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## Conservation Law Enforcement: Policing Protected Areas

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# Conservation Law Enforcement: Policing Protected Areas

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This article examines how recent increases in commercial poaching of wildlife intensify the dictates that underpin conservation law and its enforcement; namely, the securing of space, punishing of transgressors, and protecting of nonhuman life. Drawing on ethnographic research with antipoaching personnel in Mozambique, I examine how rangers translate these legal and normative manifestations of conservation law enforcement on the ground and in their daily practices to police protected areas and the wildlife within them. This article makes two contributions. First, drawing on insights from the political geography and ecology of conservation with the political geography of policing, I demonstrate how territorial, sovereign, and biopolitical practices and logics coalesce to secure the spaces and the lives of the nonhuman from ostensible human threats. Second, it is rangers who are deployed as petty environmental sovereigns to achieve these objectives through often violent practices. Although many rangers might feel uncomfortable with the use of violence, their agency to commit or resist using violence is authorized, enabled, and constrained by the normative and legal structures of conservation law enforcement within which they operate. The social differentiation among rangers also means that some have more agency to navigate these structures than others. These insights help understand the actually existing operationalization of delegated and performative power over bodies, space, and the use of direct violence. I suggest that critiques of conservation violence, and the use of violence by those acting as petty sovereigns more broadly, should be primarily oriented at the broader structures within which they operate. *Key Words:* conservation law enforcement, green militarization, petty sovereign, poaching/antipoaching, policing.

本文检视晚近野生生物商业盗猎的增加，如何加剧了支撑保育法及其实施的命令，亦即空间保全、惩罚盗猎者，以及保护非人类的生命。我运用对莫桑比克反盗猎从业员的民族志研究，检视森林保育员如何将这保育法施行的法律与规范性展现，转译成其警备保护区与之中的野生动物的现场与日常实践。本文做出两大贡献：首先，我运用警备政治地理学的保育政治地理及生态之洞见，展现领土、主权和生物政治的实践与逻辑如何连结，以确保非人类的生物与空间远离表面的人类威胁。再者，森林保育员配置作为小型的环境主权，经常通过暴力行为达到上述目标。尽管诸多森林保育员可能会对使用暴力感到不适，但他们赞成或反对使用暴力的施为，却是从其所操作的保育法施行之规范性与法律结构中获得授权、赋予该能力、并受其限制。森林保育员的社会差异化，同时意味着若干人较其他人而言有更大的施为能够驾驭这些结构。这些洞见，有助于理解对身体、空间以及使用直接暴力的委派与展演性权力的实际操作。我主张，对保育暴力以及那些以小主权行动所进行的更广泛的暴力使用之批判，应该主要针对其所操作的更为广泛之结构。关键词：保育法执行，绿色军备化，小主权，盗猎/反盗猎，警备。

Este artículo examina el modo como los recientes incrementos en la caza comercial furtiva de fauna intensifica los dictados que apuntalan la ley de conservación y su imposición; se trata, concretamente, de darle seguridad al espacio, castigo a los transgresores y protección a la vida no humana. Basándome en investigación etnográfica con personal destacado para controlar los cazadores furtivos en Mozambique, examino cómo los guardabosques traducen en el terreno y en sus prácticas cotidianas estas manifestaciones legales y normativas de imposición de la ley de conservación para vigilar las áreas protegidas y la vida silvestre que albergan. Este artículo hace dos contribuciones. Primera, apoyándome en enfoques desde la geografía política y la ecología de la conservación con la geografía política de la vigilancia policial, demuestro cómo las prácticas territoriales, soberanas y biopolíticas, y la lógica coalescen para asegurar contra las amenazas humanas ostensibles los espacios y las vidas de los no humanos. Segunda, es a los guardabosques, que se despliegan como insignificantes soberanos ambientales, a quienes corresponde lograr estos objetivos con la aplicación de prácticas a menudo violentas. Aunque muchos guardabosques podrían sentirse incómodos con el uso de la violencia, su agencia para involucrarse o resistirse a usar la violencia es autorizada, respaldada o restringida por las estructuras legales y normativas de imposición de la ley de conservación dentro de la cual ellos operan. La diferenciación social entre los guardabosques también

significa que algunos de ellos gozan de más agencia que otros para navegar estas estructuras. Estas perspicacias ayudan a entender la operacionalización que realmente existe de poder delegado y performativo sobre cuerpos, el espacio y el uso directo de la violencia. Sugiero que las críticas de violencia conservacionista, y el uso de la violencia por quienes a la larga actúan como soberanos nimios, deberían orientarse principalmente hacia las estructuras de mayor amplitud dentro de las cuales ellos operan. *Palabras clave: caza furtiva/anticaza furtiva, imposición de la ley de conservación, militarización verde, soberano insignificante, vigilancia policial.*

It is late afternoon in September 2015 in one of the most important areas for disrupting commercial rhino poaching. I am sitting with a Mozambican government advisor on conservation law enforcement (CLE). When I inquire about the main approach for combating the illegal hunting happening within and across Mozambique's borders, he replies:

The first step is law enforcement. We need to establish the boundaries of conservation areas, delimit them physically, and show people that this is the boundary. We must have rangers and police patrolling up and down the boundaries.

He then raised his hands to demonstrate a ranger pointing a rifle at someone while telling that hypothetical person not to enter. His response brings the rights and responsibilities of rangers who are tasked with enforcing conservation law and policing conservation space to the fore. Specifically, the advisor's remarks highlight two dictates that underpin CLE in protected areas: The first is concerned with securing spaces of conservation and the resources and flows within them. The second is to deter people from illegally entering protected areas and punish those who do. Both mandates, and the practices that rangers use to fulfill them, are intensifying. This is especially so in the Mozambican borderlands with the passing of the country's Conservation Areas (CA) Law in 2014.

The CA Law was passed in response to increases in commercial poaching and the need to protect non-human populations at risk, primarily rhinos and elephants. Poaching-related mortality of rhinos is threatening population numbers, and African elephant populations are declining at a rate of 8 percent per year, "primarily due to poaching" (Chase et al. 2016, 2354; Ferreira et al. 2017). The threats to non-human life posed by commercial poaching constitute a biopolitical problematic, ushering in a strengthening of laws and enforcement measures to secure it.

