural fields are found along the Chobe River, in the form of molapo fields. These fields are ploughed along the floodplain and use the receding flood water levels to irrigate the soil. This soil is already highly fertile, negating the need for fertilisation by livestock. Moreover, mobile bomas could be flooded by high water levels, and would need to be moved further away during high river floods.

Another challenge was the landscape. Cattle were expected to be kept in the mobile bomas during the dry season to fertilise the land, ready for ploughing in the wet season. In Botswana, grazing availability in the dry season is limited. In many regions, cattle are not kraaled at night during this period because it is too energetically costly for the cattle to move back and forth between the cattle post and grazing land each day. Therefore, without significant changes towards a more nomadic lifestyle, farmers were unwilling to keep the cattle in the mobile boma at night.

Without the benefit of fertilising fields, the mobile bomas did not offer significant benefits to the community members and were not cost effective. Therefore, the TKPP in Botswana needed to adapt, and after consulting with the community on the best way forward, it was decided to construct individual, reinforced, chain-link bomas that were more appropriate to the local conditions.

This case study highlights that despite an initiative being successful in a particular region, local conditions in another region mean that it might not be successful and there might be a need to significantly adapt a solution when applying it elsewhere.

OUTCOMES

Since the LSLGP's establishment, there has been up to a 50 percent reduction in livestock losses by lions between 2008 and 2018. Significantly fewer lions were killed in retaliation (41 percent less than when the programme started), with a clear linkage between the decrease in losses and the LSLGP's work in the area.

BETWEEN 2017 AND 2021, 798 MESSAGES WERE SENT TO THE GUARDIAN TEAM SIGNALLING THE PRESENCE OF LIONS, WHICH WERE THEN RELAYED TO LOCAL FARMERS TO ENCOURAGE THEM TO PROTECT THEIR LIVESTOCK.

Guardians also recovered over 1000 lost and strayed livestock during this period, valued at USD 484 300, which was significantly more than the value of livestock killed by predators during the same period (USD 256 150). In fact, the local community now often contacts the guardians when looking for assistance to find strayed livestock.

