Conservation, Human-Wildlife Conflict, and Decentralised Governance: Complexities Beyond Incomplete Devolution

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Research Article

Conservation, Human-Wildlife Conflict, and Decentralised Governance: Complexities Beyond Incomplete Devolution

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Abstract

Decentralisation of environmental governance (DEG) proliferated around the world in the 1990s, inspired, in part, by theories of common-pool resource governance that argued that local communities could sustainably manage valuable but non-excludable resources given a set of proper institutional design principles. However, many species of wildlife, such as predators that consume livestock or herbivores that destroy crops, are considered undesirable by local communities; this challenges the applicability of DEG models for managing wildlife in these contexts. Numerous scholars have proposed methods to generate economic value from locally undesired wildlife species to incentivise their conservation, but the overall success of these approaches has been mixed. We explore the intersection of DEG and the management of wildlife entangled in human-wildlife conflict and challenge the assumption that simple models of devolution and decentralisation will lead to the successful governance of wildlife in such circumstances. We argue that conflict species governance is potentially compatible with DEG but requires a fuller consideration of institutions at multiple scales than is typically included in common-pool resource theory or decentralisation. Multiple mechanisms of accountability may be especially important in securing the conservation of wildlife in conflict scenarios.

Keywords: CBNRM, community-based wildlife management, economic incentives, institutions, theory, wildlife conservation

INTRODUCTION

Human-wildlife conflict is considered to be one of the most urgent threats to carnivore conservation (Treves and Karanth 2003; Ray et al. 2005), and many other non-carnivore species are also threatened by human-wildlife conflict, such as large herbivores that destroy crops (e.g., elephants, Andean bears) or threaten human lives (e.g., hippos). There is rich literature that discusses various facets of human-wildlife conflict and implications for conservation initiatives. More recently, there have been increasing calls in the human-wildlife conflict literature to consider social dimensions when prescribing efforts for the conservation of species that are entangled in human-wildlife conflict (hereafter, conflict wildlife or conflict species; please note that the authors acknowledge the various issues with this term[1]) (e.g., Treves et al. 2006; Dickman 2010; Douglas and Veríssimo 2013). Scholars have pointed out that many perceived human-wildlife conflicts are actually "human-human" or "conservation" conflicts (e.g., Dickman 2010; Redpath et al. 2015). For example, some human-predator conflicts appear to be informed as much by the sense of a loss of control as by the objective risk to humans, livestock, and wildlife posed by their presence (Goldman et al. 2013; Olson et al. 2015). Poorly designed and/or inequitable institutions may create the appearance of human-wildlife conflict where before there had been coexistence, as sometimes observed after the establishment of protected areas and other forms of "fortress conservation" (Massé 2016; de Silva and Srinivasan 2019).

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Despite increasing recognition of the importance of social considerations for managing human-wildlife conflict and conserving species within this context, still relatively little attention has been paid to how different institutional arrangements might impact such efforts. This is a contrast with the abundant literature analysing the institutional dimensions of the management of other resources such as fisheries, water, and livestock forage (Ostrom 1990; Ostrom et al. 1994). Wildlife (including "conflict wildlife") have often been included in governance interventions inspired by theories of common-pool resources (CPRs)—such as decentralised environmental governance (DEG) and related community-based natural resource management (CBNRM)—without due consideration of whether the wildlife in these contexts meet some of the core assumptions of these models (Saunders 2014).

The purpose of this review is to contribute to scholarship on environmental governance by exploring two arguments that, to date, have not received sufficient attention in the literature: 1) in some circumstances, wildlife do not meet the basic criteria of common-pool resources, and thus we should not expect them to be managed appropriately according to CPR theory; and 2) consequent to the first point, systems of environmental governance grounded in principles of CPR theory—including devolution and decentralisation—may not lead to the successful governance of wildlife under such circumstances. Note that this second point departs from a theme running throughout much of the environmental governance literature, namely that a lack of true devolution (e.g., due to elite capture or an unwillingness of central powers to devolve) is the root cause of governance failure in many nominal decentralisation or CBNRM experiments (see, e.g., Murphree 2000; Blaikie 2006; Dressler et al. 2010; Bluwstein et al. 2016).

We follow these two arguments with a review of interventions that have been proposed to transform conflict species from burdens to valued resources through creating economic incentives for their conservation. We argue that these approaches to conflict species conservation rest on problematic assumptions and that relatively few conflict wildlife species can be conserved through economic solutions alone. This suggests that other strategies and institutional solutions may be required to advance conflict species conservation in DEG (Walpole and Thouless 2005; Suich 2013). These "less than perfect" approaches will necessarily need to align with the "less than complete" devolution typical of actually existing DEG and take into account rationalities beyond the logic of individual economic consequences (Saunders 2014).