Drawing on an ethnography of antipoaching, I ask how biopolitical imperatives brought on by increases in commercial poaching work through, intensify, and

reshape other modes of governing, namely, territorial and sovereign, that inform CLE and the policing of protected areas. Going further, I examine how such imperatives are embodied and translated by CLE personnel, deployed in their everyday practices, and condition their use of violence. In doing so, I develop an understanding of the everyday policing of protected areas by focusing on how and why rangers secure space, punish transgressors, and use violence in the name of protecting nonhuman life.

I draw on Nealon (2008), who understood biopower as a form of power that "intensifies, multiplies, and extends" other modes of power and their practices and techniques. Büscher and Fletcher (2018) similarly extended this notion of biopolitics to conservation. They argued that the current poaching crisis produces biopolitical imperatives that have led to an "intensification of pressure" related to conserving biodiversity. This pressure acts as a "coercive force" to save certain species and environments (Büscher and Fletcher 2018, 4). Lunstrum similarly demonstrates how concerns over poaching have led to a "vitalized state [that] enacts decisions over (rhino) life and (poacher) death" (Büscher and Fletcher 2018, 9). On the ground it is the antipoaching ranger who wields the power over life and death and translates it into everyday practices of policing protected areas. Hence, combining Fletcher's (2010) insights on sovereign environmentality with Butler's (2006) notions of petty sovereigns, I argue that antipoaching rangers are petty environmental sovereigns imbued with the formal and tacit authority, and even responsibility, to deploy violence and enact decisions over life and death. This analysis extends analyses concerning the wielding of delegated and discretionary power by petty sovereigns beyond managerial or bureaucratic power and decision making to the use of direct physical violence and even the taking of a human life. Moreover, this is done in the pursuit of protecting nonhuman bodies and the space within which they exist. Importantly, however, rangers exercise this power in uneven ways and not without tension.

Drawing on the preceding, this article makes two interrelated contributions. First, although arguments about the complementarity of various forms of power are not new, CLE highlights how from international pressure and national legislation to the practices of rangers, familiar territorial, sovereign, and biopolitical practices and logics coalesce and intensify around the common objective of securing the spaces and lives of the nonhuman from ostensible human threats, albeit in often messy ways. Drawing on insights from geographies of conservation and geographies of policing, what emerges is an understanding of protected areas as biopolitical enclosures where law enforcement is meant to keep human threats out and contain and neutralize those that enter. Second, I focus on how rangers translate and negotiate the legal and normative dictates of securing conservation space, punishing poachers, and protecting nonhuman life. I thus move from an abstract understanding of joint conservation-policing power to detail the concrete ways in which CLE manifests on the ground in the daily practices of rangers. Acknowledging the deserved critiques about the violent and oppressive tactics of antipoaching units and individual rangers, through this analysis I unpack the broader structures of power within which rangers operate as petty environmental sovereigns. Although sovereignty is performed or constituted through individuals rather than a centralized sovereign, there are indeed broader power structures and legal and normative objectives that constrain the discretionary nature of power delegated to individuals. For rangers, their agency to commit or resist committing acts of violence in the name of conservation is both constrained and enabled by the norms and laws that underpin their duties as enforcers of conservation law and space. This does not render rangers, or others acting as petty sovereigns, immune from criticism. Rather, it helps humanize them and their actions and understand them not as heroes or villains but as actors operating within a power structure that authorizes and even demands that they act in a certain way through formal and informal means.

Demonstrating the uneven ways in which delegated sovereign and biopolitical power manifests in everyday situations of security and policing and with what constraints contributes to understandings of conservation security and law enforcement on the ground and of petty sovereignty more broadly. This is fundamental to understanding the use of violence in the pursuit of

policing protected areas and how we should orient our critiques of such violence not at individual rangers or antipoaching units (APUs) but at the broader legal and normative structures within which they operate.

I begin by briefly outlining the who and what of CLE in Mozambique and describe my methodology. I then provide an overview of literature that examines how territorial and sovereign modes of governing shape conservation, law, and policing. I make intersections across these and with biopower to understand how these multiple and overlapping logics of power intensify and come together to inform the policing of protected areas. I then reflect on how rangers negotiate the legal and normative manifestations of CLE's biopolitical, sovereign, and territorial imperatives that authorize and even demand violence.

## Researching Conservation Law Enforcement

The term *law enforcement* is rarely, if ever, used to talk about antipoaching in political ecology and political geography. This is despite the fact that CLE is often used synonymously with antipoaching in conservation, criminology, and law enforcement circles. The hesitation in using CLE in critical scholarship might stem from perceptions that law enforcement or policing is an apolitical term used by supporters of militarized antipoaching to deflect attention away from the use of violence, force, and subsequent injustices. Refusing to adopt or use the term law enforcement could, however, actually serve to maintain these distinctions and possibly obscure a much-needed critical understanding of more mundane, nuanced, and less spectacular forms of policing, antipoaching, and protected area enforcement. While remaining cognizant of the conceptual and tactical overlaps between militarization, securitization, and policing, this is why I move beyond explicitly militarized language that dominates critical discussions of efforts to address illegal hunting (Lunstrum 2014; Annecke and Masubele 2016; Mabele 2016; Duffy et al. 2019). Instead, I examine the day-to-day work of antipoaching rangers as CLE personnel who are tasked with policing spaces of conservation and enforcing related laws. I define CLE as the organized practices and authorities used to enforce laws and norms related to the use of biodiversity and the regulation of activities within spaces of conservation.

A focus on law enforcement and policing as opposed to outright militarization reflects and can help explain the subtler and less visible dynamics of everyday antipoaching practice, how antipoaching personnel understand their roles and responsibilities, and how they translate these into everyday practice and even violence even in areas that might be relatively nonmilitarized.

Although the enforcement of conservation laws spans many scales from the local to the international, this article focuses on formal spaces of conservation, commonly referred to as protected areas. These are the spaces where rangers and others enforce conservation law and act as the first line of protection for wildlife and conservation territory (also see Hilborn et al. 2006; Warchol and Kapla 2012; Moreto and Matusiak 2017). Put another way, rangers police and defend the fortress of conservation and the resources within it.

