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## Article

# Paying for the Past: The Importance of Fulfilling Promises as a Key Component to Resolving Human–Wildlife Conflict

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**Abstract:** Damage-causing animals (DCAs) originating from protected areas which inflict damage on persons and property are particularly contentious when promises to satisfactorily address such conflicts, either by protected areas or other management institutions, are left unfulfilled. Human–wildlife conflicts (HWCs) of this nature can erode trust and if not adequately resolved, assure the maintenance of tense relationships between parks and neighboring communities. This paper, based on archival research, interviews and community focus groups, examines management responses to the long history of DCAs exiting the Kruger National Park (KNP), South Africa. First, I document historical promises of compensation and the subsequent responses by conservation agencies to local communities to address these past injustices. Recent strategies to the DCA problem at KNP have been multi-faceted and include a wildlife damage compensation scheme initiated in 2014 which entails financial retribution given to affected farmers who have lost, and continue to lose, livestock to DCAs originating from the park from 2008 to date. I then present livestock farmers’ recent perceptions of DCAs, the compensation scheme itself, and proposed avenues for going forward. Despite continuing challenges in the process, I demonstrate that fulfilling promises is a key step to building relational trust and legitimacy and must be considered in similar contexts where protected areas and other conservation agencies are key actors in managing HWC.

**Keywords:** damage-causing animals; human–wildlife conflict; institutional trust; Kruger National Park; livestock compensation; park–community relationships



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## 1. Introduction

The IUCN SSC Human–Wildlife Conflict Task Force [1] defines human–wildlife conflict (HWC) as “struggles that emerge when the presence or behavior of wildlife poses actual or perceived, direct and recurring threat to human interests or needs, leading to disagreements between groups of people and negative impacts on people and/or wildlife.” Humans and wildlife have a long history of interaction, referred to in literature as early as the 8th century BC, in which Homer writes about lions who ‘plunder homesteads and carry off sheep and cattle till they get killed by the hand of man’ ([2] Book V, lines 548–550). However, the frequency of conflicts involving wildlife has grown in recent decades, mainly because of exponential increases in human populations and concomitant expansion of human activities [3], enlargement of some wildlife distributions [4], as well as a frequent inability of institutions that are responsible for mediating such conflicts to respond effectively [5]. The prominence of HWC as a conservation concern has increased to such a degree that, according to the most recent update of the Zero Draft of the Post-2020 Global Biodiversity Framework [6], its reduction has been identified as an independent 2030 Action Target (Target 3) commensurate with active conservation management, although the reduction target (%) has yet to be established.

Protected areas (PAs) are particularly important actors in managing HWC, especially where they serve as the origin of damage-causing animals (DCAs) and are specifically mandated for their protection and persistence [7–9]. Their role is intensified when, largely

driven by new models of PA establishment and management [10], these same institutions are further mandated to serve the communities which live in close proximity to their boundaries. This leads to the development of relationships between parks and communities that are increasingly complex and dynamic. The ebb and flow of such relationships are influenced by a myriad of factors, not least of which is the management of HWC. With long histories of struggles involving DCAs that exit PAs and negatively affect human well-being, wildlife and conservation areas, this remains a contentious issue for institutions responsible for conservation and communities alike [5,11]. Such conflicts that are not adequately resolved, either at fenced parks or more open systems, assure the maintenance of tense relationships between parks and communities.

Embedded within these relationships is the critical element of trust, which is often considered the currency of a relationship. Further, trust can be multi-dimensional, embodying both relational trust (e.g., shared values and goals) and calculative trust (e.g., assessing past behavior to assess confidence in future behavior) [12,13]. This suggests that trust is mutable and is continually influenced by both the commonality of partners and by their interrelational behavior [14]. In park–community relationships where trust has been weakened by, e.g., asymmetrical power dynamics or the perceived discounting of preferences and expectations, this has had far-reaching effects including feelings of loss of dignity, voice, and control on both sides [15]; triggering renewed resentment of injustices peripheral to the current one [16]; lowering belief in agencies' communication regarding the risks and benefits of hazards such as predators [13]; diminishing procedural equity and institutional legitimacy [17–19]; and reinforcing barriers to further collaboration [20]. From a conservation perspective, mistrust and resentment towards conservation agencies has resulted in arson within protected areas [21]; lowered tolerance for wildlife [22], particularly for those species for which there is less knowledge [13,23]; carnivore poaching [24]; and even protected area closures [25], all of which undermine conservation sustainability and human well-being. These repercussions are exacerbated in large, complex social-ecological systems [18], or in contexts where risk perception of farmers is strongly influenced by other farmers in networks prone to high social transmission, leading to 'spillover' impacts across wider landscapes [26].

As part and parcel of factors contributing to mistrust, broken promises are particularly insidious. Furlong [27], in his *Conflict Resolution Toolbox*, postulates that when offences (such as broken promises) are repeated between parties, attribution and blame often move from 'intrinsic' to 'intentional', whereby the offended party begins to assume that the offender is acting intentionally (badly) and with full control of the situation. This relational environment becomes exceedingly corrosive and establishes high levels of blame, further erodes trust, and a sense that further interactions with the offending party are deemed too risky, even including attempts at conflict resolution. Self-evidently, this is a situation which conservation agencies should avoid in their relationships with local communities, and vice versa. Indeed, based on a rich history of engagement with local communities, a number of principles articulating the fallacy of breaking promises in park–community relations have already been widely asserted:

- “Stand by agreements that are made. There is nothing like a broken promise to make other stakeholders lose trust.” ([28], p. 15);
- “Never create false expectations and make promises that the protected area cannot deliver in the long run, and be open about the time lag.” ([29], p. 18);
- “Responsiveness Principle: Don't make promises and create expectations that one cannot keep.” ([30], p. 1586).

However, despite the widespread acknowledgement of the danger of broken promises in park–community relationships, and their outcomes, there have been no empirical studies that have articulated and discussed how these have been manifested in HWC contexts.

