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Martin Sjöstedt

Aksel Sundström

Sverker C. Jagers

Herbert Ntuli

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Abstract

Rulers of weak states face a predicament. They lack capacity to monitor crime and need citizens to partake in intelligence-sharing. Yet, agents of such authorities are seldom trusted, raising doubts about whether locals will provide information. The case of wildlife poaching in African countries illustrates this tension, where rangers are few and offenders on good terms with locals. Why do some locals choose to assist rangers and report on poachers, while others refrain from doing so? We surveyed 2300 residents in and near the Great Limpopo Transfrontier Park in Mozambique, South Africa, and Zimbabwe. We find that people that are afraid of rangers and perceive them as corruptible are less willing to assist in information-sharing. Seeing poaching as condemnable also matters. In contrast, individuals' stakes in conservation and perceptions of wildlife as threatened do not predict our outcome. For effective community policing, policy needs to change how officials are seen.

Martin Sjöstedt
The Quality of Government Institute
Department of Political Science
University of Gothenburg
martin.sjostedt@pol.gu.se

Aksel Sundström
The Quality of Government Institute
Department of Political Science
University of Gothenburg

Sverker C. Jagers
Department of Political Science
University of Gothenburg

Herbert Ntuli
University of Cape Town

1. Introduction

Rulers of all states face a shared predicament: they lack the resources and administrative capacity needed to completely monitor law compliance. Although there is great variation in these resources and capacities, they typically need some help from citizens in order to access information about crime in their communities. Yet, at the same time, agents of the authorities are also trusted by locals to a varying degree, questioning whether people will partake in such intelligence-sharing. These problems are especially present in so called weak states, where rulers are particularly short in resources and authorities enjoy low level of trust. The case of wildlife poaching in African countries clearly illustrates this tension: the monitoring capacity is low and the officials are few, enabling large-scale illegal hunting. In addition, offenders are often on good terms with locals, who sometimes even benefit from criminal acts themselves.

Taking this predicament as a starting point, we ask: Why do some locals choose to assist rangers and report on poachers, while others refrain from doing so? To answer this query, the aim of this article is to develop and test a number of hypotheses associated with citizens' willingness to share crucial information about illegal activities with state officials. The empirical investigation focuses specifically on poaching of wildlife in the Great Limpopo Transfrontier Park (GLTP) in Mozambique, South Africa, and Zimbabwe. We analyze an original survey of about 2300 residents living in and near the GLTP.

Apart from providing empirical insights, the paper contributes theoretically to the literature on state capacity. State capacity is often defined as "a government's ability to make and enforce rules" (Fukuyama 2013, 350). Yet, fostering and sustaining such capacity requires information of some sort (Brambor et al. 2019). Investigating residents' willingness to report suspicious activities, and, consequently, the ability of states to gain critical information about the "goings-on at the local level" (Fearon and Laitin 2003, 80) can hence be conceived of as speaking directly to our understanding of how to foster and sustain social control and state capacity (Hendrix 2010). Given the trend in governance the last decades of an increased use of community-policing in a range of illegal activities, understanding these processes is highly relevant.

2. Theory

Administrative capacity and policing in the hinterlands

State capacity as a concept has been defined in many different ways. For example, Hendrix (2010) distinguishes between those that emphasize (1) military capacity, (2) bureaucratic administrative capacity and (3) the quality and coherence of political institutions. What the different definitions have in common, however, is that they are closely related to what Mann has called infrastructural power. This is defined as "the capacity of the state to actually penetrate civil society, and to implement logistically political decisions throughout the realm" (1986, 113). This is typically treated as "the capacities to penetrate society, regulate social relationships, extract resources, and appropriate or use resources in determined ways" (Migdal 1988, 4-5). One of the most important assets for the state to be able to fulfill these tasks, e.g., to 'exercise control' or 'implement decisions throughout the realm', is in turn information (Brambor et al. 2019; D'Arcy and Nistotskaya 2017).

A state's successful ability to achieve constituent cooperation tend to depend on the means of social control (Fukuyama 2013). In turn, the means used to foster constituent cooperation can predominantly emphasize either coercion and the ambition to deter people from noncompliance, or a more cooperative approach trying to encourage consent and compliance through inclusiveness and participation (North 2006). While coercive approaches on the one hand rest on the state's monopoly of violence and its repressive apparatus, cooperative strategies on the other hand strive for the devolution of power and for a high level of citizen participation in decision-making (Sjöstedt and Linell 2021). A similar distinction is found in the broader literature on compliance, which derives constituent cooperation either from deterrence and the perceived costs and benefits from deviating from state-imposed rules, or from perceptions of inclusiveness, legitimacy, and fairness motivating individuals to comply (Ostrom 1990).

These different strategies might, however, work best in tandem. Jackman (1993) argues that relying only on coercion and the use of force in fact is an indicator of the state's inability to induce compliance by other non-coercive means. The exercise of state power is hence far more than the use of force and instead relies on legitimacy, an outcome where "most citizens have a predisposition to regard compliance with the officers of those institutions as appropriate and reasonable" and "compliance thus becomes a habit" (Jackman 1993, 40). Strategies relying solely on the voluntary cooperation of citizens may, however, be naïve in terms of expecting cooperation from citizens, and may suffer from severe collective action problems associated with freeriding. The most effective way for the state to achieve constituent cooperation may instead be to strive for so called semi- or quasi-voluntary compliance, i.e., compliance motivated by a willingness to cooperate but backed by coercion (Levi 1997).

Achieving compliance and constituent cooperation has been shown to be particularly difficult in an African context (Herbst 2000). Throughout history, African states have faced unique challenges in terms of projecting authority over its territory and have consequently also had difficulties in gaining the loyalty of its citizens (Englebert 2002). For example, while state building in other parts of the world has largely been an outcome of a fundamental need to wage war, this has most often not been the case in Africa. For that reason, African states have never had a direct security imperative to physically control both the hinterland and the center. In turn, this has had significant repercussions for the state-building process (Bates 2008).

Generally, African states have thus been argued to lack empirical statehood. That is, despite being de jure states, they have in many cases been argued to lack sufficient authority to govern a territory and its population (Jackson 1992). This is in turn often derived from the colonial origins of state building, which was largely an exogenous process giving rise to states lacking legitimacy (Englebert 2002). Independent states hence inherited colonial structures with a number of competing claims to power, advanced by multiple actors with conflicting interests inhabiting the same territory (Migdal 1988). Yet, as argued by Migdal (2001), the fact that no actor has the monopoly of violence – or of social control – does not necessarily imply that people are not governed. In fact, the overall sum of authority in society might still be high but fragmented. Hence, in such a context, the state is perceived of as one actor among many, involved in struggles over who has the right to make the number of rules that structure people's behavior. Not complying with the state's rules is hence not only personal deviance but could rather reflect a conflict over whether it is the state or other organizations in society that should make these rules (Migdal 2001,

64). Exploring the factors associated with willingness to share information with the state is thus particularly interesting in the context of frail states, where information sharing is even more needed than elsewhere.

