Waging a war to save biodiversity: the rise of militarized conservation

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Conserving biodiversity is a central environmental concern, and conservationists increasingly talk in terms of a 'war' to save species. International campaigns present a specific image: that parks agencies and conservation NGOs are engaged in a continual battle to protect wildlife from armies of highly organized criminal poachers who are financially motivated. The war to save biodiversity is presented as a legitimate war to save critically endangered species such as rhinos, tigers, gorillas and elephants. This is a significant shift in approach since the late 1990s, when community-based natural resource management (CBNRM) and participatory techniques were at their peak. Since the early 2000s there has been a re-evaluation of a renewed interest in fortress conservation models to protect wildlife, including by military means.[1] Yet, as Lunstrum notes, there is a dearth of research on 'green militarization', a process by which military approaches and values are increasingly embedded in conservation practice.[2]

This article examines the dangers of a 'war for biodiversity': notably that it is used to justify highly repressive and coercive policies.[3] Militarized forms of anti-poaching are increasingly justified by conservation NGOs keen to protect wildlife; these issues are even more important as conservationists turn to private military companies to guard and enforce protected areas. This article first examines conceptual debates around the war for biodiversity; second, it offers an analysis of current trends in militarized forms of anti-poaching; third, it offers a critical reflection on such approaches via an examination of the historical, economic, social and political creation of poaching as a mode of illegal behaviour; and finally, it traces how a militarized approach to anti-poaching developed out of the production of poaching as a category.

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1 Jon Hutton, Bill Adams and James C. Murombedzi, 'Back to the barriers? Changing narratives in biodiversity conservation', *Forum for Development Studies* 32: 2, 2005, pp. 341–70; Daniel Brockington, *Fortress conservation: the preservation of the Mkomazi Game Reserve, Tanzania* (Oxford: James Currey, 2002).

2 Elizabeth Lunstrum, 'Green militarization: anti-poaching efforts and the spatial contours of Kruger National Park', *Annals of the Association of American Geographers*, forthcoming, 2014.

3 Rosaleen Duffy, *Nature crime: how we're getting conservation wrong* (New Haven, CT, and London: Yale University Press, 2010); Daniel Brockington and James Igoe, 'Eviction for conservation: a global overview', *Conservation and Society* 4: 3, 2006, pp. 424–70.

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The war for biodiversity

In theoretical terms, the debates around the relationships between environment and conflict focus on the 'environmental security' debate and not on conservation *per se*. Yet a recent study in *Conservation Biology* concluded that over 90 per cent of the major armed conflicts between 1950 and 2000 occurred within countries containing biodiversity hotspots, and more than 80 per cent took place directly within hotspot areas.[4] Debates on war, violence and conflict are shifting, creating interesting intersections with conservation debates and practices. So we need to take up the challenge of thinking through the links with biodiversity conservation to move the debate forward from the current focus on population growth, deforestation, resource scarcity and climate change.[5]

The debates around environmental security are most closely identified with the works of the Toronto Group and Thomas Homer-Dixon.[6] The environmental security literature aims to establish whether there is a link between resources and conflict. They draw on a longer tradition of Malthusian understandings of environment–society interactions, which views violence as an outcome of natural resource scarcity, thereby acting as a 'natural check' on population growth. Ideas of the environment as a source of conflict, or as a security threat, also resonated with the redefinition of conflict in the post-Cold War era as 'new wars',[7] thinking through greed and grievance as motivators for conflict,[8] and with critiques offered by Gleditsch and others.[9] Litfin points to the ambiguity in the phrase 'environmental security' and urges us to ask who and what are to be secured, and whether environmental security includes questions about overconsumption, uneven development or even about the notion of 'nature' itself.[10] It is critically important to the future success of conservation to understand how conservation affects and/or perpetrates conflict and violence. This is because these dynamics influence and determine conservation practice.

In conservation we usually assume conflict means human–wildlife conflict, or that it refers to conflict within communities over access to resources. To date, there are a small number of landmark publications that do examine conservation

[4] Thor Hanson, Thomas M. Brooks, Gustavo A. B. da Fonseca, Michael Hoffmann, John F. Lamoreux, Gary Machlis, Cristina G. Mittermeier, Russell A. Mittermeier and John D. Pilgrim, 'Warfare in biodiversity hotspots', *Conservation Biology* 23: 3, 2009, pp. 578–87.

[5] See e.g. Ashok Swain, *Understanding emerging security challenges: threats and opportunities* (London: Routledge, 2012); Paul Rogers, *Losing control: global security in the 21st century* (London: Pluto, 2010).

[6] Thomas Homer-Dixon, *Environment, scarcity, and violence* (Princeton, NJ: Princeton University Press, 1999); Robert Kaplan, 'The coming anarchy: how scarcity, crime, overpopulation, tribalism and disease are rapidly destroying the social fabric of our planet', *Atlantic Monthly*, 1 Feb. 1994, http://www.theatlantic.com/magazine/archive/1994/02/the-coming-anarchy/304670/, accessed 13 May 2014; Ian Bannon and Paul Collier, eds, *Natural resources and violent conflict: options and actions* (Washington DC: World Bank, 2003).

[7] Mary Kaldor, *New and old wars: organized violence in a global era* (London: Polity, 2012).

[8] Mats Berdal and David Malone, eds, *Greed and grievance: economic agendas in civil wars* (Boulder, CO: Lynne Rienner, 2000).

[9] Nils P. Gleditsch, 'Whither the weather? Climate change and conflict', *Journal of Peace Research* 49: 3, 2012, pp. 3–9; Halvard Buhaug, 'Climate not to blame for African civil wars', *Proceedings of the National Academy of Sciences of the USA* 107: 38, 2010, pp. 16477–82; Nancy Lee Peluso and Michael Watts, eds, *Violent environments* (Ithaca, NY, and London: Cornell University Press, 2001).

[10] Karen Litfin, 'Constructing environmental security and ecological interdependence', *Global Governance* 5: 3, 1999, pp. 360–64.