### *Case: Kruger National Park, South Africa*

“The general impression left on my mind was that, with civilization closing in on all sides, ultimately something must be done to segregate the game areas from those used for farming; otherwise sooner or later some excuse for liquidation of the wild animals will be found . . . North of the Letaba River the country West of the Park consists mainly of native locations and areas. Here the Park itself might be fenced off.”

This statement by the (then) Warden of the Kruger National Park (KNP) in South Africa, James Stevenson-Hamilton, as part of his 1945 Annual Report to the National Parks Board of Trustees ([31], pp. 11–12), was one of the earliest recorded declarations of a problem that would plague KNP and its neighbors for many decades to come, i.e., the conflict between the interests of the park and its rural neighbors, and appropriate measures to manage that conflict.

The long history of HWC at KNP and its repercussions have been well documented elsewhere [5,7,32–35]. Essentially, this has entailed DCAs exiting the fences of the park, inflicting damage on persons and property, crops and livestock, facilitating disease transfer between wildlife and livestock, and undermining the well-being of local communities. Eventual responses by the KNP and its larger governing body, SANParks, have included targeted engagement with community fora, negotiating with provincial departments for DCA management outside park borders, appropriate boundary management, and a wildlife damage compensation scheme initiated in 2014 with local communities, which entails financial retribution given to affected farmers who have previously lost, and continue to lose, livestock to DCAs originating from the park [36,37]. However, here I focus on a common thread that has beset conservation agencies in the study area for decades, that is, the consequences of unfulfilled promises of compensation for damage as a result of DCAs. I then outline how trust is being built through these more recent management interventions.

## **2. Methods**

As this research includes both historic and more recent events, I drew from data across a range of sources, utilizing multiple methods to investigate the research problem [38]. This ‘triangulation’ is believed to proffer increased reliability in qualitative research such as this [39].

### *2.1. Interviews*

This study draws from over 100 informal and semi-structured interviews conducted between 2004 and 2018 with key informants including KNP/SANParks staff, provincial conservation agencies, community leaders, Traditional Authorities, community fora representatives, and livestock farmers adjacent to the park. These interviews were primarily drawn from a purposive sampling strategy and took place in both individual and group settings.

### *2.2. Archival Research*

A wide review of HWC and compensation schemes (and their evaluations) in similar contexts (both in southern Africa, and worldwide) was conducted from published literature. In addition, content analysis of relevant records pertaining to the DCA problem at KNP was carried out. These documents include legal and policy documents concerning DCAs of relevant provincial and federal bodies, as well as KNP and SANParks; provincial and SANParks Annual Reports; KNP Management Plans (2008; 2018–2028) and associated Stakeholder Comment Registers (2006; 2018); and community fora meeting minutes, particularly as they pertain to DCA issues and/or compensation.

### *2.3. Focus Group Workshops*

In accordance with Jeffery and colleagues [40], four focus groups were conducted in May 2018 to elicit livestock farmers perceptions of the status quo of DCAs, experiences

with the livestock damage compensation scheme since its inception in 2014, and to seek inputs on what was needed for improving the scheme and the management of DCAs going forward. Participants were selected based on invitations from community forum representatives in the four areas, with a recommendation that participants be livestock farmers and at least some have had direct experience with the compensation scheme. All workshop participants were initially briefed on the research ethics and purposes of the workshop. Workshop participants were provided with lunch.

Within an adaptive management framework [41], the draft KNP Management Plan 2018–2028 [42], and guided by both the objectives and indicators identified in workshops from 2014 [36], the following three broad research themes, and associated questions, served as the avenues of investigation for the workshops:

1. The current situation (post-2014) regarding DCAs in the neighboring villages, as perceived and experienced by livestock farmers;
2. Livestock farmers' experiences with regard to the compensation scheme so far; and
3. Workshop participants' suggestions for various stakeholders for going forward with respect to reducing human–wildlife conflict and improving the compensation scheme.

#### 2.4. Data Analyses

As this study was largely qualitative in nature, I utilized the Miles and Huberman [43] interactive structure, in which qualitative data from all sources were analyzed in three main components:

1. Data reduction:
  - (a) Editing, segmenting and summarizing data;
  - (b) Coding and memoing, finding themes, clusters and patterns;
  - (c) Conceptualizing and explaining.
2. Data display: organizing, compressing and assembling information.
3. Drawing and verifying conclusions.

#### 2.5. Ethics Protocol

A number of important principles in research ethics were adhered to in this research's protocol, as approved by both the Central European University, and SANParks. These included respect for free and informed consent, privacy, confidentiality, and anonymity [44].

### 3. Results

#### 3.1. Promises Made

Problems of DCAs and the lack of compensation for damages inflicted on neighboring communities were raised at the very first meeting in 1994 of the Hlanganani Forum (HF), one of seven community fora that were initiated by SANParks after the dissolution of Apartheid (a policy that governed relations from 1950 to 1994 between South Africa's white minority and non-white majority and sanctioned racial segregation and political and economic discrimination against non-whites [45]) in order to facilitate more effective and regular communication between SANParks officials and people living outside but adjacent to the park ([46]; Figure 1).