We focus on people's willingness to assists authorities in providing intelligence in policing. This is related, but not synonymous, to the use of criminal informants – where 'snitches' or 'rats' are slurs used to brand such actors – that receive compensation or pressure from law enforcement to tell about illegal activities (Miller 2011). There are also examples with broader relevance of when citizens act as the 'eyes and ears' of the police, by providing various forms of intelligence. For example, situations of searching for abducted children, or telling authorities of ongoing burglaries, are both parts of a standard toolkit, where citizens' information is used to assist police (Schreurs et al. 2018).

The term 'community policing' has for the last decades been used in public rhetoric to signal an approach to crime fighting that contrast older strategies (Terpstra 2010). As Gill et al. (2014) notes, community policing focuses on the cooperation between the police and the community. While being a broad notion with numerous definitions, a central element of this approach is citizen involvement (Skogan 2006). A central tenet of these various conceptualizations is that citizens do have a role to play, in providing intelligence of future and historical acts of crime (Van der Land et al. 2014). In the words of Schreurs et al. (2018): "One reason for the increased attention to the use of citizen capital in the police domain is that the police simply do not have the resources to be constantly present. At the same time, citizens know the ins and outs of their neighborhood; they know where problems lie, and when something suspicious is going on" (p. 776).

For policy makers, it is of course useful to understand the extent to which citizens are interested in engaging in such activities and the factors determining variation in such attitudes. The importance of gaining information from citizens, however, illustrates the predicament of frail rulers: on the one hand, such governments lack capacity to monitor their citizens and therefore need the help of their subjects to assist in policing. At the same time, agents employed in state authorities in such settings often engage in behavior outside of their assigned duties. Therefore, officials in weak states are – for these and other more fundamental reasons – not necessarily considered the most legitimate and effective authority in the eyes of the citizenry, which potentially reduces the willingness of citizens to share crucial information.

The case of poaching in African countries

The importance of securing constituent cooperation and gaining information from communities has been one of the core motivations for implementing community based natural resource management in many parts of the world. For such programs, an argument has been that resident persons possess local knowledge to a larger extent than state agencies. Similarly, strategies to combat poaching have included attempts to secure participation of local communities (Cooney et al. 2017; Massé et al. 2017). For instance, ethnographic studies on the work of Mozambican rangers, suggests that locals are essential in intelligence collection (Massé et al. 2020). A commonly used tool in such approaches include 'anti-poaching hotlines' (Green 2016), where communities can report suspected wildlife crime.

Locals may serve an important purpose since poaching often takes place in areas that are vast and expensive to patrol. Consider, for instance that Kruger – the part of GLTP situated in South Africa – is about the size of a smaller country, such as Israel or Belgium. Yet, news sources suggest that the area is

patrolled by only 400 rangers (Bradtke 2017). While this number is likely an estimate, it reflects the challenge authorities of such parks face. A second reason why authorities might want to include locals in their strategies to address poaching is because of locals' unique position, as these activities are generally reliant on some affiliation to the community (Lotter and Clark 2014). Poachers often possess a local knowledge or, in the case of out-of-town poaching crews, they tend to rely on logistical assistance from members of the community (Hübschle 2016). For instance, one of the 'best practices' in the training material for field-rangers – issued by the organization International Rangers Federation – is the goal of maximizing the role locals can play in resolving poaching cases. This document refers for instance to experiences from study of a Tanzanian protected area where a majority of arrests was due to information received by community informants (Lotter et al. 2016).

Explaining willingness to assist in policing poaching

The following sections outline five dimensions that we argue can contribute to explain the variation that exists in people's tendency to share information and to report suspicious activities about poaching to state authorities.

The first line of reasoning is about the relational aspect between citizens and state officials in a park. Trust has been shown to work as an informal institution that shapes human interaction and, as such, influences the prospects for collective action and cooperation (Denzau and North 2000). Of particular importance here is the vertical dimension, i.e., the trust citizens have in that the state will enforce regulations impartially and to act as an effective and legitimate third party (Ostrom 1990). This goes especially for the agents employed to carry out such tasks in practice, such as rangers. The impartiality (and hence lack of corruption) of order institutions – e.g., the police and other legal institutions – is argued to be of particular importance since the function of those institutions is to detect and punish free riders and people who renege on contracts (Rothstein and Stolle 2008). If residents do not trust officials responsible for combatting poaching, there is potentially little motivation to provide these actors with information. Perceiving rangers as turning a blind eye (Massé et al. 2017) or even colluding with poachers (Sundström 2015; Sundström 2016) could make the rational citizen refrain from speaking out on illegal acts in the area. Because they might risk that confidential information reaches poachers, telling on them might – with the present of corrupt officials – even give rise to situations described with the proverb of 'snitches get stiches.' From the above theoretical discussion, we derive the following hypothesis:

H1: *The more park rangers are seen as trustworthy and uncorrupt, the higher is people's propensity to share information about poachers to state authorities.*

A second line of reasoning refers to moral beliefs among people. There are several theoretical models emphasizing normative factors as key determinants for various forms of rule compliance and collective action, implying that people will only be willing to follow laws if they are perceived as fair and justified. For example, Gezelius (2004) argues that not sharing information about rule transgressions can be a function of a conviction that the rules are immoral. This is also supported by Schreurs et al. (2018) finding that people's morality is an oft-mentioned factor in the broader literature that focuses on people's reasons to assist police in resolving crimes. Based on this, we suggest that whether a person see rule compliance as a moral duty and the extent to which poaching is seen as morally justifiable, should deter-

mine people's propensity to share information to authorities – an action that plausibly could help authorities towards reaching a goal that align with a person's moral conviction. We therefore expect the following relationship:

H2: *The more people hold moral beliefs about duties to comply with park rules and that poaching is morally wrong, the more likely that they will be willing to share information about poachers to state authorities.*

The third line of reasoning pertains to whether people are directly or indirectly complicit in poaching themselves. We here rest on the assumption that people's own involvement in illegal activities should affect their tendency to involve law enforcement. Besides this direct link to poaching, there might also be an indirect association to rule violations. It is possible that people who have social relations with poachers and might have partaken in actions such as occasional hunting themselves, or eaten bushmeat that others have hunted by illegal means, will have a larger obstacle to pass before turning to authorities in these matters. This results in the following hypothesis:

H3: *The more people are being directly and indirectly involved in violations of park rules the lesser their propensity to share information about poachers to state authorities.*