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and conflict. For example, Ostrom presented a critique of Hardin's 'tragedy of the commons' approach,[11] by focusing on patterns of cooperation and governance in common property regimes, and other scholars have also produced important works.[12]

Despite the apparent war for biodiversity, there is little research on the links between debates about conflict, violence and militarization of conservation. Yet biodiversity conservation is replete with imagery of war and conflict: the rape of the Earth, the war on poachers, the fight to save biodiversity and Malthusian visions of scarcity. It is used to motivate the public to support conservation organizations in their efforts to save, preserve, conserve and protect.[13] Furthermore, it draws heavily on the language of military intervention, especially the idea of the responsibility to protect (R2P). This principle centres on an international security and human rights norm to address the international community's failure to prevent and stop genocides, war crimes, ethnic cleansing and crimes against humanity.[14] Eckersley notes that this raises questions for conservation organizations; she asks whether the international community should also be concerned about the massacres perpetrated against critically endangered species. Should the international community stand by and allow the deliberate killing of the last populations of mountain gorillas, for example?[15] Eckersley poses an important set of philosophical questions; this article further develops her approach through an interrogation of how such questions can shape conservation practice on the ground. As Humphreys and Smith put it, invoking notions of force to protect the environment, especially wildlife, is intuitively unacceptable for many.[16] But if we accept that conservation of other species constitutes an international legal duty, then (in theory) intervention to prevent these crimes by a UN-backed force can be defended as a just cause and there is a moral case to be made.[17]

[11] Garrett Hardin, 'The tragedy of the commons', *Science* 162: 3859, 1968, pp. 1243–8; Elinor Ostrom, 'Beyond markets and states: polycentric governance of complex economic systems', *American Economic Review* 100: 3, June 2010, pp. 641–72.

[12] Saleem Ali, ed., *Peace parks: conservation and conflict resolution* (Cambridge, MA: MIT Press, 2007); Ken Conca and Jennifer Wallace, 'Environment and peacebuilding in war-torn societies: lessons from the UN Environment Programme's experience with postconflict assessment', *Global Governance* 15: 4, 2009, pp. 485–504; Ken Conca and Geoffrey D. Dabelko, eds, *Environmental peacemaking* (Washington DC and Baltimore, MD: Woodrow Wilson Center Press/Johns Hopkins University Press, 2002); Philippe Le Billon, *Wars of plunder: conflicts, profits and the politics of resources* (London and New York: Hurst/ Columbia University Press, 2012); Roderick P. Neumann, *Imposing wilderness: struggles over livelihood and nature preservation in Africa* (Berkeley: University of California Press, 1998); Peluso and Watts, *Violent environments*; Nancy Lee Peluso and Peter Vandergeest, 'Political ecologies of wars and forests', *Annals of the Association of American Geographers* 101: 3, 2011, pp. 587–608.

[13] Raymond L. Bryant, 'Born to be wild? Non-governmental organizations, politics and the environment', *Geography Compass* 3: 4, 2009, pp. 1540–58.

[14] http://www.responsibilitytoprotect.org/, accessed 13 May 2014.

[15] Robyn Eckersley, 'Ecological intervention: prospects and limits', *Ethics and International Affairs* 21: 3, 2007, p. 293.

[16] Jasper Humphreys and M. L. R. Smith, 'War and wildlife: the Clausewitz connection', *International Affairs* 87: 1, 2011, p. 121.

[17] Eckersley, 'Ecological intervention', p. 312; see also Richard Milburn, 'Mainstreaming the environment into postwar recovery: the case for "ecological development"', *International Affairs* 88: 5, 2012, pp. 1083–1100.

Current trends

Two statements reveal an important tension in current conservation debates:

Save the Rhino, Hunt a Poacher.[18] (ProTrack Anti-Poaching Company)

Improving the practice of conservation by ensuring that participating organizations integrate human rights into their work.[19] (Conservation Initiative on Human Rights)

The relationships between conservation and military approaches to anti-poaching are changing. This is the combined result of shifts in approach by illegal hunters, innovation in technologies of warfare and the discursive production of a major war for biodiversity. Conservation agencies ranging from South Africa National Parks (SANParks) and Kenya Wildlife Services (KWS) to Save the Rhino International and private landowners have highlighted what they see as a rising threat to wildlife from well-equipped and well-organized poaching gangs, prompting calls for a more coordinated approach.[20] Proposed solutions include greater use of force, the use of private military companies, deployment of remote-controlled drones, greater engagement of local communities, more efforts to expose corruption, campaigns to reduce demand in end-user markets and crackdowns on illegal trading at the global scale. As Lunstrum argues, this produces heavily militarized and increasingly dangerous landscapes, where state actors, private operators and poachers enter into conservation areas (national parks and private reserves) willing to engage in deadly force, and what follows is an inevitable cycle of militarization.[21]

At the same time, a group of international conservation organizations have formed the Conservation Initiative on Human Rights (CIHR). Members of CIHR are Birdlife International, Conservation International (CI), Fauna & Flora International (FFI), the International Union for the Conservation of Nature (IUCN), the Nature Conservancy, Wetlands International, the Wildlife Conservation Society (WCS) and Worldwide Fund for Nature (WWF). The CIHR ran a three-year programme (2010–13) to promote collaborative learning among member organizations, rights-holders, stakeholders and experts to support practical implementation of member organizations' conservation and human rights frameworks; the aim was to promote dialogue and good practice with regard to human rights in conservation initiatives.[22] There is a tension in this, since the same conservation organizations are considering (and in some cases using) greater levels of force and militarized approaches to protect wildlife. For example, in 2012 WWF-

[18] http://www.protrackapu.co.za, accessed 13 May 2014.

[19] http://www.iucn.org/about/work/programmes/social_policy/sp_themes_hrande/scpl_cihr/, accessed 16 May 2014.

[20] Rosaleen Duffy, Richard H. Emslie and Michael H. Knight, *Rhino poaching: how do we respond?*, report prepared for UK Department for International Development (DfID), Evidence on Demand Report HD087, 2013; Lunstrum, 'Green militarization'. See also Peluso and Vandergeest, 'Political ecologies of war and forests'; Megan Ybarra, 'Taming the jungle, saving the Maya Forest: sedimented counterinsurgency practices in contemporary Guatemalan conservation', *Journal of Peasant Studies* 39: 2, 2012, pp. 479–502.

[21] Lunstrum, 'Green militarization'.