Traditionally, rangers have multiple responsibilities integral to the management of protected areas including ecological and biological monitoring and maintenance. The pressures of poaching in areas like South Africa's Kruger National Park and the borderlands adjacent to it in Mozambique, however, have resulted in a shift in rangers' responsibilities to focus increasingly and almost exclusively on law enforcement, or antipoaching (Interviews 2014, 2016; also see Annecke and Masubele 2016; Hübschle and Jooste 2017). We also see the creation of new law enforcement bodies like Mozambique's Environmental Police (PRNMA). Created in 2014 in response to pressures to address illegal hunting in the country, the PRNMA is specifically tasked with policing human-environment relations and enforcing related laws. PRNMA officers stationed within protected areas effectively function as antipoaching rangers, even working side by side with them.

One example of conservation legislation is Mozambique's Law No. 16/2016 of 20 June 2014, popularly known as the CA Law. Passed in 2014, the most talked about aspect of the law is the updating of the penalty for illegal hunting from a fine to an eight- to twelve-year prison sentence. Mozambique's Penal Code was also updated to reflect this change. Reflecting Marijnen's (2018) insights on the transnationalization of the state in response to conservation crises, the CA Law is part of a broad reform of the country's conservation sector in response to national and international pressure and the real need to address poaching in

Mozambique (see, e.g., World Wildlife Fund 2013). One outcome is the National Ivory and Rhino Horn Action Plan (NIRAP) developed under the supervision of the Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES) that includes the development of the CA Law and the PRNMA (Ministry for the Coordination of Environmental Action 2015), among other measures to curb illegal hunting and strengthen protected areas. Given that rhino poaching is a cross-border issue with South Africa, Mozambique's western neighbor has also pressured and supported Mozambique to strengthen and harmonize conservation law and related enforcement efforts (see, e.g., Massé and Lunstrum 2016). The impetus for these initiatives is largely, if not exclusively, the desire to intensify and improve Mozambique's CLE efforts and capacities in response to current poaching levels.

Data for this article are based on eighteen months of research on antipoaching and conservation security in Mozambique and South Africa between 2014 and 2016. This includes more than fifty interviews and six months of ethnographic research and participant observation with CLE personnel—an antipoaching unit, Mozambique's Environmental Police, and border patrol—tasked with policing protected areas in the Mozambican borderlands adjacent to South Africa and its Kruger National Park.<sup>1</sup> This is an area that some refer to as the most important piece of land in the world for rhino protection and is thus a site of ever-intensifying efforts to disrupt the illegal hunting of rhinos (Massé and Lunstrum 2016). I accompanied CLE personnel on their daily patrols, in briefing meetings, and during other routine activities and events including responses to poaching incursions and poaching incidents. We had many informal conversations as we walked together, hung out together, ate together, and ultimately lived together. I also conducted interviews with officials from the conservation, security, policing, legislative, and judicial sectors. Ethnography afforded me insight into the daily realities of CLE and security, the logics behind the practices that are used, and the messy ways in which these logics and dictates are translated on the ground by individuals.

Who is the ranger or CLE official in Mozambique?<sup>2</sup> At the risk of generalizing, the ranger is likely male, between the ages of eighteen and forty-five, and has a family. He is a black Mozambican. In some protected areas, he is recruited locally, whereas

in others he is explicitly recruited from a different part of the country, so he has no social or family ties in the area. Managers are almost exclusively white and often South African or foreign. What became clear during my research is how many CLE personnel and antipoaching and conservation managers are at times critical of and uneasy about heavy-handed and violent policing tactics. Many rangers reveal an internal contradiction whereby they want to protect wildlife, stop poachers, and have them held accountable. Yet, they might be uncomfortable with the violence used against people who could be compatriots or even neighbors. They also express concern that heavy-handed, violent, and increasingly militarized tactics alienate people within and around protected areas and turn them against wildlife conservation (see also Hübschle 2017; Duffy et al. 2019).

Simply quitting, however, is not necessarily an option. In Mozambique, like in many other African countries, rangers are paid very little and are themselves impoverished and vulnerable. Many rangers expressed how in a country with very few employment opportunities, they are thankful to have a job. They cannot simply resist using practices that are violent or oppressive or to which they might object. One too many reprimands and a ranger risks losing his or her job, which for most is a thin line between being able to support their family and not. Like police, though, some rangers use the structures of power within which they operate to “render justice as they wish” (Herbert 1996b, 572). What leads some and not others to accept the use and normalization of violence is an important question, but that is beyond the scope of this article. In the remaining pages I focus on the broader structures and pressures within which rangers operate and how this conditions and governs their day-to-day practices and their agency to use or resist using conservation violence—or the use of violence in pursuit of conservation goals.

## The Powers of Policing, Law Enforcement, and Conservation

If biopower “intensifies, multiplies, and extends” not only itself but other modes of power and their practices and techniques (Nealon 2008, 51), what does this look like in CLE? What are the implications for understanding the workings of power that seek to govern human–environment relations? How are such modes of power embodied in rangers?

Answering such questions requires taking a step back to understand the modes of power that inform and shape conservation practice while bringing the specifics of conservation into dialogue with the geographies of policing.

### Creating Conservation Territories and Conservation Criminals

Sack’s (1986) notion of territoriality, defined as “a spatial strategy to affect, influence, or control resources and people, by controlling area” (1) forms the foundation for understanding the creation and securing of conservation areas (see, e.g., Vandergeest and Peluso 1995; Lunstrum 2013; Bluwstein and Lund 2018). Conservation territoriality is primarily manifested in the protected area model where authorities use practices of mapping, demarcating, legislating, and even the use of force and violence to produce discrete spaces where certain types of natures and activities are allowed and separated from those that are excluded (Brockington 2002; Spierenburg and Wels 2006; Massé 2016). Scholarship on conservation has simultaneously furthered understandings of territory, its manifestations, and processes through which it occurs (Corson 2011; Fairhead, Leach, and Scoones 2012; Marijnen 2018). Vandergeest and Peluso (1995), for example, cited protected areas as examples of “internal territorialization” whereby territoriality is turned internally to states with a view to “excluding or including people within particular geographic boundaries and about controlling what people do and their access to natural resources within those boundaries” (387). Conservation, and especially protected areas, thus reflects and contributes to the intimate connection between power and control over resources, bodies, and their movement through space.

Laws on conservation create and uphold specific territories in part by creating criminals, or “*homo penalis*, the man who can be legally punished” (Foucault 2008, 249). This happens when laws criminalize and outlaw activities deemed inconsistent with the objectives of conservation. Creating *homo penalis* and the ability to punish those who hunt when, where, and what they are not supposed to reflects Foucauldian notions of sovereign power. Understood as a form of power rooted in “a direct hold of government over things and people” (Foucault 2008, 45), sovereign power operates by

punishing and deterring individuals from acting in certain ways. It is the creation of a conservation *homo penalis* that enables the (“legitimate”) use of punishment to protect conservation territory, resources, and nonhuman life. Law, sovereign power, and territoriality are coexistent and coproduced.