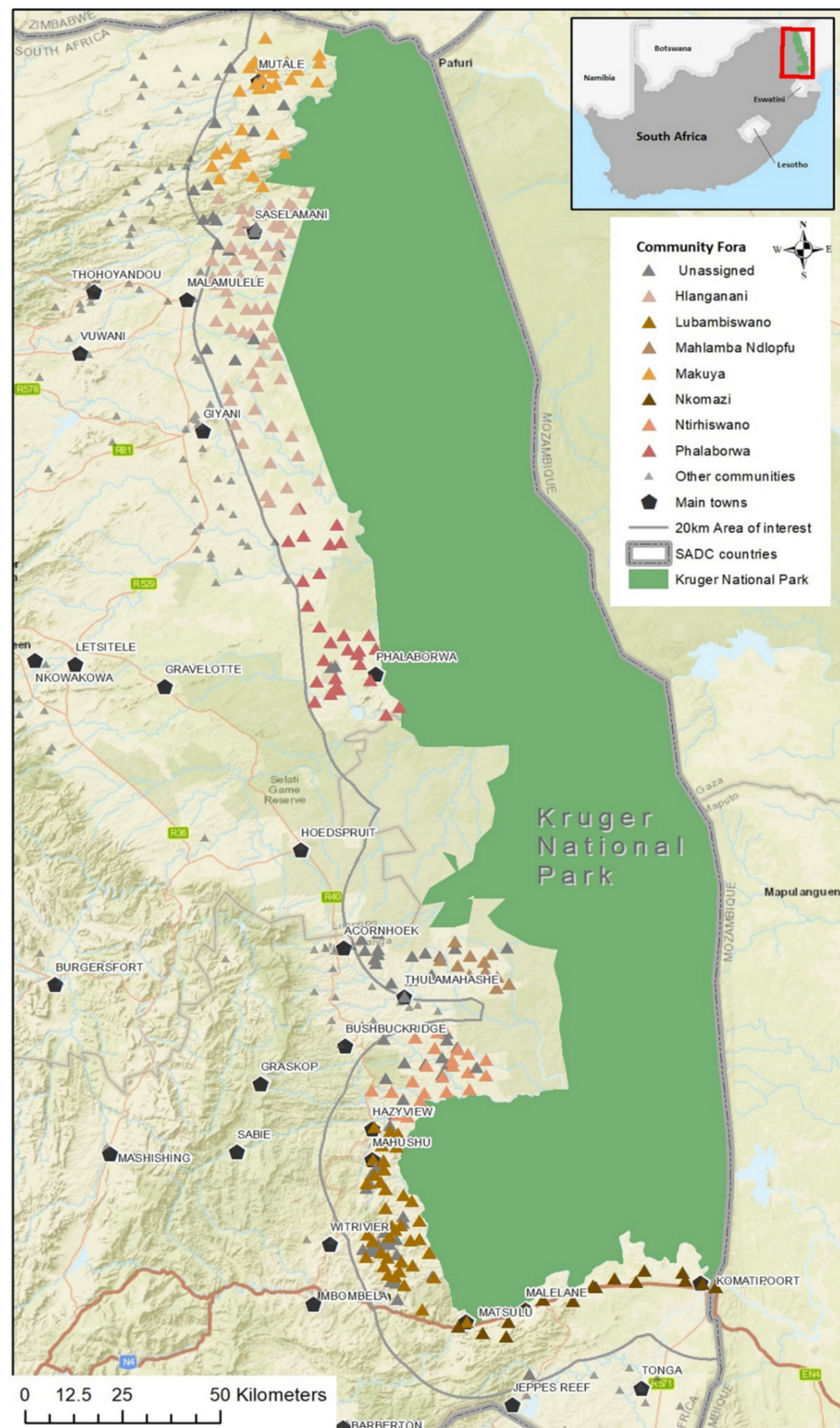


Figure 1. KNP in South Africa, and villages represented on various community fora (courtesy of KNP GIS Lab).

The DCA issue, including lack of compensation, was the most prominent and acute theme in the first 10 years of monthly meetings between the HF (representing up to 27 villages) and the KNP [33]. This trend did not subside and problems with DCAs persisted.

Occasions on which livestock farmers and community representatives were (i) promised compensation, (ii) only received partial compensation, or (iii) where suggestions for future compensation were made are listed below in chronological order:

- KNP proposes that any meat or monetary compensation generated from DCAs should be channeled back to the communities troubled (03/1994, HF meeting minutes).
- KNP stressed that only once the border fence had been electrified could insurance be taken out to compensate people for any losses (07/1994, HF meeting minutes).
- It was pointed out that current Gazankulu Nature Conservation (GNC; the antecedent of the current Limpopo Province Department of Economic Development, Environment and Tourism (LEDET)) rules do not make provision for compensation; however, the GNC are investigating the possibility of diverting some of the funds generated by trophy hunting to people that have experienced losses (07/1994, GNC-KNP meeting).
- A farmer from HF1 (village names have been renamed to ensure anonymity) village was compensated 4500 ZAR (~880€ equiv.) from HF funds for cattle killed by lions (Latin names for all flora and fauna in the article can be found in the Appendix A) (05/1997, HF meeting minutes).
- From 1985 to 1998, at least 500 cattle were killed by wild animals in HF2 and HF3, plus one person was seriously injured in a lion attack in November 1998. From HF4 alone, losses due to lion are 15 cattle and 3 heifers, and 15 goats and one person by crocodile. No compensation for livestock loss has been paid. Eleven communities wanted to enter into agreement with (name of Trophy Hunting Outfitter omitted to ensure anonymity) to hunt problem animals, whereby income would go to communities to compensate farmers suffering livestock loss (12/1998, Trophy Hunting Outfitter letter to (then) Northern Province).
- HF compensates 24,000 ZAR (~3740€ equiv.) from the sale of two lion skins by the KNP to eight farmers from four villages for livestock loss. Concern was raised, however, that this compensation scheme by HF of 1500 ZAR (~234€ equiv.) per head of cattle was not market related as cattle were worth at least 2500 ZAR (~390€ equiv.) (10/1999; 01/2000).
- Before the electric fence was erected, communities were promised by KNP that once it is in place, an insurance policy would be taken out in order that communities would be compensated for livestock/crop loss due to problem animals. After the fence was erected, it was remarked that KNP cannot take an insurance policy out on something it does not legally own (01/2000, HF meeting minutes).
- HF has no money to compensate farmers because both the KNP and the Northern Province state that they are not willing to deposit money in the Forum's account until it is registered as a Section 21 company (Section 21 of the Companies Act 61 of 1973 allows for a 'not-for-profit company' or 'association incorporated not for gain'. Source: <https://www.etu.org.za/toolbox/docs/building/lrc.html>, accessed 22 April 2021) (02/2001, HF meeting minutes).
- Community members are losing hope in the HF as they are not receiving compensation (10/2003, HF meeting minutes).
- HF claimed that it had been promised 6 million ZAR (~600,000€ equiv.) from Limpopo Province, based on trophy hunting tenders, for livestock compensation after it had registered as a Section 21 company (08/2002), and that this was to take place before 03/2004. The funds never materialized. This promise of compensation was confirmed by a provincial Department of Finance and Economic Development–Environmental Affairs (DFED EA; now LEDET) staff member in April 2004 who stated that *“the MEC [Member of the Executive Council] DFED promised compensation monies to the Hlanganani Forum about a year ago, but so far, nothing has materialized.”* He further remarked that *“politicians can promise anything, but administratively things don't always get done”*.
- Regarding the effects of broken promises and the fallout in some areas, a young man from HF5 village (who attended HF meetings in the past) exclaimed in an interview