[22] CIHR, http://www.iucn.org/about/work/programmes/social_policy/sp_themes_hrande/scpl_cihr/, accessed 16 May 2014.

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International congratulated the President of Cameroon for his deployment of 'special forces to protect vulnerable areas, people and elephants from heavily armed foreign poaching gangs'.[23] It is clear from this statement that WWF-International is using the argument around organized criminality and more heavily armed hunters as a justification for a military-style response. However, the increased use of military approaches carries a risk that human rights will be compromised in the pursuit of anti-poaching initiatives. Essentially, it is important to consider who we are protecting wildlife from, what we are protecting wildlife for and what methods we deem acceptable.

The appointment of Major-General Johan Jooste (retired) as coordinator for Operation Rhino in Kruger National Park in South Africa in 2012 is indicative of the increasing militarization of conservation. His appointment is linked to a wider military strategy, Operation Corona, which aims to secure South Africa's borders, and the soldiers deployed in Kruger National Park work as a joint force with SANParks rangers.[24] The justification offered by the South African state is that it needs to address the involvement of organized crime, and the fact that poaching gangs are increasingly well armed and aggressive. Major-General Jooste clearly identifies poaching as a declaration of war, linking it to wider regional security issues, such as immigration and governance failures.[25] Further, South Africa's management plan for black rhino points to the critical importance of better intelligence systems to prevent poaching, rather than relying on prosecutions after a rhino has been killed.[26] South Africa now offers a cash reward of R100,000 for information which leads to arrest and R1 million for successful conviction of the heads of criminal poaching gangs. The initiative links in with Crime Line and allows the public to give anonymous information via SMS.[27]

This military approach is not confined to South Africa; other rhino range states have also increased their security measures. For example, Kenya has increased its anti-poaching efforts in recent years; 2011 was declared the 'year of the rhino' to direct focus and resources; the Rhino Ranger Force increased by more than 25 per cent during 2011, by converting rhino scouts operating on private land into Kenya Police Reservists.[28] This shows that rhino range states, in particular, are drawing on military techniques to secure rhinos in the longer term.

Military-style approaches require more thorough interrogation in part because conservation agencies are currently grappling with the question of whether to

[23] 'They are after our elephants', 18 Dec. 2012, http://wwf.panda.org/wwf_news/?207115, accessed 13 May 2014.
[24] Lunstrum, 'Green militarization'.
[25] http://www.sanparks.org/about/news/default.php?id=55388; Julian Rademeyer, *Killing for profit: exposing the illegal rhino horn trade* (Cape Town: Zebra Press/Random House Struik, 2013).
[26] Michael H. Knight, David Balfour and Richard H. Emslie, compilers, *Biodiversity management plan for the black rhinoceros (Diceros Bicornis) in South Africa 2011–2020*, prepared by South African members of the Southern African Development Community (SADC) Rhino Management Group on behalf of the Department of Environmental Affairs and approved by the South African Minister of Environmental Affairs and gazetted as a species Biodiversity Management Plan under the National Environmental Management and Biodiversity Act (NEMBA), 2013, p. 38; Department of Environmental Affairs, *Rhino issue management report* (Government of South Africa, 2013), p. 20.
[27] http://www.sanparks.org/about/news/default.php?id=55388, accessed 21 May 2014.
[28] Kenya Wildlife Service, *Conservation and management strategy for the black rhino and management guidelines for the white rhino in Kenya (2012–2016)* (Nairobi, 2012), p. 24.

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engage the services of a growing number of private companies offering conservation 'enforcement'. This reflects wider global changes that have seen a rise in outsourcing security and an enhanced role for private military companies. This in turn interlinks with wider concerns about a lack of state capacity, especially in wildlife protection. Such moves then raise questions around governance, sovereignty and authority, since at the most basic level private companies can be contracted to deliver military-style anti-poaching strategies, which include authorization for the use of lethal force. This is an important development, not just because it allows private companies to exercise force, but also because the training they offer imparts certain values and ideas.[29] These approaches then inform and shape practice in the longer term.

South Africa is a good example of the challenges raised by a combination of endangered species, private reserves, private-sector enforcement and weak state capacity in the conservation sector. South Africa has built a global reputation for privatized conservation, and the area around the Kruger National Park, especially Maputaland and KwaZulu-Natal, contains a number of 'private parks'. These range from ranches offering sport hunting to luxury lodges engaged in traditional photographic safaris to luxury safari centres that also offer golf and spas. Private reserves are a critically important part of South Africa's conservation estate. One-quarter of South Africa's 20,700 rhinos are found on private land, more than the combined population of the rest of Africa.[30] South Africa's state-based conservation agencies have supported and expanded the role of private reserves by creating financial incentives for stocking rhinos, based on generating revenue from tourism, trophy hunting and live sales. This has helped increase the country's rhino population by 130 per cent since 1997.[31]

Further, there are strong links between the South African military and private-sector security providers, which facilitate the translation of military approaches and techniques to conservation. Following the end of the Cold War and the end of apartheid in South Africa, former military personnel began to move into private-sector security. In South Africa, former soldiers from the apartheid-era South African Defence Force (SADF) carved out a new niche in conservation. In many ways the skills needed by rangers are similar to those possessed by military personnel, including survival skills, knowledge of weaponry and the ability to plan operations. Therefore, from the mid-1990s the conservation sector increasingly saw the use of private military companies for enforcement.[32] Two good

[29] Carolyn Nordstrom, *The shadows of war: violence, power, and international profiteering in the twenty-first century* (Berkeley, CA: University of California Press, 2004).

[30] Michael H. Knight, Richard H. Emslie and R. Smart, compilers, *Biodiversity management plan for the white rhinoceros (Diceros Bicornis) in South Africa 2013–2018* prepared by the SADC Rhino Management Group following a multi-stakeholder workshop at the request of the South African Minister of the Environment on behalf of the Department of Environmental Affairs (2013); Shirley Brooks, Marja Spierenburg, Lot van Brakel, Annemarie Kolk and Kethabakhe B. LuKhozi, 'Creating a commodified wilderness: tourism, private game farming, and "third nature" landscapes in KwaZulu-Natal', *Tijdschrift voor Sociale en Economische Geografie* 102: 3, 2011, pp. 260–74.