DECENTRALISED ENVIRONMENTAL GOVERNANCE

Decentralisation is defined as the devolution of power and responsibility from a central or national authority to intermediary or local levels of governance that are—at least in theory—largely or entirely independent from the higher authorities and primarily accountable to their local constituents. The emphasis on downward accountability and inclusion of participatory mechanisms differentiates democratic decentralisation from mere administrative *deconcentration* (Manor 1999; Ribot 2004). A wide range of practices fall under the broad umbrella of decentralised environmental governance including, but not limited to, numerous CBNRM models that vary in terms of the precise distribution of powers and responsibilities among governmental and non-governmental actors at various scales.[2]

Decentralisation as a broad approach to governing is not new, but its specific application to environmental and natural resource management became widely institutionalised beginning in the early 1990s (Lemos and Agrawal 2006). Proponents of DEG argue that the empowerment and participation of people closer to the local context can result not only in more equitable governance, but also improved environmental outcomes as a result of tighter feedback loops between problems and decision-makers, more efficient resource allocation, and improved local compliance with rules and regulations (Caldecott and Lutz 1998; Ribot 2004; Lemos and Agrawal 2006; Larson and Soto 2008; Ribot et al. 2010).

DEG is more than simply a form of political and social praxis. It has long been strongly informed by—and itself informs—robust academic literature pertaining to environmental governance and institutions (Bartley et al. 2008), especially that associated with Elinor Ostrom's CPR theory (Nagendra et al. 2014; Pacheco-Vega 2014; Ykhanbai and Vernooy 2014). In response to Hardin (1968) and others who claimed that only privatisation or strong centralised government could address CPR dilemmas, Ostrom's new institutional economics approach convincingly argued that local communities could sustainably manage such resources over the long term given a set of design principles concerned with exclusivity, monitoring, sanctions, and the proper combination of deference and support by higher-level authorities (Ostrom 1990). These theoretical insights have been supported by empirical research on the governance of resources such as fisheries (Defeo and Castilla 2012), water (for irrigation) (Lam 1998), grasslands (for livestock forage) (Quinn et al. 2007), and forests (for various timber and non-timber forest products) (Gibson et al. 2000; Lopez and Moran 2016). This body of scholarship lends support to the subsidiarity principle—upon which arguments for DEG are partly premised—that authority should be "vested in the lowest level of social organisation capable of solving pertinent problems" (Young 2002, p. 284).

As Saunders (2014) details, CPR theory and some of its progenitors (including Ostrom herself) directly influenced the design of CBNRM-oriented policies that were adopted and applied worldwide in the 1990s. Among other evidence for the direct influence of CPR theory on institutional design practice, Saunders points to the adoption of CPR principles by the United Nations, the World Bank, and global environmental nongovernmental organisations (ENGOs) such as the Worldwide Fund for Nature (WWF), as well as the implicit or explicit adoption of CPR principles in reserve policies in some countries. Saunders notes that CBNRM-oriented policy adoption was driven by numerous factors—not all of them academic—but underlying the global decentralisation movement was a strong current of theory pertaining to the potential of local governments and communities to manage resources sustainably and that CPR theory was especially influential (e.g., Nagendra et al. 2014; Pacheco-Vega 2014; Ykhanbai and Vernooy 2014). Looking beyond CPR theory specifically, DEG scholarship more broadly tends to emphasise the ability of local people, under the right institutional circumstances, to conserve those things that directly contribute to their livelihoods: water, forage, forests, game, and other valuable natural resources.

More than 60 countries had experimented with or implemented some form of DEG by the turn of the century (Ribot 2004). Research on the efficacy of DEG in securing presumed benefits and improving environmental outcomes suggests mixed success overall. Scholars have frequently pointed towards incomplete devolution of decision-making power and insufficient resources as explanations for these failures (e.g., Larson 2003; Ribot et al. 2006). Others have suggested that experiments with DEG suffer from poor attention paid to commonly acknowledged good governance principles for natural resource management, such as those explicated by Lockwood et al. (2010): legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability, and adaptability. Most of these reviews have assessed DEG performance in the context of the sustainable management of CPRs (e.g., Béné et al. 2009; Baynes et al. 2015; McLain et al. 2018). We argue that—in addition to these various issues in the implementation of decentralisation reforms—there exists a separate fundamental issue in the compatibility of such paradigms within the context of conserving or managing species entangled in issues of human-wildlife conflict.