in June 2004 that *“when no compensation ever materialized, especially after [KNP staff member] had promised it, the village pulled out of the Forum.”*

- A long list of grievances and questions about DCAs and lack of compensation to farmers for losses was submitted by stakeholders for consideration in preparation for the new KNP Management Plan (2006, KNP Management Plan Stakeholder Comment Register). One KNP response to a comment stated that *“an extensive part of the [stakeholder engagement] workshop was allocated to deal with DCAs because we know that people want Kruger to resolve this ongoing problem . . . Kruger still needs to address the issues of compensation and dealing with DCAs outside of the Park”* (Comment 20; Stakeholder Comment Register 2006). The acute issue of DCAs at the time led SANParks officials to highlight this issue in the final KNP Management Plan of 2008 as an ‘outstanding concern’ ([47] p. 16), for which a program involving ‘restorative compensation’ would be introduced with an estimated (but unsecured) initial fund of 6 million ZAR (~700,000€ equiv.) ‘required to redress the community losses over the years’ ([47] pp. 88–89).
- HF accuses KNP of ‘delaying tactics with regard to compensation’ (07/2007, HF meeting minutes)
- A representative from the Public Protector’s Office, which was called upon by the HF to assist in securing compensation, states in a 2013 interview that *“this issue is a long-standing problem and the communities could actually take this matter to the Constitutional Court”*.
- During a Special Park Forum Meeting in 2013, a comment from the floor iterates that *“For years people have lost livestock, and it wasn’t attended by KNP. After 1994, KNP established forums. The main aim of forums is to have communication and collaboration. For more than 20 years these forums were discussing issues relating to these communities. The most serious one is DCAs. People were promised compensation.”* (11/2013, Special Park Forum Meeting Minutes, Skukuza).

The recognition by livestock farmers and KNP staff alike that unfulfilled promises of compensation were made and needed to be addressed were also announced in public meetings. During the Special Meeting when the first set of compensation payments were issued to livestock farmers in June 2014, a KNP spokesperson emphasized that *“For decades we have been working to deal with the issue of DCAs. Compensation for the loss of livestock have been on the cards ever since the inception of the park. This has been engendered within all the community forums deliberations. In seeking solutions, many efforts were embarked on. There were times when lion skins would be sold with the view of using the funds for compensation.”* In the same meeting, a representative of the Livestock Farmers Association which borders KNP, remarked that *“SANParks and Kruger Park is aware of how far we have gone with this thing . . . We didn’t give up. We went back and continued until where we are today. We are saying to SANParks ‘Thank You’, however, we haven’t reached to where we want to be. SANParks, beware, . . . the communities have actually given us a mandate to come back and negotiate on top of what you’re offering today and we are saying again ‘Thank you’. We recognize your effort of cooperating with us, and there will be negotiations.”*

A long-time ranger of KNP, who had witnessed many of these discussions first-hand stated in 2013 that *“KNP had historically claimed the res nullius status of animals to shirk responsibility of compensating farmers. We [KNP] shrugged our shoulders. We shouldn’t have done that . . . even back in 1994, the corporate legal people were saying that this isn’t right. We were not really practicing ubuntu (Ubuntu is an African ethic or ideology which focuses on people’s allegiances and relations with each other [48]) at that time, allowing the sun to shine on our neighbours . . . [KNP staff member] even promised compensation, in form of insurance, to communities. This was stupid. He should have never done that as communities still bring up that promise.”* This admittance of unfulfilled promises of compensation by KNP to affected farmers was later echoed by a KNP social ecologist in 2017, whereby they recalled that *“Yes, these [past] promises are the things that make people confused”*.



### 3.2. Promises Addressed

After years of lobbying, meeting, planning and discussing, a decision was made in 2011 that SANParks/KNP would compensate livestock owners for wildlife induced losses and that a task team be set up to develop appropriate conditions. Compensation from game and nature reserves in South Africa is not legally obligatory and according to the Draft National Norms and Standards for the management of damage-causing animals in South Africa, “Each conservation authority *may develop a compensation strategy* for the payment of compensation to a person who has experienced damage caused by a damage-causing animal” ([49], emphasis added). In the case of the KNP, the decision to compensate was taken based on an understanding that compensation is just one tool in managing HWC adjacent to the KNP and would go hand in hand with other processes aimed at reducing contact between dangerous wildlife and livestock. The decision to compensate marked a watershed of change, as compensation is not something that SANParks had an official policy on at the time, and there were many concerns about the appropriateness of compensation as a conservation tool. However, compensation was something that had been spoken about and asked for in community forums for over 20 years, and it was decided on the basis of moral duty to engage in a process that could to a certain extent offset the costs of living with wildlife. It was also supported in the interests of procedural justice, being something that livestock farmers had been requesting for much of the history of the park. Furthermore, SANParks believed that undoing past negative impacts remain an essential part of building relationships locally, an important component for the sustainability of parks. In fact, one SANParks social ecologist remarked in 2013 that “... *the latest rounds of compensation discussions are giving the communities some hope and if the KNP does eventually provide compensation, it will do a lot to fulfil SANParks’ mission to ‘connect to society’.*”

A DCA task team was established consisting of SANParks staff from various departments (ranger services, people and conservation, conservation management, scientific services, and finance), provincial conservation representatives, livestock farmers and community fora representatives. When the team started work, the understanding from the beginning was that the process of setting up a compensation system would need to be participative and transparent in order to develop the necessary trust between SANParks and the communities, and to achieve the buy-in necessary to ensure the success of such a project. The task team met regularly over a period of two years to negotiate the terms of the KNP compensation policy. The main points of discussion at most meetings included the need for a fair rate of payment, as well as the starting date from which cases would be paid. Since the payment process started in 2014, over 350 individual cases have been paid, costing approximately R3 million (~175,000€) [50].