[31] Duan Biggs, Frank Courchamp, Rowan Martin and Hugh P. Possingham, 'Legal trade of Africa's rhino horns', *Science* 339: 6123, 2013, pp. 1038–9.

[32] Duffy et al., *Rhino poaching*, p. 15.

examples are EcoRanger and the largest of the conservation security companies in South Africa, Protrack Anti-Poaching Company.[33]

It is important to reflect on how a rise in militarized conservation has been justified by NGOs, states and the private sector. In essence, this justification relies on the argument that survival of key species is threatened by a recent and rapid rise in highly organized poaching. However, these claims require greater scrutiny. The current 'rhino wars' in South Africa are an excellent example of how the complexities of poaching are subsumed under simplistic messages. The media headlines about a new rhino war, allegedly being waged by highly armed professionalized poachers on the private ranches near Kruger Park, are misleading. Poaching rates are lower than birth rates, so rhino numbers continue to rise. However, poaching at a continental level has increased significantly since 2007–2008; and if this trend continues, the tipping point (where deaths start to exceed births and rhino numbers start declining) could be reached by 2015.[34] Poaching data for South Africa indicate that the major problem is faced by Kruger National Park and that poachers are likely to be crossing the border from Mozambique; these are not high-tech armed gangs with helicopters but individuals drawn into a complex global trade for economic reasons.[35] Amid the media stories about the rise in rhino poaching, little attention is paid to the number of people killed in an increasingly lethal conflict: between 2008 and 2013, 300 *suspected* poachers were killed in Kruger National Park alone. As Lunstrum notes, the area has been marked by an arms race between poachers, soldiers and rangers, with each group using more and more sophisticated weaponry. Thus far no rangers or soldiers have been killed, but for those working in the park it is accepted that it is only a matter of time.[36] It is important to note here that the effect of rhino poaching is much wider than the act of hunting and killing the rhino itself—there are very clear human costs that are often rendered invisible in the headlines. Nevertheless, the argument that there is a new threat remains an important justification for militarization.

The headlines about poaching also mask the complex networks of corruption on which poaching and trading rely to function. For example, there is strong evidence of collusion by ranch owners and by vets, because the value of live rhinos has dropped. Meanwhile, the black-market price for rhino horn has risen. Therefore there is an economic incentive for ranch owners to 'allow' their rhinos to be poached, take a portion of the profits from sale of the horn and then buy another live rhino at auction via the Kwazulu-Natal parks service.[37] Furthermore, South Africa's Threatened or Protected Species Regulations (TOPS), which falls under

[33] http://www.protrackapu.co.za/; http://www.iapf.org/en/; http://www.ecoranger.co.za/; all accessed 13 May 2014.

[34] Sarah Standley and Richard H. Emslie, *Population and poaching of African rhinos across African range states 2007–2012*, consultancy report for DfID, Evidence on Demand Report HD078, Aug. 2013, based on figures supplied by IUCN's African Rhino Specialist Group and Trade Records Analysis for Flora and Fauna in International Commerce (TRAFFIC).

[35] Duffy et al., *Rhino poaching*, p. 8.

[36] Lunstrum, 'Green militarization'.

[37] http://www.rhinoconservation.org/2012/02/10/rhino-crimes-are-the-right-people-going-to-jail/, accessed 13 May 2014.

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the National Environmental Management: Biodiversity Act of 2004,[38] created a fear in emerging markets in Vietnam and Thailand that the supply of rhino horn would soon dry up. This prompted a more aggressive approach towards poaching. Finally, there are clear links to wider forms of organized crime. Pseudo-hunting was a problem in South Africa until relatively recently, and the practice supplied a significant amount of horn to illegal markets.[39] A government clampdown on the issue of rhino-hunting permits has largely solved this problem.[40] The recent conviction of Thai businessman Chumlong Lemtongthai demonstrates these complexities very well. He used prostitutes to pose as big game hunters on private reserves. The professional hunting operation possessed the legal hunting permit, and then the women were asked to pose in front of the rhinos with a weapon as a photographic trophy. The genuine permit could then be copied and presented with the photographic evidence to indicate that the rhino horn was being exported legally as a hunting trophy.[41] Calls to engage in more aggressive and militarized anti-poaching to protect rhinos fail to engage adequately with these dynamics, and are based on simplified and outdated understandings of what drives illegal hunting in the first place.

The militarization of anti-poaching is also reflected in the use of new technologies or the deployment of existing technologies in new ways, including the use of UAVs (drones), camera traps, thermal imaging and GPS trackers to assist rangers in their anti-poaching efforts. There is increasing interest in using drones and camera traps for conservation law enforcement, especially as park rangers currently have to patrol large areas.[42] Protected areas in Kenya, Namibia and South Africa have started using drones for surveillance as part of their anti-poaching efforts.[43] For example, the Ministry of Environment and Tourism (MET) in Namibia has concluded that strategic deployment of such new technologies, coupled with increases in staff capacity and regional cooperation, will lead to quicker detection of incursions.[44] Google recently granted more than US$5 million to WWF to develop approaches to using drones and camera traps for poacher detection; this was part of Google's Global Impact Awards, which has a fund of US$23 million to develop technology uptake in areas including conservation and humanitarianism.[45] The Zoological Society of London (ZSL) is also part of a group (alongside

[38] http://www.speciesstatus.sanbi.org/pdf/a10-04.pdf, accessed 13 May 2014.

[39] Richard H. Emslie, Tom Milliken, Bibhab Talukdar, *African and Asian rhinoceroses: status, conservation and trade*, report from the IUCN Species Survival Commission (IUCN/SSC), African and Asian Rhino Specialist Groups and TRAFFIC to the CITES Secretariat, pursuant to Resolution Conf. 9.14 (Rev. CoP15), CoP16 Doc. 54.2-rev 1, 2012; Knight, Emslie and Smart, *Biodiversity management plan for the white rhinoceros*.

[40] Tom Milliken and Jo Shaw, *The South Africa–Viet Nam rhino horn trade nexus: a deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates* (Johannesburg: TRAFFIC, 2012), p. 52.

[41] See http://www.bbc.co.uk/news/world-africa-14114327; http://www.ibtimes.co.uk/articles/403466/20121109/rhino-poaching-longest-sentence-wwf-south-africa.htm; both accessed 13 May 2014.