The world’s first formal national park and accompanying legislation, the Yellowstone Game Protection Act, is a case in point. Passed in 1894 in response to the lack of enforcement mechanisms and penalties for illegally hunting in Yellowstone National Park, the legislation was “an act to protect the birds and animals in Yellowstone National Park, and to punish crimes in said park, and for other purposes” (The Lacey Act 1894). Mozambique’s new CA Law passed in 2014 and the updating of its penal code to move illegal hunting from a transgression punishable by a fine to a crime punishable by an eight- to twelve-year prison sentence is a contemporary example of the creation and intensification of *homo penalis* in response to contemporary pressures of illegal hunting.

Law, however, must be enforced. Law enforcement is the “set of instruments”—punishment for offenses and the apparatus to detect and investigate crimes, convict criminals, and hand out punitive judgments—that makes the prohibitions established by law, and hence by the state, a reality (Foucault 2008, 254). Enforcement is carried out by sanctioned state and nonstate actors that have the formal or tacit authority to uphold laws and the norms they embody. According to the “organizing principle of the penal calculation,” the objective of punishment as made possible by these instruments is to deter individuals from breaking the law by increasing the cost–benefit ratio of committing a crime (Foucault 2008, 255). The functioning of sovereign power and the penal calculation in this regard thus relies on punishing the individual transgressor and making punishment (and violence) visible to others. Both act as a method of deterrence and underpin the use and threat of punishment in conservation crime science (see, e.g., Eloff and Lemieux 2014).

Fletcher (2010) began to capture the process of a conservation-specific form of sovereign power and its interconnection with territorial practices or where conservation “rules are enforced and borders are patrolled” (178). He called this “sovereign environmentality.” Like sovereign power more generally, sovereign environmentality explicitly intersects with

territorial forms of governance as it is “aimed at the rational governance of a territory through compelling subjects’ obedience to sovereign will by direct threat of punishment” (Fletcher 2010, 172). CLE and the policing of protected areas are thus concerned with defending protected areas and the punishment, detection, investigation, and conviction of those who contravene conservation-related laws. The objective is to deter people from committing conservation crimes such as illegal hunting. It is rangers and other CLE personnel who carry out these activities in the name of protecting the spaces and lives of the nonhuman.

### Biopower, Conservation, and Law Enforcement

Although policing protected areas has much in line with traditional policing and law enforcement, conservation is about securing the life of nonhuman nature. Naturally, then, many scholars understand conservation as a form of nonhuman-oriented biopower in practice (Biermann and Mansfield 2014; Biermann and Anderson 2017; Srinivasan 2017). Others understand conservation as a mode of biopolitical governance aimed at controlling, managing, and regulating not only the nonhuman but human populations as well (Eckersley 2004; Cavanagh and Himmelfarb 2015). To be sure, conservation’s militarization and the intensifying antipoaching and CLE practices emerging in response to increases in commercial poaching are not only motivated by protecting the lives of animals for their own sake. Many proponents of such approaches also advance rationales of human and national, global, and economic security (Duffy 2014; Kelly and Ybarra 2016; Büscher and Fletcher 2018; Massé, Lunstrum, and Holterman 2018). Moreover, although Lunstrum (2018) demonstrated how concerns over rhino poaching have led to a “vitalized state [that] enacts decisions over (rhino) life and (poacher) death,” how does this vitalized power over life and death articulate with other modes of governing that inform CLE? How does it work through rangers and inform their everyday practices and use of violence? I build on these insights to interrogate conservation law and the everyday and mundane practices of antipoaching through a biopolitical lens. I focus specifically on how power organized on the logic and principle of making live and securing life with death being an (unfortunate) by-product intersects and overlaps with the territorial and sovereign in rangers’ quotidian practices.



I follow others and move beyond death and the termination of biological life to include other forms of doing away with. This includes practices like imprisonment and extraordinary rendition that also work to do away with those whom authorities perceive as threatening circulations to a given population (Murray 2008). Foucauldian biopolitics offers room for this nuance as the biopolitical must not necessarily eliminate the threat but “maximize the good circulations by diminishing the bad” (Foucault 2007, 18). This broad understanding of doing away with threats becomes important when thinking through practices of law enforcement that seek to diminish threats to valued populations, like wildlife, but do not explicitly include biological death. Shoot-to-kill policies such as those in Botswana formally use the biological death of the poacher to protect the existence of certain species (Lunstrum 2018). Imprisoning a poacher also diminishes the threat to wildlife and protected areas ostensibly embodied in that particular individual. To be sure, rangers and even police might not necessarily have the right to kill, but they do have the authority to remove people who transgress certain spaces and laws through powers and practices of arrest. The power to remove people from specific spaces is fundamental to territorial practices of policing that seek to secure certain spaces from certain people (Herbert 1996a, 1997a; Paasche 2013; Paasche, Yarwood, and Sidaway 2014).

One method of removing transgressors is known in policing terms as *contain and capture*. Herbert (1997b) drew a vivid picture of what this strategy entails:

One set of officers establishes and maintains the perimeter. Another assists the dogs and their handlers to penetrate the space delineated by the perimeter. And those in the helicopter monitor the situation from afar, using their various technological gadgets to observe and detect across a wide swath. (88)

Although clearly a form of territorial control, scholars point to the biopolitical nature of strategies that seek to contain and control threats. For some, biopolitics “begins as enclosure-building” (Sloterdijk 2013, 170) and works to “enclose the hostile circulations of life” and prevent them from moving through certain spaces (Shaw 2016, 690). As I describe in detail in the next section, beyond keeping threats out, rangers use tactics of contain and capture to neutralize those who enter protected areas and protect wildlife. This highlights another layer of conservation’s territoriality.