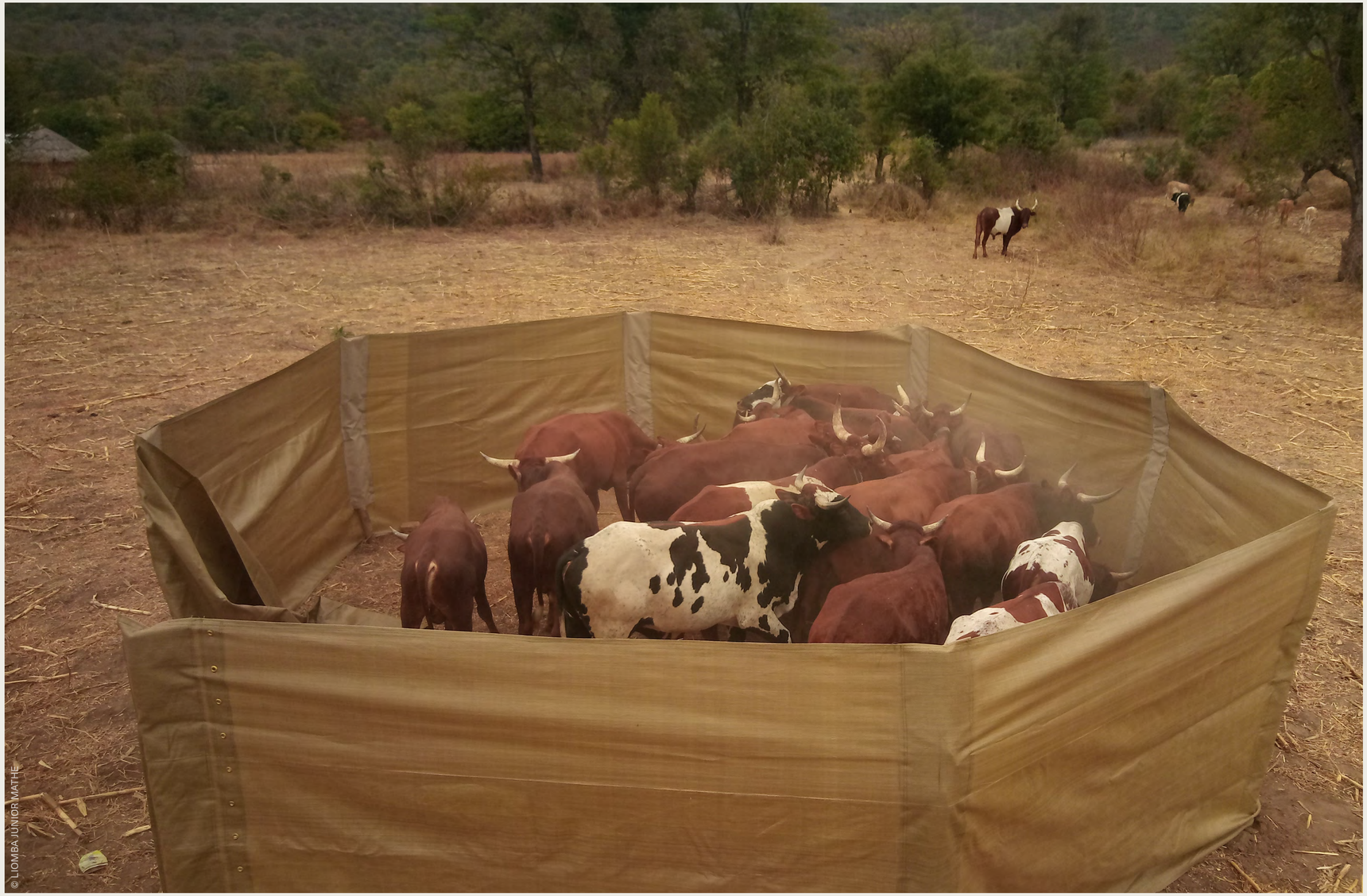
During interviews, community members have also acknowledged the LSLGP's success. A survey conducted in 2017 to assess changes in farmers' attitudes towards lions, after the initiation of the LSLGP, found that in comparison to 2009 there had been a significant positive shift in local attitudes towards lions; and by comparison farmers that were part of the LSLGP had a greater improvement in attitudes compared to farmers that were not enrolled in the programme. Even farmers that were not part of the LSLGP but had close connections to farmers that were perceived benefits from the LSLGP, as they had benefited indirectly from warnings about predator's presence.

NINETY ONE PERCENT OF FARMERS INVOLVED IN THE LSLGP FELT THAT LIVESTOCK PROTECTION HAD IMPROVED, AND 64 PERCENT FELT THAT LIVESTOCK LOSS HAD DECREASED. HOWEVER, PEOPLE WERE STILL WORRIED ABOUT LION PREDATION AND THE DANGERS LIONS POSED TO HUMAN SAFETY, WHICH IN TURN WILL REQUIRE A LONGER-TERM ENGAGEMENT IN ORDER FOR THIS ASPECT TO BE ADDRESSED.

To date, 33 mobile bomas have been deployed in the Mabale area to support 172 local farming households, with 1 573 cattle using the enclosures. No lion has breached the bomas to kill cattle in the Zimbabwe study sites, since the mobile bomas were introduced in 2014. In addition, the guardians have carefully monitored crop growth and yields for fields treated with a mobile boma and control sites, finding that maize plants grown in fields with a mobile boma were taller, healthier and produce three times as many cobs as plants in control sites.

ULTIMATELY, FIELDS TREATED WITH A MOBILE BOMAS RESULTED IN UP TO A 50 PERCENT INCREASE IN CROP YIELD DUE TO THE FERTILISATION OF THE SOIL BY THE CATTLE, IMPROVING FOOD SECURITY SIGNIFICANTLY.