[42] Emma Marris, 'Drones in science: fly, and bring me data', *Nature*, 498: 7453, 2013, pp. 156–8; Karen Anderson and Kevin Gaston, 'Lightweight unmanned aerial vehicles will revolutionise spatial ecology', *Frontiers in Ecology and the Environment* 11: 3, 2013, pp. 138–46.

[43] Pierre du Preez, 'Black rhino conservation in Namibia', confidential draft report (Windhoek: Ministry of Environment and Tourism, 2013); personal communication from Ben Okita, 6 Sept. 2013.

[44] Du Preez, 'Black rhino conservation in Namibia'.

[45] Devin Coldewey, 'Predator becomes prey: Google funded drones to hunt poachers in Africa', http://www.nbcnews.com/technology/predator-becomes-prey-google-funded-drones-hunt-poachers-africa-1C7456194.

WWF, WCS, Frankfurt Zoological Society, Columbia Zoo, CITES and MIKE[46]) working on developing a Spatial Monitoring and Reporting Tool (SMART) and the use of camera traps and other surveillance technologies to increase coverage. However, the rush to try out new technologies should not obscure the need to think through carefully whether they will be accepted by local communities; for example, it was recently reported in Malta that a drone was shot down because it was used to enforce unpopular conservation legislation.[47] Those experienced in anti-poaching acknowledge that while technology can help it is not a substitute for the basics, such as having a sufficient density of well-trained, adequately equipped, well-looked-after and strongly motivated field rangers.[48] The critical need for minimum densities of staff in anti-poaching has been recognized for some time.[49] Such new technologies still require personnel on the ground to make them effective, a problem which is well documented in the case of technological approaches to warfare.[50]

It is important to consider whether a more militarized approach will be effective or not, especially where risk of detection and likelihood of punishment are low. It is assumed that increasing the 'risks' in relation to the rewards will reduce poaching overall.[51] T'Sas Rolfes suggests that if the cumulative probability of being detected, arrested, convicted and punished is perceived to be low, even potentially harsh sentences will be disregarded.[52] Du Toit points out that an increase in jail sentences and financial penalties reduced opportunist poaching in Zimbabwe's lowveld, but a hard core of professional, well-equipped commercial poachers remained.[53] Furthermore, heavy-handed anti-poaching tactics will in fact be counterproductive in the longer term.[54] This concern is clearly stated in

[46] CITES: Convention on International Trade in Endangered Species; MIKE: Monitoring the Illegal Killing of Elephants.

[47] *Times of Malta*, http://www.timesofmalta.com/articles/view/20120830/local/cabs-sending-32-bird-guards-to-malta.434991, accessed 13 May 2014.

[48] Du Preez, 'Black rhino conservation in Namibia'; personal communication from Ben Okita, 6 Sept. 2013.

[49] Richard H. Emslie and Martin Brooks, *African rhino: status survey and action plan*, IUCN/SSC African Rhino Specialist Group (Gland, Switzerland, and Cambridge: IUCN, 1999); Richard H. Emslie, Rajan Amin and Richard Kock, *Guidelines for the in situ re-introduction and translocation of African and Asian Rhinoceros*, 1st edn, occasional paper of the IUCN Species Survival Commission no. 39 (Gland, Switzerland: IUCN, 2009).

[50] Paul Rogers, 'Security by remote control: can it work?', *RUSI Journal* 158: 3, 2013, pp. 14–20.

[51] Raoul du Toit, 'Drivers of rhino poaching', presentation at IUCN–SSC African Rhino Specialist Group Meeting, Mokala, South Africa, March 2011.

[52] Michael t' Sas-Rolfes, *The rhino poaching crisis: a market analysis* (2012), http://www.rhino-economics.com/wp-content/uploads/2012/04/The-Rhino-Poaching-Crisis-by-Michael-t-Sas-Rolfes-Final.pdf, p. 3. For further discussion, see Emslie et al., *African and Asian rhinoceroses*; E. J. Milner-Gulland and Nigel Leader-Williams, 'A model of incentives for the illegal exploitation of black rhinos and elephants: poaching pays in Luangwa Valley, Zambia', *Journal of Applied Ecology* 29, 1992, pp. 388–401, DOI:10.2307/2404508; Freya A. V. St John, Aiden Keane and E. J. Milner-Gulland, 'Effective conservation depends upon understanding human behaviour', in David W. MacDonald and Kathy Willis, eds, *Key topics in conservation biology* 2 (Chichester: Wiley-Blackwell, 2013), pp. 344–61; Ostrom, 'Beyond markets and states'.

[53] Raoul du Toit, 'Response to rhino poaching in Zimbabwe's Lowveld region', presentation at IUCN–SSC African Rhino Specialist Group Meeting, Naro Moru, Kenya, Feb. 2013; Duffy et al., *Rhino poaching*, p. 12.

[54] Dilys Roe, Gonzalo Oviedo, Luis Pabon, Michael Painter, Kent Redford, Linda Siegele, Jenny Springer, David Thomas and Kristen Walker Painemilla, *Conservation and human rights: the need for international standards*, policy briefing (London: International Institute for Environment and Development, 2010); Bilal Butt, 'Commoditizing the safari and making space for conflict: place, identity and parks in East Africa', *Political Geography* 31: 2, 2012, pp. 104–13; Elizabeth Lunstrum, 'Articulated sovereignty: extending Mozambican state power through the Great Limpopo Transfrontier Park', *Political Geography*, vol. 36, 2013, pp. 1–11; Roderick P. Neumann,

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the government of Namibia's management plan for the white rhino, which notes that draconian penalties result in undesirable sociological outcomes.[55] In order to design more effective responses to illegal hunting, we need to understand its origins, the motivations of 'poachers', and the ways in which poaching intersects with wider regional and global dynamics. The complex question of how hunting was reconfigured and redefined as poaching is the subject of the next section.