A fourth line of reasoning builds upon people's incentives and material stakes in preserving wildlife. A number of theoretical accounts emphasizes the importance of instrumental factors in which the willingness of rational individuals to cooperate with state officials depends on whether the benefits anticipated from following the rules outweigh the costs. This conceptualization also builds on the logic that people will only cooperate if they fear being punished and faced with hard sanctions if they do not (Keane et al. 2008). Reasonably, there are several factors at play here. Park rules might give some people economic advantages, such as providing payments to compensate for hunting bans. In contrast, rules that serve to conserve wildlife could stand in conflict with economic factors for others, such as having your crops destroyed by large mammals. A large vein of research on human-wildlife conflicts documents that locals living near protected areas occasionally suffer property damage from large mammals – or even physical damage of people in the community – which can affect their views on conservation (Nicole 2018). There is also research on revengeful killings and retaliatory poaching after material destruction caused by wild animals (Moreto 2019). This leads us to pose the following expectation:

H4: *The higher the economic benefits from preserving wildlife are, the higher the propensity to share information about poachers to state authorities.*

A fifth line of reasoning holds that people's concern about the problem, e.g., whether or not people perceive wildlife to be threatened, should be of importance. As claimed by López-Hoffman et al. (2006), perceptions of how threatened a resource is may also differ between people in the same community: "Local knowledge is heterogeneous; often, not all members of the given area or community have the same ecological knowledge" (p. 1). Relatedly, studies in psychology have suggested, in general, that pro-environmental intent and behavior is affected by individual environmental concern and perceptions of how threatened the environment is (cf. Steg and Vlek 2009). Taken together we should expect that:

H5: *The more people believe that wildlife is threatened, the more likely that they will share information about poachers to state authorities.*

3. Methods and data

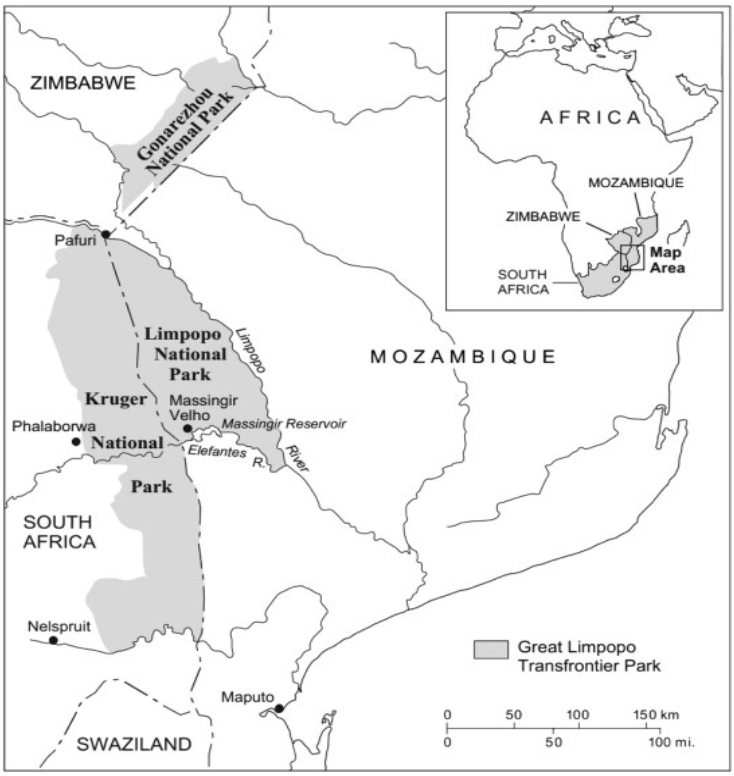
The case of the Great Limpopo Transfrontier Park

The GLTP is part of a transfrontier conservation area (TFCA) shared by Mozambique, South Africa, and Zimbabwe (see Figure 1). The TFCA was formally established in 2000 when the countries agreed on a common treaty and then, in 2002, a new treaty was signed establishing the GLTP, recognizing the core protected areas of the region. The park covers an area of about 35,000 square kilometers and includes the Kruger National Park in South Africa, Gonareshou National Park in Zimbabwe, and Limpopo National Park in Mozambique.

There is a large number of people residing both within an adjacent to the GLTP which in turn increases the risk of human-wildlife conflict. Poaching is in fact a salient challenge in the region where open political borders that facilitate poachers' cross-border movements as well as corruption and lack of policy harmonization all have been identified as potential drivers (SADC 2015; Linell et al. 2019). The multiple reasons for why poaching is still widespread in the GLTP are complex and also vary by the type of actors involved. Besides subsistence poaching (Ntuli et al. 2021), the area is plagued by poaching syndicates, notably organized Mozambican crime networks that target rhinos. As Lubbe (2015) discusses, two aspects are certainly crucial here. First, poverty is widespread in the area. Being in dire need of an income not only might push people to violate laws to secure a livelihood, but also tend to make people into 'soft targets' as recruits for syndicates. A second feature is that the creation of protected areas in the region has been characterized by dispossession of locals from their ancestral land which has made it difficult to establish a cooperative relationship between officials and communities (Lunstrum 2013; 't Sas-Rolfes 2017; Hübschle 2017).

In addition, it is far from certain that state officials in these parks behave in accordance with assigned duties. The efforts of these officials are sometimes heroic – think of the ranger who in 2019 singlehandedly arrested five heavily armed rhino poachers in the Kruger National Park (SA-People 2019). People might very well recognize that such efforts are applaudable. Yet, there are also numerous examples of wrongdoings in this sector, which are likely to shape people's perceptions of the rangers. One illustration includes that authorities, also in the South African Kruger in 2019, arrested a former corporal of the SanParks ranger services on charges of poaching (Sunday Times 2019). Similar cases of rangers being arrested with heavy arms, poaching equipment and testimonies of illicit payments has been surfacing in news from Mozambique (Mail & Guardian 2013) and, more recently, in Zimbabwe (All Africa 2020). To add even further complexity, accounts also describe how actors in poaching networks are skilled in rewarding those locals that enable poaching, or making communities into accomplices by indirectly supporting their activities. Hübschle's (2016) work illustrates this strategy, as she describes what this might look like: "certain kingpins 'throw a village party' by slaughtering a few cows and providing traditional beer upon the return of a successful poaching expedition to the Kruger National Park." Yet another significant factor include that the area is located relatively far from the respective countries' political center and that the states' spatial and societal reach hence can be expected to be low.

FIGURE 1. THE GREAT LIMPOPO TRANSFRONTIER PARK (GLTP)



Source: Lunstrum (2013).

These characteristics makes the GLTP an interesting setting. It is far from certain that GLTP authorities' demand for intelligence from locals is met with success. The case hence constitutes a 'hard' case in terms of investigating the motives behind sharing information with state officials since such information sharing is not to be expected by default in this context.