Decentralisation Theory and Conflict Wildlife

There are two fundamental reasons why wildlife in many conflict scenarios do not meet the assumptions of Ostrom's CPR model and thus do not readily meet some of the necessary conditions for successful DEG. First, the wildlife in question may not be "common pool." CPRs are defined as those resources that are subtractable but for which exclusion in access to benefits (e.g., via privatisation) is difficult or impossible. The classic example is a fishery, where each fish caught reduces the overall quantity available to other fishers, yet the privatisation of fish stocks is difficult due to the nature of the resource. Some wildlife species that have been involved in conflict scenarios have been productively conserved through converting them into private property—the classic case being game farms throughout much of Africa, which are often lauded as examples of the conservation potential of DEG. For example, in Namibia, community conservancies have control over the management of wildlife on communal lands covering more than 160,000 sq. kms (MET/NACSO 2018; Gynch et al. 2020). To the extent that wildlife can be readily privatised via enforceable tenure claims to the large landscapes on which they live, to the wildlife themselves, or to rights to hunt them, they are not fitting examples of a "common pool" resource.

Second, and more important to our analysis here, conflict wildlife species may not be perceived to be a "resource" by the relevant local community, at least under prevailing institutional arrangements (Adams and Hulme 2001). Although many wildlife species are seen as important resources from ecological, aesthetic, and existence perspectives, in the case of conflict species, those values may primarily be held by non-local entities. Meanwhile, local communities who coexist with the species may view the wildlife in question as a nuisance rather than a resource if they do not materially benefit from their presence or if the costs of coexistence exceed the benefits. This disparity in values between those who coexist with conflict species and those who do not is demonstrated quite starkly by Karlsson and Sjöström (2007) who found that perspectives about wolves were more favourable the further respondents were from the nearest wolf territory. When conflict wildlife lacks utilitarian value for local resource users, those users do not have the economic motivation assumed by CPR theory to lead them to craft and enforce local institutions for conservation. This simple, yet underappreciated, factor presents serious challenges for conflict wildlife conservation policies built around principles of decentralisation.

To clarify, we are not arguing that conflict wildlife wholly lack value; rather, we highlight the fact that in many cases, the value of these species may be clearest to conservation advocates at national or international scales, whereas the residents, resource users, and elected officials that live nearest these species may see little value in them. Yet, in the context of DEG, it is these latter groups who are burdened with the costs of either implementing conservation policy or coexisting with the species (or both, as with CBNRM). Given the lack of economic or utilitarian value of these species for local resource users, decentralised entities responsible for conserving conflict species may not have clear incentives to do so, leading to non-compliance with national conservation policy and threatening the success of conservation programmes. For example, when Colombia decentralised natural resource management in the 1990s, 33 regional autonomous corporations received devolved power and responsibility for implementing national environmental policy within their jurisdictions, including that of conserving threatened and endangered species like the Andean bear—a species entangled in issues of human-wildlife conflict (Rodríguez Becerra 2009). Though a national program for the conservation of the species was established in 2001, Hohbein et al. (2021) documented that few of the regional autonomous corporations were in compliance with the national program, suggesting insufficient incentives (economic or otherwise) for these entities to conserve the species. Costs are higher for decentralised entities when locals resent the conservation of species they view as pestilent; this can lead to eroded relationships between communities and the governmental or non-governmental entities promoting conservation (Knight 2000). For example, due to protectionist policies for conflict species in Laikipia County, Kenya, locals believe the government values wildlife more than human lives (Bond and Mkutu 2018).

These inconvenient realities imply that we must look beyond the now-familiar refrain that DEG experiments in conflict wildlife conservation have mostly been limited by token or incomplete devolution of power. This raises the question of what kinds of interventions and institutions may be required to assure the persistence of conflict wildlife populations and achieve the outcomes promoted by proponents of DEG. It also implies the potential for an uncomfortable tension between principles of democratic governance and the conservation of conflict species (see, e.g., Holmes 2007; DeMotts and Hoon 2012; Massé 2016).

ECONOMIC INCENTIVES FOR CONFLICT SPECIES CONSERVATION

A seemingly logical remedy to the issues explicated above might be to introduce economic incentives rendering wildlife economically valuable to local resources users. Through successfully linking wildlife conservation to clear economic signals, conflict species may have the potential to (re)gain status as a valued "resource" among local populations—thereby helping to align real-world conditions with the assumptions of DEG theory. In this section, we briefly review the benefits, limitations, and institutional considerations of three possible methods for creating economic incentives for conflict species conservation: ecotourism, payments for ecosystem services (PES), and hunting. Our objective in reviewing these perspectives is to highlight that, while potentially useful in many scenarios, economic incentives should not be seen as a panacea for reconciling the conservation of conflict wildlife with DEG.