Defining poaching

A key question is how we define poaching, because such definitions shape approaches to controlling it. Poaching can be defined as the hunting of any animal not permitted by the state or private owner. Such activities are often referred to as illegal hunting or poaching, but a more accurate description is *extra-legal* hunting: hunting that occurs outside the boundaries of legal frameworks. Using the terminology of extra-legal hunting removes the negative and criminalizing connotations of the words 'illegal' and 'poaching'. Nevertheless, the historically informed definitions of poaching still persist. Neumann's landmark piece on the moral and discursive geographies of the war for biodiversity advanced our understandings of the wider implications of such definitions; in essence, they indicate a deep-seated fear of the poor and their claims on resources, tapping into Malthusian interpretations which encourage conservation agencies to view poor people as the enemy.[56] Poaching has been produced as a category by a process of enclosure and criminalization which then intersects with a range of motivations: subsistence, financial gain and resistance to wildlife protection laws, even as a military strategy. It involves creating the idea of an omnipresent, secretive and criminal enemy; such an enemy is difficult, if not impossible, to tackle, and yet it shapes and defines practice on the ground, narrowing the policy options towards a focus on military-style anti-poaching.

Since we need to understand the origins of the war for biodiversity, it is important to understand the historical creation of the category 'poacher'. This exposes the assumptions that are rendered invisible in calls for a more forceful and military approach towards conservation. As Neumann notes, war is a common model for biodiversity protection in Africa, where protected areas become spaces of violence in which human rights abuses and use of deadly violence against humans in defence of wildlife have become normalized.[57] This model of war for conservation is in part a result of longer-term historical developments. Colonial authorities often outlawed hunting with snares and traps, which effectively criminalized the

'Moral and discursive geographies in the war for biodiversity in Africa', *Political Geography* 23: 7, 2004, pp. 813–37; Nancy Lee Peluso, 'Coercing conservation? The politics of state resource control', *Global Environmental Change* 3: 2, 1993, pp. 199–218; Wolfram Dressler, Bram Büscher, Michael Schoon, Daniel Brockington, Tanya Hayes, Christian Kull, James McCarthy and Krishna Streshta, 'From hope to crisis and back? A critical history of the global CBNRM narrative', *Environment and Conservation* 37: 1, 2010, pp. 1–11.

[55] Ministry of Environment and Tourism, *Species management plan: white rhinoceros* (Windhoek, 2012), p. 8.

[56] Neumann, 'Moral and discursive geographies', pp. 816–22.

[57] Neumann, 'Moral and discursive geographies', p. 813; Peluso and Vandergeest, 'Political ecologies of war and forests'.

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subsistence hunting practices of local communities.[58] In British colonies this practice drew on the much longer historical process of the development of the Game Laws that systematically removed the hunting rights of poorer communities. As Perelman argues, 'over time the Game Laws reflected an emerging hegemony of property relations in which the interests of capital and the gentry coincided. The gentry could enjoy the prestige of hunting, while the capitalists could profit from the labour of people who were forbidden to hunt as a means of subsistence.'[59]

European sport hunters were also portrayed as caring about conservation and reducing the suffering of individual animals; in contrast, African hunting methods that relied on traps and snares were redefined as cruel and unsporting. The characterizations of hunters versus poachers also linked into racial stereotypes of the day. Representations of African men as cruel poachers neatly intersected with European/imperial fears of Africans as savage, uncivilized and barbaric. Neumann argues that this dynamic of humanizing animals and dehumanizing people means that deadly violence is normalized.[60] Colonial expansion was initially underpinned by the search for lucrative goods including gold, ivory and slaves. MacKenzie describes how hunting for game assisted and subsidized British imperial expansion in Africa in the late nineteenth and early twentieth centuries.[61] In the early years of the twentieth century, hunting expeditions by high-profile figures such as Theodore Roosevelt served to bring the idea of the safari to international attention.[62] These developments cemented the idea of African poaching versus European sportsmanship, which remains discernible in justifications for a military response to 'criminal' poaching gangs.

These historical dynamics have led to simplistic understandings that are reflected in the two main definitions of poaching. Subsistence poaching is commonly thought of as 'hunting for the pot'. It relies on different technologies, such as traps and snares, because the target is small game, such as antelope.[63] By contrast, commercial poachers typically operate within organized groups that target financially valuable species, such as rhinos and elephants. Commercial poachers may use different technologies to hunt, including firearms, GPS and mobile phones.[64]

Recently, however, some subsistence poaching with snares has changed so that it is now more difficult to distinguish it from commercial-scale poaching.

[58] Duffy, *Nature crime*; Neumann, 'Moral and discursive geographies'; Karl Jacoby, *Crimes against nature: squatters, poachers, thieves, and the hidden history of American conservation* (Berkeley, CA: University of California Press, 2003); Jane Carruthers, *The Kruger National Park: a social and political history* (Pietermaritzburg: University of Natal Press, 1995); John M. MacKenzie, *Empire of nature: hunting conservation and British imperialism* (Manchester: Manchester University Press, 1988); Bill Adams, *Against extinction: the story of conservation* (London: Earthscan, 2004), pp. 19–24.

[59] Marcus Perelman, 'Primitive accumulation from feudalism to neoliberalism', *Capitalism Nature Socialism* 18: 2, 2007, p. 53.

[60] Neumann, 'Moral and discursive geographies', p. 825; for similar debates on North America, see Jacoby, *Crimes against nature*.

[61] MacKenzie, *Empire of nature*.

[62] Neumann, 'Moral and discursive geographies', p. 830; Adams, *Against extinction,* pp. 331–41.

[63] MacKenzie, *Empire of nature*; Adams, *Against extinction*.

[64] Duffy, *Nature crime,* pp. 79–119; Richard Leakey, *Wildlife wars: my battle to save Kenya's elephants* (London: Pan, 2001); Daniel Brockington, Rosaleen Duffy and James Igoe, *Nature unbound: conservation, capitalism and the future of protected areas* (London: Earthscan, 2008), pp. 77–8.

Small-scale subsistence hunting has been transformed by the demands of a global market for meat, tropical timber and key minerals. Redford coined the phrase 'empty forests' to indicate how commercial hunting depletes forests of fauna, which has a knock-on effect on local access to small game as a source of protein.[65] The growth of the bushmeat trade in Central and West Africa is linked to the extension of logging and mining into remote areas of rainforest. The mines and logging camps require development of roads to transport timber and minerals to urban centres and international markets, which facilitates transport of bushmeat to urban markets. Therefore the definitions of different kinds of poaching are blurred at the boundaries; but this is not reflected in calls for greater use of force and military techniques to 'combat' poaching.