If submitted comments on the most recent KNP Draft Management Plan 2018–2028 [51], compared to the earlier (2006) management plan, can be used a proxy indicator of the scheme’s success, then of the list of 483 inputs submitted throughout the stakeholder engagement process, 146 (30.2%) involved grievances and questions about DCAs, just 29 (6.0%) concerned fence maintenance and the compensation process itself, and only 6 (1.2%) were related to lack of compensation to livestock farmers for losses.

In 2017, after the scheme had been in operation for less than 3 years, two influential livestock farmers who initially served as representatives on the DCA task team stated their satisfaction with KNP’s efforts this way, “*So, you cannot say that people only started talking about this [promised compensation] recently. It wasn’t like that. No, they said ‘We’re going to pay.’ I thought of this process as a starting point of a healthy relationship with KNP as it was lacking ... I think KNP is looking for ways to resolve the siege of DCAs and finding the best solution for all ... My expectations about the process were met-only if KNP will be sincere about our views and implement them as stated.*”

### 3.3. Livestock Farmer Workshops

Four workshops of approximately 2.5–3.0 h each in duration were conducted, consisting of:

- 4 community forum areas [Makuya (Venda), Hlanganani (XiTsonga), Phalaborwa (XiTsonga, Pedi), Lubambiswano (SiSwati)],
- 2 provinces (Limpopo, Mpumalanga),
- 35 participants [5–12/workshop; 26 male (74.3%); 9 female (25.7%)],
- 13 villages represented (Makuya = 1, Hlanganani = 2, Phalaborwa = 5, Lubambiswano = 5),
- 25 (71.4%) attendees who had submitted a livestock damage compensation claim form, and
- 7 (20%) attendees who had attended similar workshops in 2014 (see [36]).

Below, I present consolidated findings from the four workshops held with livestock farmers (see Table 1 for response summaries).

**Table 1.** Summarized responses to discussions held at workshops discussing human wildlife conflict and compensation. Letter codes denote workshop(s) where observation was made (A = ALL, H = Hlanganani, L = Lubambiswano, M = Makuya, and P = Phalaborwa).

<i>1. What Are Your Current Perceptions Concerning Damage-Causing Animals?</i>	
Has there been a change concerning DCAs in your village(s) in the last 3 years (2014>)? More/less/same?	<ul style="list-style-type: none"> <li>• DCA incidents generally lower than before 2014 (A), but with some variation with respect to location and species (e.g., higher in Musunda (M) in 2016–2017, hyena same (H))</li> </ul>
What DCA species are involved?	<ul style="list-style-type: none"> <li>• lion &gt; elephant &gt; leopard + jackals and baboons (M)</li> <li>• hyena &gt; lion &gt; leopard (H)</li> <li>• elephant &gt; lion &gt; hyena &gt; buffalo (P)</li> <li>• lion &gt; hyena &gt; leopard &gt; crocodile + elephant and hippo (L)</li> </ul>
Livestock vs. crop damage?	<ul style="list-style-type: none"> <li>• mostly livestock, but also crop damage (A)</li> </ul>
Time of year? Time of day?	<ul style="list-style-type: none"> <li>• lions mostly at night (A), but also sometimes during day (L), or when cloudy or rainy (H)</li> <li>• lions mostly in winter (L), but difficult to determine in some areas as mostly associated with fence condition (L)</li> <li>• hyena all year round (H)</li> <li>• elephant any time of day or night (A), but specifically during marula season (P)</li> <li>• buffalo any time of day or night (A), but specifically during rainy season (P)</li> </ul>

Table 1. Cont.

<p>What do you think are the reasons for any changes you have noticed?</p>	<ul style="list-style-type: none"> <li>• fence damage due to elephants, poachers, and floods (esp at rivers) (M,P,L)</li> <li>• lions dig under fences (M,P)</li> <li>• cattle sometimes stray next to fence and are killed (P,L), but there has even been cases where cattle are killed in kraal (L)</li> <li>• elephants attracted to marula and melons (P)</li> <li>• hyena stay in culverts under bridges and roads without returning to KNP (H); come out at night (H)</li> <li>• ranger vacancies in MNR means lower fence patrols (M)</li> <li>• hunter permits take too long (up to 7 days) and hunters only want trophy animals which are not necessarily the DCAs (M)</li> <li>• MNR fence problematic because there is no electricity at MNR (even within camps) (M)</li> </ul>
<p>If you encounter a DCA, what do you do?</p>	<ul style="list-style-type: none"> <li>• contact KNP/LEDET/MNR. If attended, then photos taken. If KNP/LEDET/MNR do not come, contact Tribal Authority. MNR/TA mostly contacted now as LEDET unreliable. They confirm damage, which is given to LEDET, who also record initial phone call even if they cannot attend (M)</li> <li>• report to Hlanganani Forum village representative and LEDET and take photo. LEDET comes to verify. KNP/LEDET co-operates (H)</li> <li>• we are supposed to report to KNP/LEDET to verify (take photos of spoor and carcass) (P)</li> <li>• take photo, and call MTPA to come and verify (L)</li> </ul>

Table 1. Cont.