Ecotourism

Under the right institutional arrangements, ecotourism can incentivise local people to conserve wildlife because their continued presence will attract more tourists. The World Travel and Tourism Council (2019) estimated that wildlife-centric ecotourism contributed a cumulative USD120.1 billion to national economies in 2018 alone. Community involvement in ecotourism initiatives has been shown to change local perspectives on conflict species. For example, in Ladakh, India, Vannelli et al. (2019) documented that ecotourism improved villagers' perspectives of the endangered snow leopard. Mossaz et al. (2015) reviewed 66 published case studies and visited 48 sites to determine ecotourism impacts on big cat conservation in Africa and confirmed that, when implemented well, ecotourism can provide meaningful contributions to conservation at the local scale by incentivising increased habitat protection. Additionally, excess revenue gained from ecotourism further supported conservation of conflict wildlife by providing resources for research, anti-poaching efforts, and livestock compensation programmes (Mossaz et al. 2015).

While ecotourism can be successful, there are many drawbacks and limitations to its utility (Krüger 2005). First, not every locality with conflict wildlife is optimal for ecotourism; limitations of access, security, and previously established tourism streams are just a few of the factors that can limit the commercial viability of ecotourism campaigns (Walpole and Thouless 2005). For example, despite the popularity of Namibian conservancies as destinations for ecotourism and their perceived success in advancing wildlife conservation and improving livelihoods, Humavindu and Stage (2015) documented that most of the revenue accrues to conservancies considered most accessible by visiting tourists. Conservancies that are less "convenient" (e.g., further away from main roads) are losing money and their long-term viability is in question (Humavindu and Stage 2015). Second, ecotourism opportunities could be limited by the ecology of the conflict species: species that are nocturnal, reside in dense or inaccessible habitat, or are generally elusive in nature are not readily marketable for ecotourism campaigns since tourists are unlikely to ever see the species in the wild. Third, ecotourism could habituate wildlife to people and thereby exacerbate wildlife conflict (Saberwal et al. 1994; Madden 2008). Fourth, ecotourism rarely generates enough profit to offset the costs of coexisting with conflict wildlife and usually requires subsidisation by states or NGOs (Songorwa 1999; Walpole and Thouless 2005). Finally, ecotourism campaigns have been documented to lead the erosion of the very nature they intend to conserve (Shannon et al. 2017).

Hunting

The provision of limited trophy hunting opportunities can also create economic incentives for conflict species conservation. For example, in the well-known Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe, communities were provided a pre-determined percentage of revenue gained via trophy hunting permits (though revenue was also drawn from ecotourism, the vast majority of actual revenue gained was from trophy hunting) (Frost and Bond 2008). CAMPFIRE generated over USD20 million in a 20 year-time span for participating communities (Frost and Bond 2008). Communities receiving these funds established wildlife corridors and participated in anti-poaching efforts (Balint and Mashinya 2008). CAMPFIRE was widely considered to be a successful example of economically incentivising communities to conserve wildlife (Child 1993; Taylor 2009), and similar programmes were replicated across several nearby countries (Balint and Mashinya 2008). A survey conducted by Lindsey et al. (2006) demonstrated that trophy hunters expressed a willingness to visit African countries and locales not typically popular for ecotourism, suggesting that hunting could provide economic incentives for conflict wildlife conservation in a greater diversity of places than could ecotourism alone. Opportunities to hunt conflict species can also provide other benefits that could improve conflict species conservation. For example, species that are hunted may develop an aversion to human-dominated landscapes (Oriol-Cotterill et al. 2015), reducing opportunities for negative interactions and damage to human property. However, explicit tests of this assumption are limited (Treves et al. 2009). In some circumstances, communities may be able to identify specific, problematic individuals and have these individuals targeted for hunts (Lindsey et al. 2006). In many countries, problem animals would be killed regardless, either legally by wildlife authorities or illegally when affected communities work with poachers to handle problem animals (Lindsey et al. 2006). Allowing trophy hunts could actually reduce the total number of animals killed while providing economic benefits to local communities (Child 2005 *cited in* Lindsey et al. 2006). Finally, limited hunting quotas could help reduce conflict wildlife populations to levels considered tolerable by communities and the overall amount of damage incurred (Decker and Purdy 1988; Conover 2001).