An economic study also found that community members who participated in the LSLGP and the mobile boma programme showed a high willingness to pay for both programmes, and another study reported that participating in the programmes resulted in a more positive attitude toward coexisting with lions.



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KEY INSIGHTS & LESSONS LEARNT

01 BASELINE DATA AND TOC

The TKPP had established a considerable baseline dataset and understanding of the region's situation regarding the human-wildlife conflict. Using this data, a theory of change was developed from the start of the TKPP, identifying what could be achieved in the short and long term.

02 VARIATION IN ADOPTION

The TKPP found that the adoption of the interventions varied across the community members in Zimbabwe. Some members were quick to adopt the ideas presented to them, whereas some were slow, and others wanted to see positive results first, while some only adopted the interventions after an influential community member had done so. This highlights that the reason for adoption is not homogenous across a community, showing the variability and a need to be flexible when implementing such initiatives.

03 LOCAL RESEARCHERS AND CO-DEVELOPMENT

The researchers implementing the TKPP came from the local communities in the Hwange region. They felt this strengthened relationships with the community, as they could communicate in local languages. Rather than asking them to conduct themselves in the same way as the Lion Guardians in Kenya, they asked the communities what they thought of the activity, whether they had considered chasing lions away and whether an adapted version of the Lion Guardians would work in Zimbabwe. Through the adjustment of the activities by the community to the local context, adoption and implementation was greatly improved.

04 QUANTIFYING SUCCESS

Once communities had heard about the success of the guardians approach and mobile bomas, they requested these actions to be implemented in their own community. Managing their requests was difficult as the community members requesting the actions had genuine problems and felt ignored. Establishing efficacy was difficult because some activities improved the situation in other communities through word of mouth. When the LSLGP notified community members of a lion being present, this information was shared with control communities who could then move their cattle from the area. Finding a compromise between experimental design and maintaining relationships with local communities was essential.

05 COMMUNICATION AND ALERTS

When the LSLGP was first established, it was decided that warning messages regarding lion presence would be sent via WhatsApp on mobile phones. Whilst monitoring the LSLGP, some farmers continued to lose livestock despite warning messages being communicated. Through further investigation, it was determined that some community members did not have access to compatible phones or couldn't afford to buy data bundles and were therefore not receiving the warning messages on time. Since detecting this shortcoming, the LSLGP has tried to diversify how messages are transmitted using WhatsApp, SMS, and through word of mouth, where guardians talk directly to community members.

06 LOCAL LION GUARDIANS

While the employment of well-respected community members in the role of guardians meant that communication with local communities was simplified, if those guardians lost the community's respect, the LSLGP often faced a difficult situation, as the role of the guardians was to be ambassadors to the community. Without being respected, guardians' roles were compromised, and the ability to conduct their job was hindered.

07 COMMUNITY-CHOSEN REPRESENTATIVES

Local villagers were encouraged to submit the names of five respected villagers to then be selected as guardians. By doing so, the aim was to encourage the villagers to fully adopt the LSLGP as their own, and increase the chances of success. This resulted in a feeling of ownership of the process and the local people did not feel left out in the designing of interventions meant to assist them.

08 ACKNOWLEDGE FAILURE

The TKPP made sure that where activities did not work, acknowledgement for this was made, and meetings would be held with the communities to understand why activities had not worked together through open discussions.

FURTHER INFORMATION

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ABOUT THE CASE STUDIES

The **Food and Agriculture Organisation of the United Nations** (FAO) and the **IUCN SSC Human-Wildlife Conflict & Coexistence Specialist Group** (HWCCSG) have jointly developed a set of case studies with the aim of covering the process projects have taken to manage various aspects of a human-wildlife conflict & coexistence situation. This case study is one of many that will be used to illustrate key components of the **IUCN SSC Guidelines on Human-Wildlife Conflict & Coexistence**. The published case studies can be found in the **Human-Wildlife Conflict & Coexistence Library**.