## Conservation Law and Everyday Practices of Enforcement

The primary aim of Mozambique’s CA Law is to secure spaces of conservation. Article 2 of the CA Law states that the law’s objective is to establish the basic norms and principles for the protection, conservation, restoration, and sustainable use of biological diversity “in conservation areas.” A two-day workshop on CLE in Mozambique and the new law in 2015 demonstrated the significant consensus among judges, prosecutors, and law enforcement officials that the CA Law is a territorial piece of legislation applying to activities within various types of conservation areas as defined by the law itself (see Chapter III of CA Law). There was even discussion of whether or not aspects of the law apply outside of protected areas.<sup>3</sup> In what is also a clear technique of sovereign power, the law seeks to more severely punish individual poachers and deter others who might think of hunting illegally. Speaking in 2013 about the changes proposed by the CA Law, a government official explained,

In the current law, poaching is only an administrative transgression so no one goes to jail for killing a rhino, it’s a fine. The new law introduces the concept of criminalizing the killing of protected animals. It is an improvement in terms of the severity of the penalty in relation to criminal acts against nature. (Interview 2013)

After the passing of the CA Law, a Mozambican prosecutor similarly argued,

In moving from a fine to prison, from an administrative issue to a criminal issue, people will think twice, or think differently, about poaching. You are now a criminal and there is the punishment along with that. (Interview 2015)

Whether or not the transition from a fine to a prison sentence is a deterrent has yet to be evidenced. The prison sentence, however, enshrines the temporary doing away of the illegal hunter (human) to protect wildlife (nonhuman) in national legislation. Importantly, Article 50 of the CA Law outlines how rangers and other law enforcement personnel are tasked with enforcing conservation areas and the conservation law on the ground.

### Controlling and Defending Conservation Space

Time spent with rangers highlights how their effectiveness, as judged by both superiors and

themselves, rests on their ability to control the boundaries of a protected area and the movement of poachers through it. Raimundo, a ranger since 2013 and recently trained as a patrol leader in a national reserve that is one of the areas most severely affected by elephant poaching in the world, explained, “Being a ranger is a big responsibility. We are all working toward the same objective, securing the area” (Interview 2016). His colleague, Sergio, has been a ranger for more than forty years in the same reserve. He shared a similar sentiment when asked about judging the effectiveness of rangers:

We are ready and able to secure our area against poachers ... we have captured poachers and illegal miners, we are able to control our area. ... This shows we are effective and our work is producing results. We are working against those violating our reserve. (Interview 2016)

He continued, “Having more rangers allows us to better secure and control our area against transgressors.” Rangers’ perceptions of themselves as territorial agents whose duty is to police and patrol space and boundaries are in part informed by their training. For example, the curriculum for Field Ranger Training by the Game Rangers Association of Africa (n.d.) begins with its objective: “The aim of all Field Ranger Training is to ensure the territorial integrity of protected areas.” Entering the space of the reserve without permission is synonymous with violating conservation law and rangers are conditioned and responsible to prevent this from happening to protect nonhuman lives.

During my time with rangers it quickly became apparent that, in ways similar to police, rangers achieve control over protected areas through a variety of territorial “tactics of control” (cf. Herbert 1997a, 1997b). Rangers deploy these tactics to establish, communicate, and control space, its boundaries, and movement. Foremost here is the practice of patrolling the borders of protected areas to enforce the boundary and keep people out. For example, while on patrol, an antipoaching commander from a concession that has no boundary fence explained the objective of ranger patrols to enforce the concession’s boundary, saying, “My fence is a human fence.” In southern Mozambique, APUs also increasingly use intelligence and the patterns of poaching groups to place ambushes along boundary lines to catch any would-be poachers before they enter.

Securing the larger protected area might also mean reorganizing space. Rangers are often assigned to and

responsible for smaller areas with section rangers or managers supervising those field rangers. In addition, we see the development of intensive protection zones (IPZs) in some protected areas like Kruger and the Limpopo National Park adjacent to it in Mozambique. These IPZs are smaller areas within protected areas where policing and law enforcement efforts, most notably the patrol and surveillance, are intensified because of a high density of species deemed under threat, a concentration of illegal hunting, or both. IPZs thus amount to a process of internal territorialization internal to protected areas in response to intensified pressures of illegal hunting. Rangers, do, however, focus on the poachers’ bodies and not just the space they move through.

### **Punishing and Deterring Poachers**

Sovereign power manifests on the ground in rangers’ practices in two ways. First, rangers punish the individual poachers they apprehend. Second, they make that punishment and their authority known to outsiders “to serve as an example to other possible offenders” and deter them from poaching (Foucault 2008, 249). The commander of one APU in a Mozambican national park explained the importance of having rangers’ authority and “powers” known to local people: Villagers in the park are not even allowed to insult rangers, let alone threaten them. If they do, they will be automatically arrested and can face up to two months in prison (Interview 2016). A ranger or other CLE officer is the embodiment of sovereign environmentality on the ground.

Following the idea that law enforcement as a function of sovereign power is concerned with the detection of crime, the daily practices of rangers focus heavily on surveillance. Vehicle and foot patrols along the fence line and in the interior of protected areas are the core of ranger activities. Routine patrols help to detect and surveil the boundary and activity outside and within protected areas, and they also communicate surveillance, antipoaching activity, and potential punishment to poachers through practices of visual policing. Hence, as rangers look for poaching activity, they also leave their own traces signifying to would-be poachers that there are rangers—sovereign authorities—active in the area. In the words of one ranger, visible patrolling is about “preventing actions before they happen. If a poacher comes across ranger footprints, they will assume they are active in the area and will be less likely to hunt there” (Interview 2016).

This practice is found in ranger training and CLE manuals worldwide, in addition to literature on conservation crime science (see, e.g., Barichievy et al. 2017). The hope is that surveillance and the visible presence of rangers deters poachers from entering a protected area, continuing their journey, or taking a shot based on the fear of getting caught.