The hunting of protected species is perhaps the single most controversial approach to conflict species conservation. One of the primary reasons many oppose hunting as a solution is because appropriate hunting quotas are so often difficult to determine, leading to unsustainable mortality and population declines of these already threatened species. For example, the countries in Africa with the greatest number of trophy hunts were correlated with the steepest declines in African lion populations (Packer et al. 2009). Complex population dynamics and behaviours exacerbate the issue; e.g., the killing of male lions can result in the deaths of their cubs since males that replace them in the pride kill any previous offspring to increase their own mating opportunities (Bertram 1975). Alternatively, some density-dependent species can actually increase in number after being targeted for hunting due to "demographic compensation" (e.g., via larger litter sizes), thereby increasing issues of human-wildlife conflict. For example, in South Africa, communities that killed more caracals experienced more livestock losses the subsequent year compared to those that killed fewer because of this demographic compensation (Bailey and Conradie 2013). A similar pattern was observed in the United States where increasing wolf harvests in Idaho, Montana, and Wyoming were correlated with more sheep depredated in subsequent years (Wielgus and Peebles 2014). When it comes to correctly identifying the specific problem individuals, communities have poor track records; thus, the hunting of specific problem animals rarely resolves the issue of damage (Treves 2007). The ability of trophy hunting revenue to offset what are often substantial costs incurred by locals from wildlife damage is also in question. For example, Drake et al. (2020) found that economic damages caused by elephants in one community conservancy in Namibia far outweighed revenue gained via trophy hunting permits.

Payments for Ecosystem Services

Payments for ecosystem services (PES) is another method proposed for creating economic incentives for conflict wildlife conservation (Nelson 2009; Dickman et al. 2011). Conflict species often provide multiple ecological services such as the control of pestilent prey species and disease mitigation; the loss of conflict species has been tied to ecologically damaging trophic cascades (Ripple et al. 2011; Suraci et al. 2016). There are also other more intangible services provided by conflict species; because so many of these species are considered charismatic, they provide "existence value"—"the utility that people derive from knowing of the existence of…biodiversity, and from knowing that others and future generations also might be able to enjoy it" (Turpie 2003, p. 200). By provisioning payments to locals who coexist with and conserve conflict wildlife, PES schemes seek to directly fix the scalar misalignment of costs and benefits without relying on the intermediation of a tourism economy.

In PES, usually an external organisation or entity facilitates the provisioning of such payments to locals in exchange for their meeting some pre-determined performance criteria in maintaining the ecosystem service (e.g., conflict wildlife populations). The payments could be derived any number of ways, but two common origins of the payments are taxes or non-governmental organisations (and their donors) (Kelsey Jack et al. 2008). PES schemes for conflict species are still rare (Nelson 2009), but some case studies have yielded remarkable success. For example, Persson et al. (2015) reported that payments to indigenous reindeer herders for verified wolverine reproduction within their districts resulted in a marked increase in wolverine populations compared to years prior to programme initiation (the population doubled within a decade) despite the fact that wolverines primarily preyed on reindeer in that system. There appear to be fewer limitations and caveats associated specifically with PES schemes than there are with ecotourism or trophy hunting solutions. However, there are general limitations and issues when relying on any kind of economic incentive (including PES) to encourage conflict species conservation; these limitations are discussed below.

The Limitations of Economic Incentives

These approaches all rest on the assumption that market failures are the cause of environmental degradation—in this case, the decline in wildlife populations. The decidedly neoliberal argument is that monetising the value conflict wildlife provide in ecosystem services (e.g., control of prey populations) or via ecotourism or hunting demand will incentivise local resource users, residents, and landowners to conserve the species (Büscher et al. 2012; Frank 2016). So long as the value thereby generated is greater than the cost associated with coexisting with undesirable species, conservation is presumed to prevail. Such approaches, along with other "conservation and development" efforts that attempt to explicitly link conservation with economic gains, are optimistically referred to as "win-win" because both wildlife and local people benefit (Muradian et al. 2013).

Despite the advocacy and adoption of conservation programmes predicated on economic incentives by influential NGOs and development agencies over the last few decades, these approaches have increasingly come under fire for both "expanding the hegemony of global capitalism" (Fletcher and Neves 2012, p. 63) and failing to meet expectations (McShane et al. 2011). Money is not always a fair trade for the damages caused by protected conflict wildlife. For example, human-wildlife conflict can lead to long-term psychological trauma or loss of human life (Bond and Mkutu 2018). Furthermore, there is a certain irony in attempting to solve environmental problems by further integrating capitalism—so often recognised as the direct cause of global environmental degradation (Büscher et al. 2012)—into less developed areas. A detailed ethnographic account by West (2006) documents how promises of economic development in exchange for conservation at the Crater Mountain Wildlife Management Area of Papua New Guinea led to a series of unmet expectations, increased levels of social conflict within and among communities, and perverse ecological outcomes, such as the destruction of a harpy nest by one local who thought it unfair that a neighbour be paid for its protection when the nest was on contested land. As Saunders (2014, p. 643) documents, the rational individualism that lies at the heart of CPR theory often conflicts with the reality of local resource users in many commons scenarios that are typically "embedded and situated in numerous relations of interests and reciprocal commitments at different scales" that go well beyond the rational calculation of individual costs and benefits.