The survey

The survey – focusing on residents' willingness to comply with rules as well as their perceptions about poaching – was completed through face-to-face interviews between May 2017 and June 2018 and includes 2282 respondents (769 from Zimbabwe, 582 from South Africa and 931 from Mozambique). Sampling was done in two phases. First, simple random sampling was applied to communities with help from local leadership, government officials, and resource persons who assisted in identifying their jurisdictions. This procedure ensured that chiefs and local authorities did not influence the sampling by recommending some villages over others. Using this procedure, 11 out of 29 communities located near Gonarezhou National Park in Chiredzi district were chosen. These were all identified by the RDC in Zimbabwe. In South Africa, the local chief identified a full sample of five villages closely situated to Kruger National Park. On the Mozambican side, local authorities helped us to purposefully select three administrative areas in two districts that are close to the Limpopo National Park. We then randomly

selected 21 villages. The households and communities were chosen to represent the different segments of the population found in the GLTP from poor rural households and communities found in Mozambique and Zimbabwe to relatively wealthier peri-urban households and communities found on the South Africa side. The sampling process in all communities followed the following procedure. Upon entering a village, enumerators randomly selected a starting point and direction by flipping a coin and tossing a dice simultaneously. Starting with a random household on the list, the next respondent was chosen after every n household where n is the sampling interval calculated as the total number of households in the community divided by the required sample size for that community. The procedure continued until the required number of respondents was achieved. We recruited university students to assist with data collection, whom were trained for two days. A pilot round was conducted on the third day in one village before the main data collection started in each country.

Operationalizations

The dependent variable in this study – i.e., willingness to share information with state officials – is captured by four survey items. We use three questions that were posed after the general query: "How willing would you be to participate in the following activities to reduce poaching." These items focused on; "Help park rangers in their surveillance by telling them of suspicious activities", "Tell authorities about poachers' activities" and "Tell authorities about poachers' activities, even though you know these people". Answers ranged from 'Not at all willing' (1) to 'Very willing' (5). We also use an item asking: "To what extent do you agree with the following statements?: You would tell authorities if you had information that could send a poacher in front of the legal system to face sanctions." Answers spanned from 'Disagree completely' (1) to 'Agree completely' (5). From these four questions we created a composite index, with all parts of equal weight. This aggregate construct shows high scale reliability and has a Cronbach's alpha of 0.91, thus indicating satisfactory internal consistency.1

To operationalize the five dimensions that we posed expectations about, we rely on several survey items. As described in Table 1, these items measure different aspects of each dimension, suitable for this local context and type of problem. We made sure to use items that capture the full complexity of these dimensions, but also not to use items that measure the same feature (i.e. are synonymous or antonymous). As an example, it is likely that few people that are afraid of rangers trust these actors. However, not all people that distrust rangers are necessarily afraid of them. The descriptive statistics for each variable – that is, their univariate distribution – is reported in Table 1.

[1] We constructed an alternatively specified index with a fifth item included. This question read: "To what extent do you agree with the following statements?: It is sometimes justified to harbor a poacher in your house." Answers spanned from to 'Agree completely' (1) to 'Disagree completely' (5). While it captures our concept, its Cronbach's alpha is somewhat lower (0.82).

TABLE 1. CODING AND DISTRIBUTIONS OF VARIABLES

Variables	Coding	Min	Max	Mean	N
Dependent variable					
Composite index of willingness to assist authorities	Aggregate measure of four items	4	20	14,74	2282
Relational factors					
To what extent do you agree with the following statements regarding rangers enforcing rules? ... 'You are afraid of them'	1 (disagree completely) to 5 (agree completely)	1	5	2.81	2281
To what extent do you think that the following groups or persons can be trusted? … 'The rangers in this country enforcing rules'	1 (not at all) to 4 (to a great extent)	1	4	2.96	2278
If you are found by rangers after conducting illegal hunting, how likely is it that you could give them a gift to make them refrain from carrying out sanctions?	1 (not at all likely) to 4 (very likely)	1	4	1.57	2282
Moral factors					
There is a moral obligation to comply with the rules governing the park[2]	1 (disagree completely) to 5 (agree completely)	1	5	3.81	2279
Poaching for subsistence use is morally wrong	1 (disagree completely) to 5 (agree completely)	1	5	3.64	2282
Most people in my community believe poaching is morally wrong	1 (disagree completely) to 5 (agree completely)	1	5	4.03	2282
Complicity					
In general, to what extent do you obey the regulations of the park?	1 (not at all) to 4 (to a complete extent)	0	4	3.67	2281
How many impalas or inyalas have you killed in the last year?	Binary recode, 0 = None 1 = one and above	0	1	0.02	2282
How many times have you eaten bushmeat within the last year?	Binary recode, 0 = None 1 = one and above	0	1	0.27	2282
Instrumental factors					
Does the rules from Great Limpopo Trans-frontier Park ("the park") benefit you, for instance by generating income or employment?	0 (no) to 1 (yes)	0	1	0.29	2282
Do you consider yourself or anyone else in the household to be a hunter?	0 (no) to 1 (yes)	0	1	0.09	2282
Has your property or any person you know been damaged by wildlife?	0 (no) to 1 (yes)	0	1	0.75	2282
Concern and salience					
In recent time, the overall threats to wildlife and resources have increased	1 (disagree completely) to 5 (agree completely)	1	5	2.83	2274
Wildlife and nature in the area of the park is in risk of being depleted	1 (disagree completely) to 5 (agree completely)	1	5	2.77	2277
Socioeconomic variables					
Gender	0 (female) 1 (male)	0	1	0.33	2281
Years of age	Numerical	17	92	42.42	2282
Years of education	Numerical	0	17	5.39	2267
Days in year without food	Numerical	0	100	2.43	2282

[2] The respondent is first asked: "To what extent do you agree with the following statements" This is the case with all items here that are not questions.

Social desirability

A problem in survey research is that respondents might systematically answer to "avoid embarrassment and project a favorable image to others" (Fisher 1993, p. 303). From what we can tell, there are indications that our survey still managed to capture people's attitudes, also when this depicts them as less sympathetic in the eyes of the interviewer. Several of the items depict a large portion of people as engaging in illegal behavior themselves and holding attitudes that violate perceptions of acceptable behavior. Some illustrations include that over 13 % of respondents stated 'Not at all' or 'To a limited extent' to the question on whether they obey the regulations of the park. More than a fourth of respondents (28%) state that they know a poacher. Also, in the four items constituting our dependent variable, a large portion of people opted for the two least collaborative response (ranging from 18 to 24%).

Models

We use Ordinary Least Squares (OLS) regression to estimate our models. The dependent variable is quite evenly distributed, but also somewhat positively skewed as people are generally willing to assist authorities (Table A1 in the appendix). We ran a number of diagnostic tests on these models. In terms of multicollinearity, our independent variables do not have problematic internal correlations (i.e. the VIF-values are below common thresholds). We include country dummies, as such fixed effects (FE) models hold national factors constant that are not primarily of interest in this analysis. The models control for four socio-economic factors; gender, age, years of education and a measure of how many days for a year a person has gone to bed without food.