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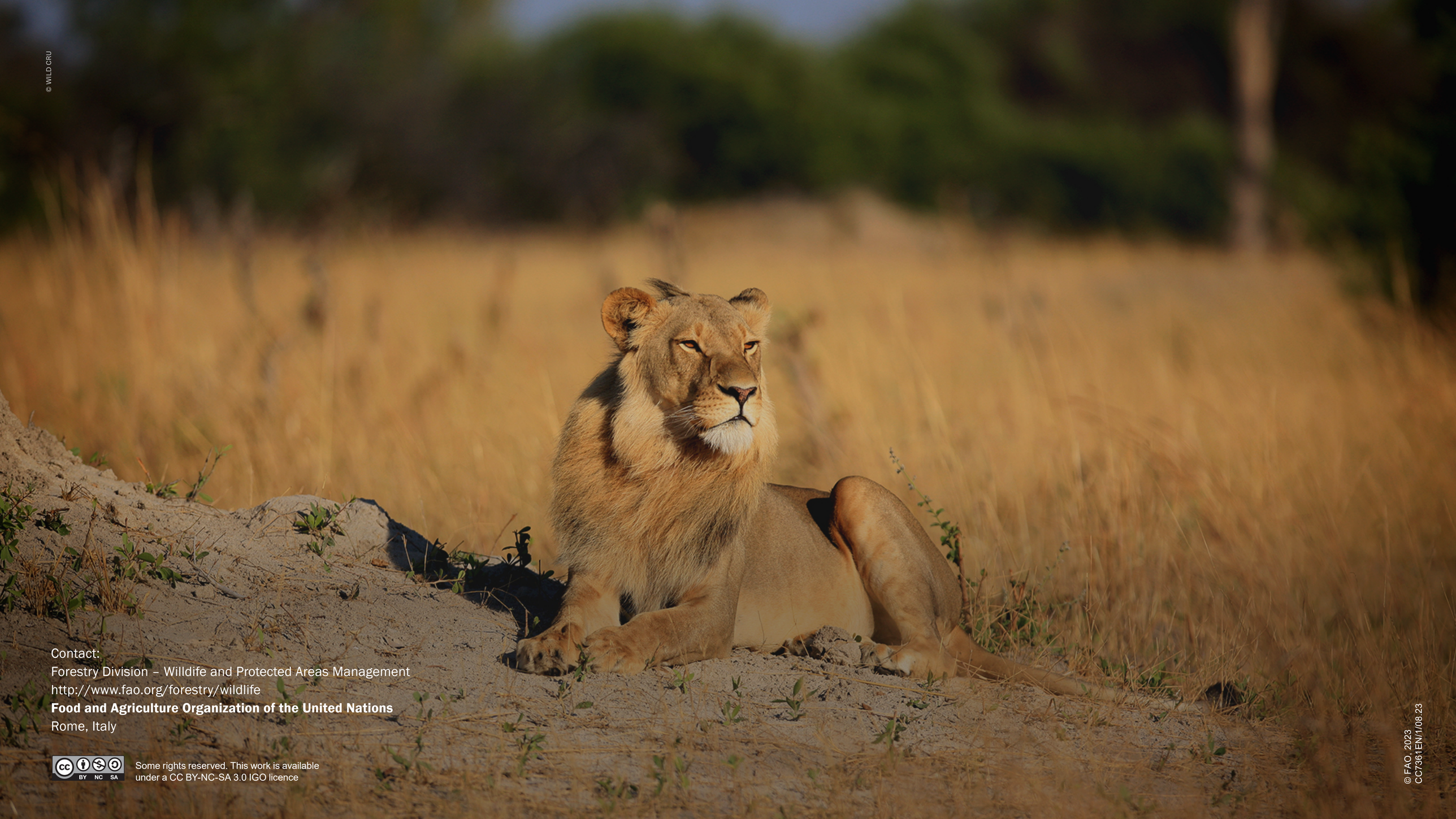

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