Indeed, a rich literature covers the various problems that can arise when relying on economic incentives to encourage conservation, perhaps one of the most salient of which is succinctly captured by Hackel (2001, p. 726): "If rural people accept [a conservation and development programme] because of its economic benefits, they may reject it at some point in the future if a better economic alternative is presented." By focusing on the economic values of conflict wildlife alone, other more enduring intrinsic values could be overshadowed or "crowded out" (Muradian et al. 2013), leaving the conservation of species vulnerable to shifting markets. Several articles have detailed how the COVID 19 pandemic evaporated revenue streams for parks and communities reliant on ecotourism, raising fears about the future of these parks and the wildlife they conserve (e.g., Hockings et al. 2020; Lindsey et al. 2020). While arguments against neoliberal approaches to conservation are numerous, the thorough revisiting of each is beyond the scope of this paper. Suffice it to say that creating economic incentives cannot be the sole solution to conflict species conservation. However, these approaches may be both effective and equitable in certain cases, particularly where those bearing the costs of conflict wildlife species are both empowered to participate in governance and able to benefit materially from economic and other opportunities.

Institutional Considerations for Implementing Economic Incentives in DEG

The complexity of conflict species conservation suggests that adherence to good governance principles is of particular importance in the implementation of these strategies lest the economic incentives exacerbate the conflict. For example, the equitable distribution of revenue is vital. Should these payments or benefits (whether from ecotourism, trophy hunting, or PES) be concentrated in the hands of a few wealthy or influential individuals (i.e., elite capture), the rest of the community will have little incentive to maintain conflict wildlife populations. The conflict wildlife, which were already problematic for locals, may become resented as symbols of the elite few who benefit from their presence and subsequently persecuted as such (Dickman and Hazzah 2016). While the risk of elite capture is widespread in conservation projects that entail some form of economic gain (and decentralisation more generally) (Persha and Andersson 2014), the likelihood of protected wildlife becoming a symbol of this underlying socio-economic conflict is greater when the species was already contentious in the landscape (Douglas and Veríssimo 2013). Thus, risks of perverse ecological outcomes due to elite capture in decentralised conflict wildlife conservation may be greater than in decentralised governance of other environmental resources.

Particularly in the early stages of these programmes, communities or local government entities could benefit greatly from externally supported training and capacity building so as to be able to more effectively capitalise on these opportunities and not be taken advantage of by more competitive private entities. Good governance principles that help prevent elite capture include inclusiveness (when stakeholders can all equally engage with governance processes) and fairness (Lockwood et al. 2010). Additionally, an extensive review of DEG conducted by Persha and Andersson (2014) concluded that the presence of an external agency or organisation serving as a "watchdog" over the decentralisation process reduced the likelihood of elite capture. Indeed, the CAMPFIRE programme benefited from just such organisations. Balint and Mashinya (2008) documented that after USAID funding ended in 2000 (which had paid for external support by NGOs), two communities in CAMPFIRE previously considered quite successful were captured by elites and opportunities for broader community participation and benefit sharing decreased significantly.

Though the use of economic incentives is often proposed as a model for encouraging local or community conservation behaviour (usually by an NGO), the approach could also be leveraged by decentralised entities operating at other governance levels (e.g., municipal or provincial governments). The successful connection to markets can lower costs of conservation for the entity responsible and, with the equitable distribution of payments, increase local tolerance for conflict species, thereby decreasing issues associated with the politically damning nature of conflict species conservation. However, given that this approach cannot be implemented universally, we now proceed to alternative institutional solutions for conserving conflict species in the context of DEG.

RECONCILING CONFLICT SPECIES CONSERVATION AND DEG

Scholars working in diverse contexts have identified a lack of authentic decentralisation of authority as a prime contributor to the failure or poor performance of DEG in practice. Our review suggests that even full and authentic decentralisation may face substantial challenges when it comes to the conservation of conflict wildlife or other resources that are valued more at regional or global levels than at the local level, and that institutions designed to monetise the persistence of conflict species may be ineffective or inappropriate in many contexts. The literature on human-wildlife conflict also makes it clear that human coexistence with conflict species is an achievable goal in many cases, given attention to issues of equity, livelihoods, participation, and incentives. Here we provide synthetic recommendations for reconciling the goals of conflict species conservation with the broad principles of DEG.