As an extension of our analysis, we test our model on a split sample of respondents; focusing on those that answer 'yes' to the question 'Do you know any person who has been involved in poaching in the park?'. Because these individuals might have a different view on sharing information about poaching, we are interested to see if the same factors predict attitudes among this group. We also run the models on our full sample with an altered version of the dependent variable (see footnote 2). This index, consisting of five items instead of four, serves to show that this alternative specification does not point to substantively different findings. Finally, and as a further robustness test, we analyze two of the items in our composite dependent variable in detail. Poaching is sometimes seen as 'folk crime' (Filteau 2012) and locals might differentiate in their attitudes between subsistence poaching and commercial poaching. It is therefore relevant to see if willingness to assist authorities differ when we ask if people are willing to 'tell authorities about poachers' activities' in general compared to the item with the ending 'even though you know these people.' We use ordered logistic regression techniques for those models, because these single items have categorical responses. There are pitfalls when comparing such models (Mood 2010) and we make sure to use the same sample and an identical set of independent variables.

4. Results

To describe our results, we proceed stepwise and display the findings as reported in the models one to six in Table 2. Under the conceptual heading of relational factors, all three items are statistically significant across the different specifications. They are also displaying the expected directions, meaning that being afraid of rangers, not trusting rangers and seeing rangers as likely to accept and act on bribes, is associated with a statistically significant decrease in our outcome measure. In the full estimation, model six, the three items have a coefficient size ranging from 0.22 to 0.35. The coefficient for being afraid of rangers is the smaller one of these, but it is on the other hand a measure with five responses (the other two having four response alternatives). When the three items are introduced in model one, they increase the adjusted R-squared (compared with model zero, only having two country dummies included) with a number suggesting that these factors alone explain about four percent of the total variance in willingness to assist authorities with information.

The results also suggest that normative factors matter. The three items that gauge the extent to which people (a) see that there are moral obligations to comply, (b) view subsistence poaching as morally wrong and (c) believe that people generally see poaching as morally wrong have positive coefficients, at the 0.001 level (99.9%). The full model suggests that a change in one of the response categories corresponds with a mean shift in willingness to assist authorities by roughly 0.5 to 0.6 scale steps (all three items have five response categories). Model three indicate that inserting these items resulted in increasing the explained variance and, judging by the R-squared in Model three, that these factors account for some seven percent of the observed variance in willingness to assist authorities.

In contrast, the items that measure if people are directly or indirectly complicit in poaching, does not seem to explain much of the differences among respondents that we see in willingness to provide intelligence to authorities. As evident in the full model, only one item, the extent to which people state that they obey with park regulations, is statistically significant ($p < 0.001$) and it is associated with our dependent variable in the expected direction. However, its substantive effect cannot be considered to be very large (0.23) and the three items only has a small effect on the adjusted R-squared. While the items of whether a respondent has killed wild animals or eaten bushmeat have coefficients in the negative direction that we hypothesized, they are not significant in our full model. Regarding the last two dimensions, we find little explained variance. For the set of instrumental factors, two items – the binary ones of whether or not a person benefits from the GLTP and whether someone in the household is a hunter – are statistically significant (95% level). However, we observe no change in the adjusted R-square when the three items are included (model four). This is also generally the case for the last dimension, focusing on the salience of the effects from poaching. The questions that tap on people's perceptions of wildlife as being threatened or whether park resources risks being depleted are not showing a significant association with our outcome measure. When we add our four controls for socio-economic factors, our main relationships do not change substantively (model six). In this full specification, whether we account for people's gender, their age, their years of education and the number of days in a year they have gone to bed without food, the relationships observed in the prior models remain virtually unchanged. We arrive at an adjusted R-squared of 0.19, which would suggest (comparing models five and six) that these socioeconomic factors alone can explain about one percent of the variance in attitudes towards helping authorities in intelligence-sharing in the fight against poachers.

When we have a closer look at the group saying that they know a poacher, this analysis reflects the trends reported above in most aspects but also adds some nuance (Table 3). First of all, it should be noted that the mean score on our composite outcome measure, the dependent variable, is very similar in the groups of those answering 'no' and 'yes' (a mean of 14,8 and 14,4 respectively). Looking at the predictor variables, it seems that the associations are quite similar. The items capturing the relational dimension again have the direction as expected and two of them – the extent to which people are afraid of rangers and trust these actors – are significant in the full model (in this sub-sample, the coefficient of corruption perceptions is not significant in the final specification). The items gauging the normative dimension contribute to the largest part of the explained variance in the full model. The size of the significant coefficients that relate to moral is somewhat larger than in the full sample and these items seem to explain about nine percent of the variation in our dependent variable (the difference in adjusted R squared between models one and two, in Table 3). In detail, it is the two items of a moral obligation to comply and seeing subsistence poaching as morally wrong that are significant (at the 0.001 level). A third trend is that the other dimensions does not explain much of the observed variance in people's willingness to assist authorities in information sharing.

As evident from table A1 in the Appendix, the models of the full sample where we use a slightly altered index (consisting of five items) behaves almost identical to our main model. The variables that are significant are the same ones (as are their direction) and their sizes are on par between these full models. Finally, table A2 in the Appendix reports how the full models differ when we study variation in the item of 'tell authorities about poachers' activities' in general compared to the item with the addition '…even though you know these people.' The two models are largely identical and these results seem to point to the same trends.

TABLE 2. WILLINGNESS TO ASSIST AUTHORITIES TO TELL ON POACHERS

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Relational factors							
Afraid of rangers		-0.256***	-0.245***	-0.238***	-0.233***	-0.237***	-0.217***
		(0.061)	(0.058)	(0.058)	(0.058)	(0.058)	(0.059)
Trust in rangers		0.431***	0.343***	0.323***	0.308***	0.318***	0.308***
		(0.079)	(0.076)	(0.076)	(0.077)	(0.077)	(0.077)
Rangers accept gifts		-0.738***	-0.408***	-0.358***	-0.345***	-0.346***	-0.352***
		(0.096)	(0.096)	(0.097)	(0.097)	(0.097)	(0.097)
Normative factors							
Moral obligation to comply			0.680***	0.599***	0.589***	0.592***	0.589***
			(0.094)	(0.097)	(0.097)	(0.103)	(0.097)
Subsistence poaching is wrong			0.625***	0.593***	0.580***	0.581***	0.578***
			(0.075)	(0.076)	(0.076)	(0.076)	(0.076)
Community see poaching as wrong			0.523***	0.504***	0.489***	0.512***	0.508***
			(0.101)	(0.101)	(0.101)	(0.102)	(0.103)
Complicity							
Obeys regulations				0.319***	0.316***	0.316***	0.308***
				(0.085)	(0.085)	(0.085)	(0.085)
Have killed impalas/inyalas				-0.289	-0.034	-0.063	-0.095
				(0.588)	(0.598)	(0.599)	(0.599)
Have eaten bushmeat				-0.017	-0.017	0.005	0.035
				(0.198)	(0.198)	(0.198)	(0.199)
Instrumental factors							
Rules give benefits					0.391*	0.394*	0.385*
					(0.181)	(0.182)	(0.181)
Hunter household					-0.658*	-0.656*	-0.694*
					(0.299)	(0.299)	(0.298)
Experienced wildlife damage					-0.020	-0.042	-0.078
					(0.192)	(0.193)	(0.193)
Concern and salience							
Threats to wildlife increased						0.091	0.089
						(0.082)	(0.082)
Park resources risks depletion						0.032	0.026
						(0.081)	(0.081)
Socio-economic controls							yes
Country FE	yes	yes	yes	yes	yes	yes	yes
Intercept	13.599	14.130***	7.073***	6.403***	6.598***	6.181***	5.939***
	(0.132)	(0.348)	(0.638)	(0.664)	(0.709)	(0.762)	(0.75)
N	2247	2247	2247	2247	2247	2247	2247
adj. R^2	0.06	0.10	0.17	0.18	0.18	0.18	0.19