For this reason, APUs are intensifying everyday practices of detection and tracking during patrols with the use of surveillance and monitoring technologies to create a more panoptic surveillance reality within protected areas. The Meerkat system in Kruger National Park provides another useful example: “With the use of new wide area surveillance technology and specialized long range optics installed in the so-called Meerkat system, poachers no longer have the luxury of relying on invisibility as they illegally enter South Africa’s primary rhino stronghold” (Peace Parks Foundation 2017). Camera traps are commonly used to capture movement and increasing attention is given to multiple types of sensors to detect movement and sound to create “virtual fences” (Marvin et al. 2016, 267). This allows rangers to detect an intrusion or gunshot at the moment it happens. During my research, the APU I was with established a system to digitally map the location of rhinos and the incursions of poachers to more effectively plan patrols. This was combined with real and fake camera traps to help surveillance and deterrence. Aerial technologies like planes, helicopters, and drones are also finding themselves at the core of antipoaching, or at least future thinking about antipoaching practice, to increase this capacity even further and support APU personnel (Massé 2018). Gen. Jooste of South African National Parks (SANParks) says that optimizing surveillance, early warning, detection, and tracking is the reason for adopting technologies in support of CLE in the Mozambique–South Africa borderlands (CSiR 2015). Moreover, in areas too large to control the entire perimeter, APUs create virtual IPZs through the intensification of these surveillance technologies. Indeed, the use of helicopters in antipoaching reflects Herbert’s (1997b) observations that “the observational powers of helicopters are used to structure territorial deployment of patrol units on the ground so that, ultimately, the power of the police to control space is maximized” (88). The increased surveillance and detection that these technologies afford aims to make the punishment and deterrence of poachers, and thus the protection of rhinos, more likely.

The fear of being caught as brought on by surveillance and the active presence of rangers only materializes if there is punishment. Neutralization is the standard language used in antipoaching in Mozambique and South Africa to refer to the arrest, apprehension, shooting, and even killing of a poacher, all of which are tactics to punish and deter illegal hunting. Following the penal calculation, CLE and rangers seek to increase the cost–benefit ratio of illegal hunting so people perceive the risk and punishment as too significant. Indeed, underpinning the situational prevention of poaching are efforts “to increase the risks poachers face during the hunt” (Eloff and Lemieux 2014, 35). The head of the International Anti-Poaching Foundation, an organization that had an memorandum of understanding for antipoaching in southern Mozambique, is fond of explaining how the objective of his rangers is to make poaching “so risky they [poachers] choose not to do it” (ABC News 24 Australia 2015). Rangers themselves routinely justify the use of violence, including the shooting and beating of poachers, as a method of punishment and deterrence. One CLE officer explained the use of corporeal violence saying, “You need to torture them to make them fear you, respect you and so they don’t come back. You need to send a message” (Interview 2015). Other rangers repeated similar sentiments about leaving visible marks of violence on the body to send a message to other would-be poachers.

The use of corporeal violence as punishment emerges in part because rangers see arrest and the CA Law as an insufficient punitive measure. Even though Mozambique has criminalized illegal hunting and increased prison sentences, there is widespread recognition and frustration about the failure of the legislative and judicial system in prosecuting and thus punishing and deterring poachers. As one ranger explained,

We have caught a lot of poachers, a lot. It is normal we recover a firearm today, register the number and bring it to the police. A month later we recover the exact same firearm and the same poacher who we caught and who we thought was in jail, we catch him again! This has happened numerous times. It is frustrating. ... Arrest a poacher today and again next week. (Frank, Interview 2015)

When I asked a young, white South African antipoaching manager working in Mozambique about the shooting of suspected poachers, he was very emotional, remorseful, and conflicted about the use of violence, acknowledging that it is problematic. He, like many others, though, explained:

Manager 1: Look, I strongly believe it is the only way it will stop. Make them scared, drive fear into them. It is the only way they will stop. When I caught those guys and they got arrested they were out two weeks later.

Author: If you knew he [the poacher] would be put away, would rangers be less keen to shoot poachers?

Manager 1: I think so. ... It is true, though, what is the point of trying because there is nothing that comes from it? Shooting is the only option that I see possible that will end it. Well, not end it, but stop that group, let's say, or stop those guys from coming in, those specific guys. (Interview 2015)

A commander of Mozambique's Environmental Police similarly explained how he is discouraged and saddened about the violence against suspected poachers because he cares for his fellow Mozambicans. Like the manager, he believes that "the only way to stop them [poachers] is to shoot or arrest them, and even at that, if they are arrested, they are often out soon. So, it really only leaves one option: to kill them" (Interview 2015).

The killing of poachers and other uses of overt corporeal violence channels the desire to communicate this punishment to others to deter them. Responding to a question about whether youth see poachers as heroes, a ranger with a decade of experience highlighted what he sees as the productive use of violence and punishment:

I think in the past it was more like that where they wanted to grow up and become a poacher. But this is happening less and less because a lot of them are dying. (Interview 2015)

Rangers and APU managers of all backgrounds in Mozambique were quite forthcoming in explaining how they communicate the death of a poacher in Mozambique or South Africa to the villages where they come from as a way to send a message to others not to poach.

Stepping in to fill the void and achieve what the formal legal and judicial system fails to do reflects the ranger as embodying sovereign environmentality and translating the norms of punishing poachers to protect wildlife embodied in conservation law. When the formal law and legal process falls short, rangers decide who should be punished and how, even if extralegally. Like Butler's (2006) petty sovereign, rangers in the cases just set out "perform their

acts unilaterally and with enormous consequence" (65). In effect, the ranger, and other CLE officials, is a petty environmental sovereign who takes it on himself or herself to protect nonhuman life and punish and get rid of those who illegally enter protected areas to hunt. In the process, traditional logics of conservation territoriality, namely, of keeping people out, are reshaped and complemented with those of biopolitical containment.

### **Contain and Neutralize: Protected Areas as Biopolitical Enclosures**

Conservation territoriality is dual-sided. Although premised on keeping threats out, if deterrence fails and threats do enter, rangers work to contain them and not let them escape. Indeed, within twenty minutes of arriving at the reserve where I lived with rangers, two rhinos were shot. In response, two groups of rangers went to the area in question in search of the firearms and rhino horn-wielding suspects, and I joined several groups of rangers who set up stopper groups along the perimeter fence line to prevent them from escaping. Here, rangers employed the tactic of contain and neutralize to rid the reserve of suspected hunters who succeeded in entering and killing two rhinos.

As I routinely witnessed, once poachers enter, rangers, surveillance technologies, and practices of policing work to keep them there to neutralize them by arrest or death. A typical reaction to a poaching incursion by rangers is as follows. When rangers detect the tracks of a suspected poacher in a protected area, they employ tactics of "man tracking" where they track the suspected poachers to deny them a kill, exit, or both. Rangers exercise a similar strategy when they hear gunshots or they obtain information related to the existence of poachers within a protected area. Akin to "manhunting" in contexts of war, this is in and of itself a biopolitical tactic used to enclose hostile life forms (Shaw 2016, 690). Apart from merely tracking or hunting the suspected poachers, rangers then work diligently to prevent them from escaping. This includes setting up a perimeter around an area and putting stopper groups or ambushes along the fence or boundary line. Rangers also sweep the area where the suspected poacher is thought to be and, if available, fly a plane or helicopter overhead. Going aerial prevents poachers from moving, as they do not want to risk being

detected. The momentary fear instilled in the poacher via surveillance and the threat of getting caught helps rangers contain and then neutralize them.