Accountability in "Actually Existing" DEG

Despite the emphasis on local governance in much of the literature on decentralisation, "pure" forms of DEG are rarely, if ever, encountered in the field; more typical are complex, entangled governance scenarios in which DEG institutions are introduced and unevenly adopted within settings characterised by a multiplicity of actors, interests, and institutions (Saunders 2014; Schnegg 2018). The literatures on multilevel and polycentric governance (Andersson and Ostrom 2008; Nagendra and Ostrom 2012) recognize the scalar complexity of nominally "local" governance arrangements and emphasise the principles of equitable and efficient distribution of authority and accountability at various levels.

The importance of some upward accountability to higher level authorities is one finding from these alternative frameworks that has received little attention in DEG despite early recognition of its value (e.g., Gregersen et al. 2004). Upward accountability is a potential mechanism for incentivising wildlife conservation within DEG where local or even intermediary actors are not self-motivated to manage for their persistence. Relatively little guidance exists on how best to maintain reasonable levels of upward accountability in scenarios of decentralisation. For example, Ribot (2002) suggests the setting of "minimum environmental standards," but does not provide guidance on how these standards ought to be enforced. Lockwood et al. (2010) suggest that reporting requirements may be "the minimum necessary to provide…accountability," but again offers no guidance for enforcement should the actions reported fall short of expectations or legal requirements.

Central or other high authorities may use sanctions and incentives as mechanisms for actualising upward accountability. Such mechanisms may be necessary to create equitable institutions for accountability and encourage local-level compliance with national conservation policy for conflict species. For example, in the United States, the Environmental Protection Agency (EPA) uses a combination of financial incentives (via state program grants) and sanctions (via audits, performance reviews, and the conditional delegation of powers) to ensure that state environmental programs are meeting national requirements (Blackman et al. 2005). When states are found to be out of compliance, they work directly with the EPA to identify corrective measures (Blackman et al. 2005). While not in reference to the specific challenge of conflict species conservation, several authors have highlighted how the use of incentives and sanctions will be necessary for successful DEG in the context of misaligned costs and benefits, externalities, or actions that have broad national significance (Caldecott and Lutz 1998; Gregersen et al. 2004; Bartley et al. 2008). It is critical that any sanctions, incentives, or other rules associated with upward accountability be considered legitimate in order to be effective and durable (Ostrom and Nagendra 2006), just as it is critical that upward accountability not replace downward accountability and thereby undermine the goals of decentralisation itself (Agrawal 1999).

Indeed, upward accountability may stand in tension with the principles of DEG; if abused, accountability practices could potentially facilitate elite capture and loss of local control. Many DEG initiatives have been undermined by processes of elite capture or token devolution, and an overreliance upon upward accountability mechanisms may provide openings for both of these to occur. Effective decentralisation depends upon the vesting of certain rights in local populations, even if not all possible rights are included (Agrawal and Ostrom 2001). Effective decentralised governance of conflict wildlife species may require the careful apportioning of rights among local and nonlocal entities to help ensure the persistence of these species despite local antipathy toward them. As noted above, it will be especially important to avoid scenarios in which conflict wildlife species come to be seen as symbols of local disempowerment, as this can lead to illegal killing of those species as a form of resistance (Olson et al. 2015).

The literature on polycentric and network governance also emphasise accountability via social relationships with other relevant actors that are not necessarily hierarchically superior (Jedd and Bixler 2015). In "actually existing" DEG, local entities rarely work in isolation but rather are formally or informally embedded within governance networks that include state actors at various scales, community-based organisations, regional- to global-scale NGOs, producer associations, private firms, kinship groups, and myriad other entities. Local entities may experience network accountability from these actors so as to "secure recognition" and acquire or maintain authority or legitimacy (Gordon 2016). In other words, decentralised governance entities may come to see the conservation of conflict wildlife species as necessary to maintain their standing as legitimate members of broader governance networks. This "professional" or "peer accountability" may work by rewarding actors in compliance with established norms with continued access to the network and associated information streams and resources (Jedd and Bixler 2015). This again points to the need to consider governance actors as socially embedded rather than as the autonomous individuals imagined by neoliberal and new institutional economic models (Cleaver 2012). However, effective network accountability will require powerful network entities (such as NGOs and domestic and foreign governments) to also hold themselves and other powerful actors accountable and to pay special attention to local empowerment to avoid elite capture and support the authentic devolution of rights while ensuring accountability to minimum standards (Sarmiento Barletti et al. 2020).