Comment: OLS regression (unstandardized coefficients, standard errors in parentheses). The dependent variable is a composite index of four items. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

TABLE 3. WILLINGNESS TO ASSIST AUTHORITIES TO TELL ON POACHERS: THOSE KNOWING A POACHER

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Relational factors							
Afraid of rangers		-0.312**	-0.311**	-0.322**	-0.277*	-0.279*	-0.261*
		(0.120)	(0.114)	(0.114)	(0.115)	(0.115)	(0.116)
Trust in rangers		0.582***	0.585***	0.570***	0.573***	0.572***	0.547***
		(0.165)	(0.156)	(0.156)	(0.157)	(0.157)	(0.159)
Rangers accept gifts		-0.664***	-0.283	-0.240	-0.235	-0.246	-0.252
		(0.165)	(0.163)	(0.165)	(0.165)	(0.166)	(0.165)
Normative factors							
Moral obligation to comply			0.956***	0.860***	0.842***	0.831***	0.839***
			(0.161)	(0.166)	(0.166)	(0.166)	(0.166)
Subsistence poaching is wrong			0.702***	0.667***	0.639***	0.643***	0.633***
			(0.138)	(0.139)	(0.139)	(0.139)	(0.139)
Community see poaching as wrong			0.291	0.284	0.251	0.269	0.270
			(0.167)	(0.166)	(0.166)	(0.169)	(0.170)
Complicity							
Obeys regulations				0.367*	0.306	0.302	0.317
				(0.162)	(0.163)	(0.164)	(0.164)
Have killed impalas/inyalas				-0.948	-0.280	-0.201	-0.052
				(0.882)	(0.907)	(0.909)	(0.914)
Have eaten bushmeat				0.246	0.353	0.330	0.415
				(0.342)	(0.346)	(0.349)	(0.350)
Instrumental factors							
Rules give benefits					0.359	0.356	0.418
					(0.360)	(0.360)	(0.360)
Hunter household					-1.365**	-1.352**	-1.335**
					(0.481)	(0.478)	(0.483)
Experienced wildlife damage					0.060	0.061	0.077
					(0.439)	(0.440)	(0.440)
Concern and salience							
Threats to wildlife increased						-0.145	-0.135
						(0.155)	(0.155)
Park resources risks depletion						0.150	0.123
						(0.153)	(0.153)
Socio-economic controls							yes
Country FE	yes	yes	yes	yes	yes	yes	yes
Intercept	12.459***	12.920***	5.482***	4.674***	5.191***	5.203***	3.552***
	(0.271)	(0.739)	(1.183)	(1.230)	(1.360)	(1.439)	(1.564)
N	621	621	621	621	621	621	621
adj. *R2*	0.12	0.17	0.26	0.27	0.27	0.27	0.28

Comment: OLS regression (unstandardized coefficients, standard errors in parentheses). The dependent variable is a composite index of four items. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

5. Discussion

The idea of 'community policing' has grown in interest over the last decades and focuses on the cooperation between the police (or other public authorities) and community members. However, any such system has at least one weak link, because it presupposes that the citizens really report criminal activities when being observed. This potential dilemma has motivated us to investigate why some individuals are keen on assisting official authorities while others are not and we chose the case of poaching in national parks in Southern Africa, which is a sector clearly suffering from faint capacities and resources.

We hypothesized that the more park rangers are seen as trustworthy and uncorrupt, the higher is people's propensity to share information about poachers to state authorities (H1). Consulting our results, this expectation is confirmed. Second, we suggested that the more people hold moral beliefs about duties to comply with park rules and that poaching is morally wrong, the more likely that they will be willing to share information about poachers to state authorities (H2). Also this hypothesis is confirmed. Thirdly, we hypothesized that the more people are involved in violations of park rules the lesser their propensity to share information about poachers to state authorities (H3). This expectation is only partially confirmed. Neither our fourth hypothesis – that the higher the economic benefits from preserving wildlife are, the higher the propensity to share information about poachers to state authorities (H4) – nor our final hypothesis – that the more people believe that wildlife is threatened, the more likely that they will share information about poachers (H5) – gain support.

Based on these findings, we suggest that to make community policing initiatives in this sector more successful, policy should be more oriented towards changing how officials are perceived, i.e., authorities need to find ways to 'win the hearts and minds' of locals in order to increase their willingness to share crucial information. It will be difficult, to say the least, to make people change their views on the moral legitimacy of the rules governing this park. However, addressing this hurdle is likely crucial to make people more willing to assist in intelligence-sharing.

6. Conclusions

What makes citizens willing to share crucial intelligence with state officials? Given the trend in governance the last decades of an increased use of community-policing, understanding these processes are highly relevant. Citizens' willingness to share important information says something about state capacity in general – both in terms of how to foster it and how to sustain it. In order to develop and test a number of potential theoretical mechanisms, the investigation focuses on the case of poaching of wildlife in the Great Limpopo Transfrontier Park (GLTP) and uses unique survey data capturing residents' propensity to report poaching activities to state authorities as well as factors that potentially can explain such behavior.

More than speaking to issues of state capacity and compliance, the study also contributes to the problem of poaching. The loss of iconic wildlife species has in recent decades been unprecedented and in order to reverse this trend the involvement of communities in policing has been widely called for. Yet, in order for authorities to access the crucial information necessary in order to abate wildlife crime, this study

shows that both relational and moral factors are of crucial importance. Citizens who do not trust rangers – or are afraid of them and perceive them as corruptible – are less willing to help authorities through sharing crucial information. Seeing poaching as condemnable also affects this outcome. Individuals' material stakes in conservation, and the extent to which people see wildlife as being threatened, however, do not substantively predict our outcome. We believe that these findings point to several directions for future research. For instance, there is a need to investigate which interventions that increase willingness to engage in information-sharing.

The state's ability to collect and manage information is a central feature of its efforts to foster and sustain social control. While some states almost exclusively rely on coercive means and derives constituent cooperation either from deterrence, others emphasize that cooperative strategies promoting perceptions of inclusiveness, legitimacy, effectiveness, and fairness is what motivates constituent cooperation. The trend of exercising community policing is a clear example of such a cooperative strategy. Yet, these strategies might work best in tandem, and what this study shows is that policy makers should not be naïve in terms of expecting constituent cooperation. Instead, serious efforts need to be devoted to increase citizens' willingness to provide crucial information to state authorities. This article points to some of the relevant mechanisms and entry points for such an endeavor.