I witnessed APUs employ the tactics just described to pin suspected poachers down on many occasions. Poachers are kept in and left to die in a literal sense. Rangers explained that they know poachers' food and water supplies are limited. By controlling the space and environment in which suspected poachers are located, the strategy is to keep them contained in an area as long as possible to either find them or force them to make a risky and careless escape, thus increasing the chances for rangers to neutralize them. On some occasions, poachers even willingly surrender out of desperation for water in the hot and dry heat of the savannah. I observed how an APU uses dogs to contain poachers in an area or force them out of hiding lest they be attacked. Pinning poachers down or fixing them in harsh spaces of conservation is thus a method of using the "direct effects of the geographical, climatic, or hydrographic environment" not to make people live but to make wildlife live by controlling and neutralizing the circulating threat embodied in the poacher (Foucault 2003, 245; also see Shaw 2016). Even without killing, the capture and arrest of a suspected illegal hunter ostensibly achieves the same objective of doing away with the threat, at least temporarily. The biopolitics of policing protected areas thus turns on enclosing a hostile human life, the illegal hunter, to protect the existence of valued and threatened nonhuman life.

Fixing poachers within protected areas also shores up sovereign power as it is within protected areas that rangers are delegated power to act as petty environmental sovereigns. The full legal and normative authority of rangers, as in Mozambique and protected areas in South Africa, might not extend beyond protected area boundaries. Indeed, capturing the normative sentiment of rangers being able to act differently within as opposed to outside of protected areas is a common saying among APUs: "What happens in the bush stays in the bush." In addition, the surveillance within protected areas might extend outside but it is at its strongest within. If rangers can contain suspected poachers within the protected area, they can more effectively surveil, track, punish, and neutralize them. CLE thus strengthens protected areas as exclusionary biopolitical enclosures by

employing practices and technologies to contain and neutralize (suspected) illegal hunters. These same norms form the structure within which rangers operate, influencing their use of conservation violence.

## From Law to Norm: Conditioning Conservation Violence

Much like sovereign power writ large, sovereign environmentalism, as manifested in enacting decisions over nonhuman life and human punishment, is performed and constituted by individuals, in this case antipoaching rangers. Antipoaching rangers are thus petty environmental sovereigns imbued with the formal and tacit authority and even responsibility to secure space and punish transgressors in the name of protecting the spaces and lives of the nonhuman. In doing so, the ranger ultimately deploys direct corporeal violence and enacts decisions over life and death. This reality is intensifying as wildlife are (and are perceived to be) under increasing threat. Here, the analysis of CLE demonstrates how the wielding of discretionary power by petty sovereigns moves beyond managerial and bureaucratic power and decision making to the use of direct physical violence and even the taking of a human life. What authorizes or enables this violence, though?

Examining the relationship between laws, norms, and policing practices, Herbert (1996b) argued, "The legal order is more a resource than a constraint" (572). Herbert is referring to how the normative understanding of laws and the modalities of power that underpin them enable police to use certain tactics, even if extralegally. Foucault (2007) similarly argued, "Every system of law is related to a system of norms" (56). The normative understandings of conservation law—secure and defend conservation territory, punish poachers, and contain and neutralize those who pose a threat to the biological existence of the wildlife—enable, authorize, and even demand the use of violence by CLE personnel. Hence, whereas the law might or might not legally permit violence, CLE personnel negotiate and are conditioned by conservation law's underlying normative logics and policy aims. This also results in their ability to act with impunity, especially where they, their superiors, and even civil society perceive that the law and its institutions fall short of achieving the desired objectives. As petty environmental sovereigns, rangers are "instrumentalized, deployed by the tactics of power they do not control, but this

does not stop them from using power. ... Their acts are clearly *conditioned*, but their acts are judgements that are nevertheless *unconditional* in the sense they are final, not subject to review, not subject to appeal” (Butler 2006, 65, italics in original).

One ranger was particularly articulate in explaining how rangers negotiate the underlying power structures that normalize and even promote violence. Echoing other rangers quoted earlier, he explained how the failure of Mozambique’s justice system with regard to poaching and wildlife crime leads rangers to shoot suspected poachers (Interview 2015). Aware of the norms that govern rangers’ practices, he said that one way to get around the lack of formal punishment of poachers is to take matters into their own hands, especially knowing that it is accepted. The lack of a functioning justice system leads to immense frustration among the APUs and rangers. This frustration builds up, especially as they negotiate near-daily poaching incursions that put them at risk in already overworked and difficult conditions. He and other rangers fear that these alleged poachers might seek retribution once out, a fear that is not unfounded (see, e.g., Massé et al. 2017). In the borderlands of Mozambique and in many areas of South Africa, antipoaching is also an increasingly hypermilitarized activity characterized by the need to combat the enemy. McClanahan and Wall (2016) captured this dynamic with what they called “warrior conservation.” Frustration, adrenaline, fear, and an increasingly antagonistic and militaristic antipoaching culture might contribute to a ranger acting in a violent way. It is the broader structures of power and their normative underpinnings, however, within which rangers and other CLE personnel operate that enable and even authorize such actions and their ability to act with impunity.

I am not aware of any CLE official in Mozambique or South Africa being held accountable for acting violently in legal or extralegal ways. Rangers not only act with impunity, but the use of violence is even celebrated. Two of the more revered rangers where I conducted most of my research were praised as “pitbulls” by their colleagues given the aggressiveness with which they engage suspected poachers during antipoaching operations and even after they are caught.