It is also important to place poaching in a wider political context; this in turn helps us understand what produces poaching and how to design effective responses to it. The 1970s and 1980s saw the development of large-scale ivory poaching to satisfy demand in Europe and North America and growing markets in China and Japan. Prior to the ivory trade ban in 1989, the legal supply could not meet rising demand, which was met with illegally obtained ivory. The demand became so great that poaching halved Africa's elephant population in 20 years, from 1.3 million to just 600,000; Kenya had 65,000 elephants in 1979, but only 17,000 were left in 1989.[66]

In 1988 the African Wildlife Foundation identified economic motivations as the source of poaching.[67] They presented a clear message that elephants could be saved with effective anti-poaching patrols. This was a message that the general public, international donors and conservation NGOs could get behind and support. However, it is clear that large-scale poaching, as witnessed in East Africa in the 1980s or parts of southern Africa in the 1970s and 1980s, could not possibly have been carried out without corruption and complicity at the highest levels of government.[68] This is discussed further below.

The extent of SADF involvement in poaching and trafficking was clearly exposed and detailed in the report of the Kumleben Commission. In 1995 Mr Justice Kumleben was appointed to head a commission of inquiry into the role of the SADF in poaching and trafficking. The report detailed how the SADF (in the apartheid era) used ivory, rhino horn, hardwoods and drugs to fund its wars and destabilization campaigns in South West Africa (now Namibia), Angola and Mozambique.[69] The Kumleben Commission found that the SADF used sales of these products to finance numerous rebel groups, and that the Military Intelligence Department was heavily involved in the sale of elephant tusks from Angola between 1978 and 1986.[70]

[65] Kent Redford, 'The empty forest', *BioScience* 42: 6, 1992, pp. 412–22.
[66] Duffy, *Nature crime*, p. 4.
[67] Raymond Bonner, *At the hand of man: peril and hope for Africa's wildlife* (London: Simon & Schuster, 1993), p. 54.
[68] Roz Reeve and Stephen Ellis, 'An insider's account of the South African security force's role in the ivory trade', *Journal of Contemporary African Studies* 13: 2, 1995, pp. 222–43.
[69] M. E. Kumleben, *Report of the commission of inquiry into the alleged smuggling of and illegal trade in ivory and rhinoceros horn in South Africa* (Durban: Government of South Africa, 1996); Reeve and Ellis, 'An insider's account'; Stephen Ellis, 'Of elephants and men: politics and nature conservation in South Africa', *Journal of Southern African Studies* 20: 1, 1994, pp. 53–69.
[70] 'Report takes WWF to "tusk"', *Mail and Guardian*, 19 Jan. 1996; Kumleben, *Report of the commission of inquiry*.

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According to a high-ranking South African military officer, Colonel Jan Breytenbach, certain elements in the office of the Chief of Staff (Intelligence) had used a front company, Frama Inter-Trading, to clandestinely export teak, ivory, gems and drugs from Angola, with the aim of financing UNITA and SADF operations.[71] As with the current rhino wars in South Africa, when we examine poaching in more detail, a much more complex picture emerges that cannot be easily tackled with small teams of more heavily armed rangers.

The case of southern Africa in the 1980s is not the only example of the complex and often fraught linkages between conflict and poaching. Poaching has been used to finance conflicts across sub-Saharan Africa, from Uganda in the 1970s and 1980s,[72] and Angola and Mozambique in the 1980s,[73] to the Great Lakes region since 1996.[74] The rise in poaching in the Central African Republic (CAR) and its connections with regional security issues (involving Chad, Cameroon and Gabon) was detailed in a report by UN Secretary General Ban Ki Moon.[75] Zakouma National Park in Chad has also suffered poaching by rebel groups to fund cross-border wars; Garamba National Park (Democratic Republic of the Congo) was used in 2012 as a base by Joseph Kony, the leader of the Lord's Resistance Army (LRA), which underpinned and financed its operations through ivory poaching.[76] However, the claim that new ivory wars are organized by Janjaweed militia and the LRA has been seriously questioned: Lombard suggests that this represents the use of simplistic and 'easy labels' by governments in the region to entice in external help or to demonize poachers as 'outsiders'.[77] This process of categorizing poachers as criminals or rebel groups fixes poachers as a specific type of individual that constitutes a threat to wildlife, and is used to justify militarized responses so that poachers, rangers and associated military personnel become increasingly locked into the use of lethal force. Furthermore, it risks placing rangers in the position of being protagonists in some of Africa's most complex regional conflicts. In that sense anti-poaching and conservation actually rely more fully on the production of regional stability than on militarized approaches to conservation.

[71] 'SA army's ivory trail exposed', *Independent* (London), 23 March 1992; Reeve and Ellis, 'An insider's account'; Rosaleen Duffy, 'The role and limitations of state coercion: anti-poaching policies in Zimbabwe', *Journal of Contemporary African Studies* 17: 1, 1999, pp. 97–121; Kumleben, *Report of the commission of inquiry*, pp. 206–210.

[72] Linda Norgrove and David Hulme, 'Confronting conservation at Mount Elgon, Uganda', *Development and Change* 37: 5, 2006, pp. 1093–1116.

[73] Reeve and Ellis, 'An insider's account'; Ellis, 'Of elephants and men'; Duffy, 'The role and limitations of state coercion'.

[74] For further discussion of the links between wildlife and conflict, see Sophia Benz and Judith Benz-Schwarzburg, 'Great apes and new wars', *Civil Wars* 12: 4, 2011, pp. 395–430; Duffy, *Nature crime,* pp. 113–74; Humphreys and Smith, 'War and wildlife'.

[75] UN, *Report of the Secretary General on the activities of the United Nations Regional Office for Central Africa and on the Lord's Resistance Army affected areas* (New York, 2013), report reference S/2013/297.

[76] UN, *Report of the Secretary General*; http://www.cnn.com/2013/06/05/world/africa/kony-elephant-poaching, accessed 13 May 2013; Brian Christy, 'Blood ivory', *National Geographic*, Oct. 2012; Keith Somerville, 'Ivory wars: how poaching in Central Africa fuels the LRA and Janjaweed', Royal African Society African Arguments Series, 14 Jan. 2013, http://africanarguments.org/2013/01/14/the-ivory-wars-how-poaching-in-central-africa-fuels-the-lra-and-janjaweed-%E2%80%93-by-keith-somerville/, accessed 13 May 2013.