References

All Africa (2020) Zimbabwe: Ranger Arrested for Possessing Poaching Ammunition. See: https://allafrica.com/stories/202001180089.html

Bates, R.H. (2008). *When Things Fell Apart. State Failure in Late-Century Africa.* Cambridge University Press.

Benjamin-Fink, N. (2018) *An Assessment of the Human-Wildlife Conflict across Africa*, in M. Ferretti (ed) Wildlife Population Monitoring. Intech Open, London.

Brambor, T., Goenaga, A., Lindvall, J., & Teorell, J. (2020). The lay of the land: information capacity and the modern state. *Comparative Political Studies 53*(2), 175-213.

Bradtke, M. (2017). Inside 'The Poachers Pipeline' *New Security Beat*, March 28th. See: https://www.newsecuritybeat.org/2017/03/the-poachers-pipeline-qa-al-jazeeras-jeremy-young-kevin-hirten/

Cooney, R., Roe, D., Dublin, H., Phelps, J., Wilkie, D., Keane, A., ... & Biggs, D. (2017). From poachers to protectors: engaging local communities in solutions to illegal wildlife trade. *Conservation Letters 10*(3), 367-374.

D'Arcy, M. & M. Nistotskaya (2017). State First, Then Democracy: Using Cadastral Records to Explain Governmental Performance in Public Goods Provision. *Governance* 30(2), 193-209.

Denzau, A.T., & North, D.C. (2000). Shared mental models: ideologies and institutions. *Elements of reason: Cognition, choice, and the bounds of rationality*, 23-46.

Englebert, P. (2002). *State Legitimacy and Development in Africa.* Boulder & London: Lynne Rienner Publishers.

Fearon, J.D., & Laitin, D.D. (2003). Ethnicity, insurgency, and civil war. *American political Science Review*, 75-90.

Filteau, M.R. (2012). Deterring Defiance: 'Don't Give a Poacher a Reason to Poach'. *International Journal of Rural Criminology* 1(2), 236-255.

Fisher, R.J. (1993). Social Desirability Bias and the Validity of Indirect Questioning. *Journal of Consumer Research* 20(2), 303-315.

Fukuyama, F. (2013). What is governance? *Governance*, *26*(3), 347-368.

Gezelius, S.S. (2004). Food, money, and morals: compliance among natural resource harvesters. *Human Ecology 32*(5), 615-634.

Gill, C.,Weisburd,D., Telep, C., Vitter, Z., & Bennett, T. (2014). Community-oriented policing to reduce crime, disorder and fear and increase satisfaction and legitimacy among citizens: A systematic review. *Journal of Experimental Criminology*, 10(4), 399–428.

Green, E. (2016.) Judging the effectiveness of anti-poaching hotlines. *Journal of Rural Social Sciences* 31(2), 1-15.

Hendrix, C.S. (2010). Measuring state capacity: Theoretical and empirical implications for the study of civil conflict. *Journal of Peace Research 47*(3), 273-285.

Herbst, J. (2000). *States and Power in Africa.* Princeton University Press.

Hübschle, A.M. (2017). The social economy of rhino poaching: Of economic freedom fighters, professional hunters and marginalized local people. *Current Sociology*, *65*(3), 427-447.

Hübschle, A.M. (2016) Wildlife Crime: Why do local communities poach? *Global Initiative*, May 23rd. See: https://globalinitiative.net/analysis/wildlife-crime-why-do-local-communities-poach/

Jackman, R.W. (1993). *Power without force: The political capacity of nation-states*. University of Michigan Press.

Jackson, R.H. (1992). Juridical statehood in sub-Saharan Africa. *Journal of International Affairs*, *46*(1), 1-16.

Keane, A., Jones, J. P., Edwards-Jones, G., & Milner-Gulland, E. J. (2008). The sleeping policeman: understanding issues of enforcement and compliance in conservation. *Animal Conservation*, *11*(2),75-82.

Levi, M. (1997). *Consent, dissent, and patriotism*. Cambridge University Press.

Linell, A., Sjöstedt, M., & Sundström, A. (2019). Governing transboundary commons in Africa: the emergence and challenges of the Kavango–Zambezi Treaty. *International Environmental Agreements 19*(1), 53-68.

López-Hoffman L, Monroe I.E., Narváez E, Martínez-Ramos M, Ackerly D.D. (2006). Sustainability of mangrove harvesting: how do harvesters' perceptions differ from ecological analysis? *Ecology and Society* 11(2), 14.

Lotter, W. D., Roberts, K., Singh, R., et al. (2016). *Anti-poaching in and around protected areas: Training guidelines for field rangers*. Best Practice Guidelines Series No.01. International Ranger Federation.

Lotter, W. and K. Clark (2014). Community involvement and joint operations aid effective anti-poaching in Tanzania. *Parks* 20(1), 19-28.

Lubbe, W.D. (2015). Poaching prompts a review of Africa's transfrontier parks. *The conversation*. July 29th. See: https://theconversation.com/poaching-prompts-a-review-of-africas-transfrontier-parks-44798

Lunstrum, L. (2013). Articulated sovereignty: Extending Mozambican state power through the Great Limpopo Transfrontier Park. *Political Geography* 36, 1-11

Mail & Guardian (2013). Mozambique rhino 'extinct' again. May 2nd. See: https://mg.co.za/article/2013-05-02-mozambique-rhino-extinct/

Massé, F., Gardiner, A., Lubilo, R., & Themba, M.N. (2017). Inclusive anti-poaching? Exploring the challenges of community-based anti-poaching. *South African Crime Quarterly 60*, 19-27.

Massé, F. (2020) Conservation Law Enforcement: Policing Protected Areas. *Annals of the Association of Geographers* 110(3), 758-773.

Mann, M. (1986). *The Sources of Social Power Volume 1. A History of Power from the Beginning to AD 1760.* Cambridge University Press.

Migdal, J.S. (1988). *Strong societies and weak states: state-society relations and state capabilities in the third world.* Princeton University Press.

Migdal, J.S. (2001). *State in society. Studying how states and societies transform and constitute one another.* Cambridge University Press.

Miller, J.M. (2011) Becoming an Informant. *Justice Quarterly* 28(2), 203-220.

Mood, C. (2010) Logistic Regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review* 26(1), 67-82.

Moreto, W.D. (2019). Provoked poachers? Applying a situational precipitator framework to examine the nexus between human-wildlife conflict, retaliatory killings, and poaching. *Criminal Justice Studies 32*(2), 63-80.

North, D.C. (2006). *Understanding the process of economic change.* London: Institute of Economic Affairs, Wincott Foundation.

Ntuli, H., Sundström, A., Sjöstedt, M., Muchapondwa, E., Jagers, S. C., & Linell, A. (2021). Understanding the drivers of subsistence poaching in the Great Limpopo Transfrontier Conservation Area: What matters for community wildlife conservation? *Ecology and Society*.