<b>2. What Have Been Your Experiences with Respect to the Livestock Damage Compensation Scheme to Date?</b>	
What has been your experience, or that of people you know, regarding the DCA compensation scheme?	<ul style="list-style-type: none"> <li>• payment period too long (A)</li> <li>• thankful for R5000/cattle (A), but R7000 was the original agreement (M), and should be R8500-R10000 (L)</li> <li>• only some cattle/cases compensated with no reason why others were not (M,H)</li> <li>• KNP/farmer agreement was clear in past, but now KNP has changed because they are relying too much on LEDET records which are often absent because they do not attend (M,H)</li> <li>• reporting system is too complicated, especially when some elements missing (H)</li> <li>• difficult to take photos if one does not have a good camera or phone (M)</li> <li>• some livestock are lost and carcass only found later when evidence for DCA is difficult to find (H)</li> <li>• some forms not signed (P)</li> </ul>
Are payments being made in your villages? Pre/post-2014?	<ul style="list-style-type: none"> <li>• mostly pre-2014 (M), although some never knew of pre-2014 payments (P) or not all were paid (L)</li> <li>• some post-2014 payments made (H,P), although none that participants are aware of (L)</li> </ul>
How are these payments being made?	<ul style="list-style-type: none"> <li>• bank transfer, which largely works fine (A), but is difficult for some pensioners who often try to rely on younger people to do it (M)</li> </ul>
Has the compensation scheme met your expectations? Why or why not?	<ul style="list-style-type: none"> <li>• in part, yes (M), as some payments are being made, but payment price is too low (A), they take too long (M,P,L), and not all are being paid (without justification) (M,P,L) including those from before 2000 (L)</li> <li>• damage by leopard (H,L), cheetah (H), hyena (H), hippos (L), and baboons (L) should be covered, as well as crop damage (L)</li> <li>• Letter of Apology expected (P), but not necessary if payment made (H)</li> </ul>

Table 1. Cont.

<i>3. What Further Actions Should Be Taken to Reduce Human-Wildlife Conflict and Improve the Compensation Scheme?</i>	
What suggestions do you have for livestock farmers to collectively reduce conflict, and manage the impact of DCAs more effectively?	<ul style="list-style-type: none"> <li>• do not leave livestock unattended in bush, especially at night (M,H,L)</li> <li>• provide watering sources for livestock away from KNP and/or to prevent animals from traversing near KNP fence (H,P)</li> <li>• report poachers (P) or others who cut fences (L)</li> <li>• experiment with rotational grazing(?) (P)</li> <li>• fencing of grazing land to constrain cattle when they stray (P)</li> </ul>
What suggestions do you have for KNP to reduce conflict, and manage the impact of DCAs more effectively?	<ul style="list-style-type: none"> <li>• relax reliance on LEDET for records (M,H)</li> <li>• pay market value of all livestock lost to DCAs (M,P)</li> <li>• stick to your promise (M,P)</li> <li>• shorten payment waiting period (P)</li> <li>• maintain fence in better condition (H) and electrify (L)</li> <li>• before moving forward, pay all outstanding claims, not just some (M)</li> <li>• employ more villagers to reduce poverty to reduce poaching for meat (M)</li> <li>• increase security against poachers who cut fences (P)</li> <li>• cover leopard and crocodile damage under scheme (P)</li> <li>• when luring DCA lions, recognize that non-DCA animals may also be lured (H)</li> <li>• follow up on fence maintenance of MR/LNR (P)</li> </ul>
If applicable, what suggestions do you have for other institutions to reduce conflict, and manage the impact of DCAs more effectively?	<p><i>LEDET-Makuya Nature Reserve (M)</i></p> <ul style="list-style-type: none"> <li>• needs upgraded fence and proper maintenance including more staff to patrol fence and maybe cement underneath to prevent digging under</li> </ul> <p><i>LEDET (H)</i></p> <ul style="list-style-type: none"> <li>• regionalize (under-resourced) rangers so they can better respond to various areas</li> <li>• speed up attendance time, as if LEDET takes too long, it is tempting to take meat from carcass (which is against protocol) because if left too long, there is no meat nor compensation</li> </ul> <p><i>Mhtimkhulu Reserve/LEDET-Letaba Nature Reserve (P)</i></p> <ul style="list-style-type: none"> <li>• needs improved fence maintenance (and electric fence)</li> <li>• increase security against poachers who cut fences</li> <li>• do what you promised</li> </ul> <p><i>LEDET (L)</i></p> <ul style="list-style-type: none"> <li>• erect second fence between KNP and villages</li> </ul> <p><i>TransNet Freight Rail (L)</i></p> <ul style="list-style-type: none"> <li>• railway fence needs to be better maintained</li> </ul>

*The general perceptions of livestock farmers regarding damage-causing animals since 2014*

Workshop attendees noted that the number of DCAs and the associated number of DCA incidents have decreased since 2014. There is some variation with respect to species and location, but this aspect was attributed by participants to better patrolling and maintenance of border fences and also influenced by biophysical factors. Predominant DCA species include lion, elephant, and hyena, but a number of other species were also noted as problematic and causing both livestock and crop loss. Lions are noted to primarily attack

livestock at night and during the winter. Hyena are perceived as problematic year-round, with some residing outside protected area borders. Elephants were perceived by one group to be most problematic during marula and melon season (February/March), and continue to break through the border fences of KNP, Makuya Nature Reserve (Limpopo Province nature reserve bordering KNP in the north), Letaba Nature Reserve (Limpopo Province nature reserve bordering KNP north of Phalaborwa), Mthimkhulu Reserve (community reserve bordering KNP north of Phalaborwa), and that of the TransNet freight railway, which runs from Phalaborwa adjacent to KNP's southwestern and southern border.

The primary driver of DCA incidents is believed to be problems with the border fences, with contributing factors being in some cases poor (or absent) patrolling and maintenance, fence cutting by poachers, damage caused by floods, and/or lack of electricity. Other notable reasons include cattle (sometimes unattended), marula, and melons in close proximity to protected area fences, all of which act as lures to DCAs.