Contrasting this authorization and enabling of violence and related impunity is how rangers are constrained and held accountable for not acting in certain ways. I use an excerpt from my field notes to illustrate this:

Ranger “Filipe” received a warning letter because this is the second time that while on ambush he has failed to stop poachers passing by. The letter explains his role and responsibilities, and how his failure to act is a dereliction of his duties and not in line with being a ranger in an elite anti-poaching unit. It explains how contact with poachers is part of his job and it requires confronting them. He cannot be afraid to pull the trigger or tackle a poacher. (2015)

Filipe is a middle-aged Mozambican ranger whose time at the reserve predates the rhino poaching crisis but who underwent additional paramilitary antipoaching training in 2015 under new antipoaching management. He was formally reprimanded and given a written warning about his role and responsibilities as a ranger and a CLE official. On two separate occasions Filipe waited in an ambush for poachers on the perimeter of the reserve. On both those occasions the poachers walked by him. Filipe did not shoot or otherwise neutralize them. We do not know whether his failure to act stemmed from fear, because he was in collusion with poaching syndicates, or because he was not comfortable with acting violently against someone who posed no immediate threat to him. What we do know is that through his agency and decision making, the power structures that inform conservation law and law enforcement did not translate into practice on the ground on those occasions.

This, however, does not mean that Filipe and other rangers operate outside of the constraints of broader structures of power or that these structures do not matter. Beyond being formally reprimanded for his failure to neutralize the poachers in those cases, Filipe was also socially admonished and rebuked by his colleagues and APU management for his failure to shoot the poachers. As I wrote in my field notes in 2015, “[Filipe’s] fellow rangers are so pissed off that he did not just shoot the poacher.” Although Filipe was able to exercise his agency and not abide by the dictates of secure, punish, and protect, his ability to do so and that of other APU personnel is constrained, lest they be formally and socially reprimanded. This is the acceptance, promotion, and normalization of the idea that rangers can and should use extralegal violence to secure conservation space, punish poachers, and protect nonhuman life.

We can make sense of the objectives of the law, its enforcement, and the modes of power that influence it. The case of Filipe and those rangers who take the law into their own hands, however, draws

attention to the messiness of how power operates in and through individual actors. On one hand, some rangers go beyond what the formal and legal dictates call for. On the other hand, some fail or refuse to act. In other words, although rangers and other law enforcement personnel might be petty environmental sovereigns, their vulnerabilities and internal tensions highlight their imperfections in this role and the limits to the discretionary quality of petty sovereigns' power and decision making more generally. How this manifests across individuals of differing social backgrounds and identities warrants further research. Deconstructing rangers' practices thus helps deconstruct and nuance top-down notions of sovereign, territorial, and biopower and their actually existing operationalization, embodiment, and translation into tactics on the ground. It does the same for performative and governmentalized forms of power as embodied in petty sovereigns.

### **Conclusion: Conservation Law Enforcement, Policing Protected Areas, and Violence**

This article has highlighted how conservation law and its enforcement by antipoaching rangers embodies, reflects, and is informed by a complementary articulation of territorial, sovereign, and biopolitical power. Arguably the primary, and problematic, objective of CLE parallels the logics and tactics of a narrow vision of policing. This is a policing that does not perceive space as empty but as "potentially emptiable" of certain unwanted things, people, and activities (Herbert 1996b, 568). Emptying, here, can take on a very literal meaning. As others have examined, one of the reasons for the removal of communities from spaces of conservation is precisely that it makes such spaces easier to police (Massé and Lunstrum 2016; Witter and Satterfield 2018). Given the current pressures of commercial poaching, this practice is intensifying and being explicitly used to facilitate conservation policing and law enforcement by emptying protected areas of certain people and activities. Keeping these spaces empty through various practices and technologies of power is the concerning objective that authorizes and demands certain CLE practices and even the use of violence that characterizes the daily work of rangers. The sovereign mode of power arms rangers

with the authority and responsibility to use the power of the law, violence, and surveillance to punish those who enter and communicate this to potential poachers as a method of deterrence. The biopolitical mode of power informs antipoaching practices that seek to empty protected areas of those poachers who do manage to enter. By containing and then neutralizing them, the threat to wildlife embodied and represented by illegal hunters is diminished by being left to die or removed through capture, arrest, or death. Taken together, these tactics offer insights into how the rationales and actually existing assemblage of power underpinning conservation law and its normative understandings shape the practices of rangers on the ground.

Of primary concern to the analysis in this article is how these modes of power authorize and even demand conservation violence. The normative underpinnings of CLE captured in the dictates of secure, punish, and protect serve to normalize the rangers' use of violence in two senses of the word. First, conservation violence becomes acceptable. Second, the norms underpinning conservation law work to discipline rangers who do not internalize the use of violence and thus reduces what is judged as aberrant behavior among them. This argument is not meant to be deterministic. Rather, it acknowledges how structures of power that inform conservation law create the legal and normative context within which rangers act as petty environmental sovereigns who directly wield territorial, sovereign, and biopolitical power and violence over bodies and space. This context enables and authorizes the use of often violent antipoaching practices by those who might be so inclined while constraining rangers' agency to resist acting in certain (violent) ways lest they want to be reprimanded and socially admonished. The delegated and discretionary aspect of rangers' power as petty environmental sovereigns is limited by broader structures and policy aims within which they operate. Hence, understanding power's operationalization on the ground requires an understanding of the humanity, social positioning, and tensions of those tasked with enforcing power's legal and normative mandates and how such actors work within and negotiate these broader structures.

Indeed, these modes of power and their multiscalar dictates are translated on the ground and in daily practice in uneven and messy ways. In some ways this is promising as individuals can resist deploying violence in pursuit of these objectives. In other ways it is

problematic and concerning as it highlights how violent law enforcement practices within and beyond what formal law might permit are authorized for those who wish to use them and are even demanded by those individuals who might be critical and uneasy with such an approach. As such, it is in individuals, their quotidian practices, and how they uncomfortably or comfortably negotiate the law and underlying structures of power that actually existing operationalization and manifestation of multiple modes of power in policing and law enforcement are brought to life and begin to crystallize. Grounded empirical research focused on law enforcement personnel and their concerns facilitates an understanding of how they negotiate the broad processes of power within which they work and that inform their practices. These insights and ways of approaching the connection between (trans)national structures of law, power, and their embodiment in individuals and daily practice might offer productive insights in other policing, law enforcement, and security contexts where power over bodies, life, and the use of violence is delegated to individuals who operate under broader policy objectives. Rangers and other law enforcement actors should not operate with impunity, nor should they be immune from criticism. But, it is the structures of power and their rationales within which rangers and other petty sovereigns operate that should be the primary objects of critique.

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## Notes

1. Participant observation occurred from August 2015 to May 2016.
2. For ease of readability I use the term *ranger* to refer to CLE personnel, unless specified otherwise, even though this encompasses various actors.
3. Since then the law has undergone revisions to clarify that there are certain activities that are covered outside of protected areas.

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