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge University Press.

Rothstein, B., & Stolle, D. (2008). The state and social capital: An institutional theory of generalized trust. *Comparative Politics 40*(4), 441-459.

SADC (Southern African Development Community) (2015). Kavango-Zambezi Transfrontier Conservation Area. See: https://www.giz.de/de/downloads/giz2015-en-tfca-kaza.pdf

SA-People (2019). Hero ranger arrests five poaching-suspects in the Kruger National Park, South Africa. November 24th. See: https://www.sapeople.com/2019/11/24/hero-ranger-arrests-five-poaching-suspects-in-the-kruger-national-park-south-africa/

Schreurs, W., Kerstholt, J.H., de Vries, P.W., & Giebels, E. (2018). Citizen participation in the police domain: The role of citizens' attitude and morality. *Journal of Community Psychology* 46(6), 775–789.

Sjöstedt, M. & A. Linell, (2021). Cooperation and coercion: The quest for quasi-voluntary compliance in the governance of African commons. *World Development,* online first.

Skogan, W.G. (2006). "The Promise of Community Policing." In Weisburd, D. and Braga, A. A. (eds), *Police Innovation. Contrasting Perspectives*. Cambridge University Press.

Steg, L. and Vlek, C. (2009) Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology* 29, 309–317.

Sunday Times (2019) "Former SANParks ranger arrested on suspicion of rhino poaching" May 3rd. See: https://www.timeslive.co.za/news/south-africa/2019-05-03-former-sanparks-ranger-nabbed-on-suspicion-of-poaching/

Sundström, A. (2015). Covenants with broken swords: Corruption and law enforcement in governance of the commons. *Global Environmental Change* 31, 253-262.

Sundström, A. (2016). Corruption and violations of conservation rules: A survey experiment with resource users. *World Development*, *85*, 73-83.

Terpstra, J. (2010). Community policing in practice: Ambitions and realization. *Policing* 4(1), 64-72.

´t Sas-Rolfes, M. (2017). African wildlife conservation and the evolution of hunting institutions. *ERL* 12(11),115007.

Van der Land, M., Van Stokkum, B., & Boutellier, H. (2014). Citizens in safety: an inventory of citizen participation in the social security domain. See: https://research.vu.nl/files/1177110/2336-volledige-tekst%20tcm44-565152.pdf

Appendix

Appendix Table A1. Willingness to assist authorities to tell on poachers, slightly altered dependent variable

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Relational factors							
Afraid of rangers		-0.273***	-0.263***	-0.252***	-0.246***	-0.248***	-0.227***
		(0.064)	(0.061)	(0.061)	(0.061)	(0.061)	(0.062)
Trust in rangers		0.452***	0.349***	0.322***	0.305***	0.311***	0.301***
		(0.084)	(0.080)	(0.080)	(0.080)	(0.081)	(0.081)
Rangers accept gifts		-0.856***	-0.471***	-0.398***	-0.383***	-0.383***	-0.390***
		(0.101)	(0.101)	(0.102)	(0.102)	(0.102)	(0.102)
Normative factors							
Moral obligation to comply			0.781***	0.665***	0.652***	0.654***	0.650***
			(0.100)	(0.101)	(0.101)	(0.102)	(0.101)
Subsistence poaching is wrong			0.685***	0.639***	0.623***	0.625***	0.622***
			(0.079)	(0.079)	(0.080)	(0.080)	(0.080)
Community see poaching as wrong			0.640***	0.614***	0.596***	0.606***	0.602***
			(0.107)	(0.106)	(0.106)	(0.108)	(0.108)
Complicity							
Obeys regulations				0.453***	0.447***	0.447***	0.438***
				(0.089)	(0.090)	(0.090)	(0.090)
Have killed impalas/inyalas				-0.508	-0.199	-0.229	-0.271
				(0.619)	(0.629)	(0.630)	(0.619)
Have eaten bushmeat				-0.082	-0.037	-0.024	0.003
				(0.203)	(0.208)	(0.208)	(0.209)
Instrumental factors							
Rules give benefits					0.403*	0.401*	0.389*
					(0.190)	(0.191)	(0.191)
Hunter household					-0.798*	-0.797*	-0.838*
					(0.312)	(0.314)	(0.314)
Experienced wildlife damage					-0.041	-0.055	-0.093
					(0.202)	(0.203)	(0.203)
Concern and salience							
Threats to wildlife increased						0.080	0.080
						(0.086)	(0.086)

Park resources risks depletion						-0.010	-0.018
						(0.086)	(0.086)
Socio-economic controls							yes
Country FE	yes	yes	yes	yes	yes	yes	yes
Intercept	17.940***	18.640***	10.340***	9.380***	9.617***	9.362***	8.656***
	(0.141)	(0.369)	(0.670)	(0.694)	(0.741)	(0.796)	(0.860)
N	2246	2246	2246	2246	2246	2246	2246
adj. *R*2	0.04	0.10	0.18	0.19	0.19	0.19	0.19

Comment: OLS regression (unstandardized coefficients, standard errors in parentheses). The dependent variable is a composite index of five items. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Appendix Table A2. Willingness to assist authorities to tell on poachers whom you know

	Willingness to tell on poachers	Willingness to tell on poachers, even if you know them
Relational factors		
Afraid of rangers	0.916**	0.960
	(0.028)	(0.029)
Trust in rangers	1.096*	1.101*
	(0.044)	(0.043)
Rangers accept gifts	0.872**	0.849***
	(0.043)	(0.041)
Normative factors		
Moral obligation to comply	1.385***	1.280***
	(0.071)	(0.064)
Subsistence poaching is wrong	1.295***	1.334***
	(0.052)	(0.052)
Community see poaching as wrong	1.237***	1.245***
	(0.067)	(0.066)
Complicity		
Obeys regulations	1.145**	1.168***
	(0.052)	(0.051)
Have killed impalas/inyalas	1.176	1.174
	(0.367)	(0.363)
Have eaten bushmeat	1.063	1.006
	(0.109)	(0.101)
Instrumental factors		
Rules give benefits	1.287**	1.347***
	(0.122)	(0.123)
Hunter household	0.713*	0.812
	(0.110)	(0.123)
Experienced wildlife damage	1.003	0.991
	(0.100)	(0.095)
Concern and salience		
Threats to wildlife increased	1.068	0.984
	(0.046)	(0.041)
Park resources risks depletion	0.987	1.053
	(0.042)	(0.043)
Socio-economic controls	yes	yes
Country FE	yes	yes
Cut 1	1.021	1.156
Cut 2	2.635	2.963
Cut 3	3.032	3.415
Cut 4	5.625	5.540
Log likelihood	-2645.7205	-2974.7491

N	2247	2247
Pseudo R2	0.06	0.05

Comment: Ordered logistic regression models, odds ratios (std errors). $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$