With respect to livestock farmer perceptions of the appropriate actions to take when encountering DCAs, there appears to be widespread awareness of the existence of the compensation scheme and what to do when encountering DCAs. However, it was noted by one workshop that the response of LEDET officials to attend DCA incidents and verify reports is unreliable.

*Livestock farmer experiences of the Livestock Damage Compensation Scheme to date*

Almost all farmers were highly appreciative of compensation when it occurs, and particularly for retrospective payments that had been made, which has addressed past promises. However, workshop participants expressed their concern with a number of issues pertaining to the compensation scheme, namely:

- The R5000 compensation per cattle lost to predators is considered too low. Most believed that the original agreement was to be at least R7000, and some even thought it should be higher, but at least 'market value'.
- There was a lack of clarity why some claims had been compensated and others not. This includes multiple livestock from the same claim, and across claims from the same areas.
- The waiting period from claim submission to payment is believed by some participants from all four workshops to be too protracted (up to 1.5 years and growing in some cases).
- The reporting system is felt by some to be too complicated.
- In some areas, the role of LEDET in claim verification is in question. This is exacerbated when farmers do not have appropriate phones or cameras to document DCA incidents, or when some livestock are lost and the carcass only found later when evidence for DCAs is difficult to find.

Most payments that have been made in the villages were for claims for incidents pre-2014 (although not all have been paid). Some noted that post-2014 payments have been made but are few and sporadic. All participants acknowledged that the method of payment (bank transfer) is an acceptable mode, but there were some minor concerns for pensioners and/or others who do not have a bank account.

Livestock farmers who participated in the workshops stated that by and large, the compensation scheme has met their expectations, but only where/when payments are made. As noted above, lingering issues concern considerations that the payment price is too low, they take too long to process, and not all claims are being paid (without justification) including those from before 2008 which some farmers expressed their concern with, as they had been promised that payments would be made for all valid cases even prior to 2008 (indicated in Lubambiswano Forum meeting minutes, according to a Forum representative). Farmers also noted that damage by leopard, cheetah, hyena, hippos, and baboons should be covered, as well as crop damage. Finally, there were differing opinions as to whether an accompanying Letter of Apology is expected from the KNP (see [52]).

*Proposed actions for reducing conflict and improving the compensation scheme*

Finally, according to the workshop participants, the perceived role of relevant actors in mitigating DCA impacts going forward were articulated as follows:

#### 3.3.1. Livestock Farmers

- Improve animal husbandry by ensuring livestock are not left unattended in bush, especially at night, and keeping livestock away from protected area fences by provision of watering sources elsewhere and/or secondary fencing;
- Experiment with rotational grazing, particularly in dry seasons;
- Reporting poachers or others who cut fences.

#### 3.3.2. Kruger National Park

- They should stick to their promise, and make the necessary payments for all that were promised, according to market value, and within a reasonable time period;
- Maintain border fence in better condition and electrify where possible, including stepping up security against poachers who cut fence;
- Reconsider the role that LEDET has in incident verification and claim form completion, particularly when they do not attend cases, or are inadequate whilst in the field;
- Cover other sources of damage under scheme (e.g., leopard, crocodile, elephant).

#### 3.3.3. LEDET

- Speed up time to attend DCA incidents;
- Regionalize (under-resourced) rangers so they can better respond to various areas.

#### 3.3.4. Makuya Nature Reserve

- Upgrade fence and ensure proper maintenance including more staff to patrol.

#### 3.3.5. Letaba Nature Reserve/Mhtimkhulu Reserve

- Improve fence maintenance (particularly electricity);
- Increase security against poachers who cut fences.

#### 3.3.6. TransNet

- Railway fence needs to be better maintained.

## 4. Discussion

### 4.1. Relational Trust and Legitimacy

*Mhaka a yi bori.* / A case does not rot. / Meaning: When a matter has been raised, it will not vanish until it has been properly settled.

This Tsonga proverb epitomizes the long-standing issue of DCAs among KNP's border communities and attempts to manage the conflicts that arise from them. Over two decades of complaints by communities, with intermittent promises of compensation that never materialized as expected, contributed to the erosion of KNP's institutional trust and legitimacy in the eyes of communities. Specifically to KNP, previous inadequate attention to community expectations concerning DCA management had resulted in widespread negative attitudes towards the park and its mission by neighboring communities [7], illegal killing of wildlife [5], and loss of legitimacy in community fora [46]. Conversely, KNP's recent broader strategy to mitigate HWC, including authentic implementation to address past injustices including fulfilling promises of compensation, also indicates that trust can not only be eroded, but can also be built. This is reflected in a number of remarks by interviewees of the changing nature of their relationship with KNP and should serve as a reminder of the ongoing work and commitment that is needed to build strong partnerships by parks and communities more broadly. Again, as trust is being built with the continued delivery of the compensation scheme, addressing ongoing farmer concerns regarding,

e.g., the rates of payment and starting dates of valid claims, will likely positively influence the direction of trust-building, and the cessation of conflict [14,23].

*U nga vuri, u ku 'N'wananga, ndzi ta ku lavela nyama!'/Do not say, 'Child, I'll get meat!'/Meaning: Do not promise that which you do not have.*

The decision by KNP/SANParks to financially compensate farmers for livestock loss, even retrospectively, can be seen as a direct confidence building measure that shows good faith to address past injustices. Furthermore, appreciating the weight of such a decision is noteworthy, as it is underpinned by a great deal of institutional learning and adjustment that demands reflexivity, transparency, and accountability, all essential ingredients of strategic adaptive management [53]. My interviews and workshop results bears this out, as most farmers saw the compensation scheme as a commendable and responsible initiative. Many also recognized the risk that KNP was taking in committing to such a scheme, an attribute known to increase interpersonal trust [27]. Moreover, as most respondents were well aware of the scheme and its protocol, this suggests that communication from the KNP to local communities regarding the scheme has been coherent, comprehensive, and far reaching, an additional factor known to build trust in relationships, and opening the door further for enhanced collaboration [15,54,55].