[77] Louisa Lombard, 'Ivory wars', *New York Times,* 20 Sept. 2012; Louisa Lombard, 'The tangled brokering of militarized conservation in Central Africa', paper presented at the American Anthropological Association, San Francisco, Nov. 2012.

The development of militarized anti-poaching

Militarized forms of anti-poaching are not new: for example, early game wardens in British colonial administrations were often ex-military personnel.[78] However, the purpose here is to explain how current approaches developed and began to displace the participatory approaches that characterized the 1990s.[79] Somewhat paradoxically, as CBNRM approaches were on the rise, so were various forms of militarization of conservation in response to specific problems, notably ivory poaching. Since the 1980s, conservation practice has been progressively militarized following high-profile ivory and rhino wars in East Africa. For example, in 1988 President Moi in Kenya gave permission for the Kenya Wildlife Service to use a shoot-on-sight policy against suspected poachers; in 1987 President Mugabe in Zimbabwe declared a war on rhino poachers and gave authorization for the Parks Department to engage in a shoot-to-kill policy; and in Tanzania Operation Uhai in 1989 was used to sweep all parks and neighbouring communities of suspected poachers. The shoot-to-kill approach was not confined to the 1980s: parks agencies still use deadly force for conservation purposes, with or without state authorization. For example, in just two years (1998–2000) parks staff in Malawi, who had been trained by South African mercenaries, were implicated in 300 murders, 325 disappearances, 250 rapes, and numerous instances of torture and intimidation in the Liwonde National Park alone.[80]

Conservation agencies and supporters of military-style conservation point to the need for shoot-to-kill because rangers encounter heavily armed poachers during their patrols; it is argued that rangers must be able to defend themselves against such groups. However, while the justifications for shoot-to-kill are largely premised on the idea of allowing rangers to react and defend themselves, the actual use of shoot-to-kill often takes a much more active and preventive form. In Zimbabwe in the early 1990s, for example, rangers were encouraged to shoot on sight, which is not a reactive strategy. This raises questions around the use of pre-emption and the assumption that anyone found in a privately owned or state-protected area is potentially engaged in criminal behaviour. Furthermore, narrowing the scope of discussion to how rangers respond to an immediate armed threat allows supporters to justify militarized approaches. Essentially, the question becomes *How do rangers respond to an immediate attack?* instead of *What is the most effective way to tackle poaching?* Such reductive approaches justify and legitimate a military response via appeals to self-defence.

[78] Neumann, 'Moral and discursive geographies', p. 828.

[79] For further discussion, see Jeanette Manjengwa and Simon Anstey, eds, *Beyond proprietorship: Murphree's laws on community-based natural resource management in Southern Africa* (Harare and Ottawa: Weaver Press/International Development Research Centre, 2009); James C. Murombedzi, 'Why wildlife conservation has not economically benefited communities in Africa', in David Hulme and Marshall Murphree, eds, *African wildlife and livelihoods* (Oxford: James Currey, 2001), pp. 208–226; Neumann, *Imposing wilderness*; Vupenyu Dzingirai, 'The new scramble for the African countryside', *Development and Change* 34: 2, 2003, pp. 243–63.

[80] Neumann, 'Moral and discursive geographies', p. 830.

Conclusion

There is an increasing interest in, and use of, militarized approaches to anti-poaching. This is happening in response to the apparent development of a renewed poaching war, waged especially against rhinos and elephants, and especially in sub-Saharan Africa. Conservationists, as well as various news media organizations, have been sounding the alarm about the threats to these species, claiming that poaching has the capacity to drive them to extinction unless poachers are tackled with some urgency and greater use of force. The new war for biodiversity mirrors the language of interventionism: to return to the point made by Eckersley, that the international community has a responsibility towards wildlife, especially endangered species, and that military forms of intervention may be required to save them.[81] However, this raises a tension for conservationists: such approaches are a justification for repressive, coercive and violent policies, which lead to socially unjust outcomes. The faith in new technologies, such as UAVs/drones, camera trapping and micro-chipping, contribute to the overall militarized approach to the war for biodiversity, further embedding a sense that military-style technologies can assist in the fight against poachers. However, it is clear that these will not be effective without the right level of trained and equipped personnel on the ground. The use of such technologies can contribute to a negative relationship between communities and conservation agencies if they are deployed without proper consultation and consent. Further, such approaches can be entirely counter-productive, alienating the very communities on which conservationists rely to conserve wildlife. Faced with the use of heavy-handed tactics, local communities are much less likely to support conservation efforts, reject attempts to recruit them to poaching rings, or provide surveillance and intelligence.

However, there is a more fundamental question that we need to ask: what produces poaching? Poaching in sub-Saharan Africa needs to be seen in a wider context. First, it is linked to a wider global system of trading that involves organized crime, collusion and corruption in the public and private sector, the involvement of militaries in large-scale poaching, and the recognition that it is demand in end-user markets that ultimately drives poaching in the supply side. Second, we also need to be aware of the historical background and the ways in which certain methods of hunting were progressively criminalized by colonial administrations. This had the effect of converting hunting by African communities into an illegal activity that could be punished (via fines, incarceration and even death in shoot-to-kill operations), while simultaneously protecting the rights of European sport hunters. This in part explains why some communities continue to engage in extra-legal forms of hunting, resisting the ways in which governments or private landowners try to 'protect' wildlife. It is important that conservation agencies are clear about what they are protecting, for whom they are protecting it, and why they are enforcing conservation on the ground. It is often not the case that conservationists are protecting important populations of critically endangered

[81] See Eckersley, 'Ecological intervention'.

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species. Militarized protection efforts for rhinos and elephants are also deployed to protect species that are financially important (as photographic tourist attractions or as sport hunting trophies). This is part of the explanation why militarized approaches often fail: they do not resolve the underlying reasons why people poach in the first place; and they do not tackle either the role of global trading networks or the continued demand in end-user markets. Ultimately, they result in coercive, unjust and counterproductive approaches to wildlife conservation.

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