As trust is being built, KNP can expect that the transaction costs of cooperation with local communities will decrease, voluntary compliance will increase, and that unrestrained actions by local communities that have negative conservation outcomes (e.g., poaching, fence-cutting, non-reporting of infractions) will also diminish [17,18,54]. Moreover, Levi and colleagues [56] in their analyses of datasets from sub-Saharan Africa, also demonstrate that where trust is built in government institutions as a result of genuine action, so will the legitimacy of those institutions and their perceived motivation to deliver benefits and promises for persons in society whom they seek to serve. Subsequently, confidence is also built in the institution's commitment to procedural justice. However, this takes time, resources, institutional will, and can be easily broken. Such outcomes that result from waning or expanding trust should be acknowledged by protected areas and accounted for in resource allocation towards community engagement activities. This is particularly crucial in HWC management contexts.

#### 4.2. Compensation Schemes and Their Evaluation

*Hi ta ku, n'timangwa, loko hi vona mavala./We will admit they're zebras when we see their stripes./Meaning: We will believe your words when we see with our own eyes.*

Financial compensation is a popular tool used for reducing the impacts of negative interactions between people and wildlife, with numerous schemes being established to compensate farmers when their livestock are attacked [57,58]. The success of such schemes is variable, with the efficacy of ex-post compensation programs as conservation tools being called into question across a number of contexts [57,59,60]. However, there are other calls for its continuation to support conservation efforts in specific contexts that preclude other options, and where program delivery is coherent, well administered, validated, and sustainable [5,8,61–63]. Understanding and teasing out the factors that lead to success (or failure) of conservation interventions such as compensation schemes demands adequate monitoring and evaluation programs that capture both local perspectives of the target beneficiaries, and the full range of parameters influenced by the scheme, be they ecological, social or economic [36,64].

I add to this evaluation literature by demonstrating that trust can be a significant indicator of success [63]. In this case, however, trust is being regained in part by addressing the mistrust that developed over a history of unfulfilled promises of financial compensation. I also show that this is a continuing and dynamic process, and that there are a number of aspects of the current compensation scheme that require ongoing reflection and engagement by a number of actors to further build trust, and program success (most



notably, payment rates; start date for retrospective payments; DCA species covered; speed of payment; efficacy of LEDET; animal husbandry practices; and fence maintenance). As with most HWC contexts, this is dependent on more than the KNP. The number of relevant actors and stakeholders in this case is manifold including provincial conservation agencies, a community reserve, and even a railway company. Others have demonstrated how such multi-stakeholder environments can lead to varying degrees of buy-in to compensation, even within individual organizational hierarchies [65]. This translates into more coordinated action needed across a range of relevant partners, a process admittedly more complex and resource-intensive than bilateral arrangements. Thus, ‘success’ in this sense requires a set of measures beyond simply unilateral compensation payments from a park to farmers [66]. By evaluating compensation schemes in a more open and holistic manner, whereby such idiosyncrasies can be identified, probability of success can be heightened as more targeted actions are applied with specific actors, and communication more closely aligned with such actions.

## 5. Conclusions

*Ku kokola a hi ku veka tandza./To cackle does not mean to lay an egg./Meaning: Words cannot equal deeds.*

Breakdowns in trust can be a significant barrier to relationships. This is apparent in individual contexts such as the case I present here but is equally valid when it comes to park–community relationships across a wide array of contexts. Such barriers are particularly acute in HWC situations, and in which unfulfilled promises are a legacy of the relationship. This relational basis for conflict has too often been ignored, or side-stepped, by conservation and government institutions [15], and should be part and parcel of both understanding and mitigating HWC where relevant. Here, I document the first case whereby the role of trust, and broken and fulfilled promises is being manifested in a HWC context. Undoubtedly, such circumstances exist in many park–community relationships elsewhere, and would benefit from a deeper understanding of how the ongoing management of HWC is affecting the dynamics and trust inherent in those relationships. Deciphering such influences is, of course, fraught with uncertainty as stakeholder relationships are multi-dimensional and highly variable. Nonetheless, engaging with robust and comprehensive techniques that seek to quantitatively measure trust may be worth investigating where adaptive management demands that measures be utilized for which thresholds can be established [67,68].

Conversely, trust can be a unique resource especially as it “is expanded rather than depleted the more it is used” ([27], p. 127). In the case of KNP’s strategy to resolve persistent conflict between local communities and DCAs originating from the park, I show that great strides have been made in which communities are recognizing that DCA incidents have decreased, and the KNP is making genuine efforts at paying for the past. Has it been a step in the right direction? Yes. Has the response been perfect? No. Is it finished? No. However, this is the nature of institutional learning and adaptive management, particularly in large and complex social-ecological systems with multi-stakeholder environments. As a key resource in the conflict management process and as part of broader HWC mitigation strategies, conservation agencies would be well advised to continue to actively and genuinely understand the role of, and build, trust with local communities, and only promise what they can deliver.

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## Appendix A

**Table A1.** Latin names of all flora and fauna species listed in manuscript.

English Common Name	Latin Name
Baboon (chacma)	<i>Papio ursinus</i>
Buffalo (Cape)	<i>Syncerus caffer</i>
Cheetah	<i>Acinonyx jubatus</i>
Crocodile (Nile)	<i>Crocodilus niloticus</i>
Elephant (African)	<i>Loxodonta africana</i>
Hippopotamus	<i>Hippopotamus amphibius</i>
Hyena (spotted)	<i>Crocuta crocuta</i>
Jackal	<i>Canis spp.</i>
Leopard	<i>Panthera pardus</i>
Lion	<i>Panthera leo</i>
Marula	<i>Sclerocarya birrea caffra</i>

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