Politically, Socially, and Ecologically Appropriate Institutional Design

Our review indicates that different institutional solutions will likely be appropriate according to both the particularities of specific human-wildlife conflict scenarios and according to the cultural, political, and livelihood specificities of individual places. Wide variation in state and NGO capacity implies variation in the feasibility of mechanisms that rely on the administration of payments, incentives, or sanctions. Institutions crafted and administered by colonial or postcolonial authorities may be variably adopted, transformed, or rejected by local populations (de Koning 2014). The principle of legitimacy includes not simply Weberian political legitimacy (i.e., the presumed rightness of state authority and its application via an administrative-bureaucratic apparatus) but also congruence with deeply held cultural understandings of human-wildlife relations, at least some of which may hold opportunities for coexistence with conflict species (Gebresenbet et al. 2018). Rules for conflict species management will also need to take into account various ecological variables such as habitat requirements, reproduction, and behavioural response to lethal control; this will often entail coproduction of knowledge as well as collaborative design of conservation institutions (Clark et al. 2016). Although "silver bullet" solutions are unlikely to be identified, combinations of sanctions and incentives from higher government levels along with both empowerment and accountability may work to achieve satisfactory outcomes without sacrificing the core principles of DEG. By building upon and in concert with local institutions, NGOs and other higher-scale actors may be successful in encouraging conflict species conservation while still allowing room for autonomy and discretionary decision making.

Consider Subjectivities, not just Compensation and Compliance

Many conservation interventions are premised on the assumption that local resource users will only coexist with conflict wildlife species if their action is compelled by force or, alternatively, if they are fully compensated for the economic costs of coexistence. Although both enforcement and compensation may be important tools in conflict resolution, they are likely to be inadequate in and of themselves. Further, an emphasis on compensation in the absence of empowerment may cultivate a reductionist and neoliberal subjectivity, thereby eroding nonmaterial motivations for conservation and potentially acting in conflict with a more complex understanding of human-wildlife relations. On the other hand, compensation as a part of a larger programme of empowerment may help to reinforce existing intrinsic and non-monetary values regarding wildlife (Kansky et al. 2020). Rather than a primary focus on coercive and compensatory mechanisms, the blend of multiple mechanisms with local-level empowerment in conflict governance may act to support a subjectivity of stewardship and coexistence (Agrawal 2005; Folke et al. 2016; Akers and Yasué 2019) that is more psychologically fundamental and more enduring than any given conservation intervention (e.g., Ohlson et al. 2008). Despite prevailing rhetoric on empowerment and participation in community-based wildlife management programmes premised on economic incentives, too few of these can actually be described as empowering or participatory (Songorwa 1999). Shifting the overarching objective to fostering a subjectivity oriented around stewardship—rooted in empowerment, local knowledge, and legitimacy—may help to bring back into focus the importance of these principles.

CONCLUSION

Our review problematises the prominent argument that a lack of true devolution is the ultimate cause of governance failures in DEG experiments involving conflict wildlife species. By bringing into focus the incongruities between the assumptions of the DEG model and the realities of human-wildlife conflict scenarios, we show why simple models of devolution and decentralisation may not necessarily produce the desired ecological outcomes for the management of species entangled in human-wildlife conflict. The creation of economic incentives has been the primary means by which the tensions inherent in DEG of conflict wildlife have been addressed. While economic mechanisms can motivate institutional compliance of decentralised entities with national conservation policy, the emphasis on this approach by governance scholars has obscured the reality that not all wildlife can be conserved through economic solutions alone. Attention must also be paid to empowerment and the distribution of rights among local and nonlocal actors within the specific ecological and socio-political settings of particular conflict wildlife scenarios.

The possibility for conflict species to become enduring symbols of social conflict is a risk of particular concern, making conflict species conservation uniquely precarious and prone to perverse outcomes when governance goes awry (Douglas and Veríssimo 2013). A key lesson of this review is that, due to the complex and place-specific histories and socio-political settings of wildlife conflict scenarios, no single model is likely to be widely successful. Rather than identifying "silver bullet" practices, this review emphasises attention to embeddedness, institutional complexity, empowerment, accountability, and legitimacy as potentially determinative variables in influencing the success of wildlife governance interventions. A reliance on overly simplified governance models or culturally inappropriate conservation measures may fail to achieve intended conservation outcomes and further alienate or marginalise local populations in the process.

Author Contributions Statement

RH and JA conceived and designed the work. RH led the drafting of the manuscript. Both authors contributed critical, intellectual content to the drafts and gave final approval of the version to be published.

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NA.

NOTES

1 Some scholars have criticised this term as it inherently implies agency on behalf of wildlife and ignores the underlying dimensions of what are often actually human-human conflicts (e.g., Peterson et al. 2010, Redpath et al. 2015). Further, the term frames conflict wildlife as purely antagonistic and may obscure other positive benefits of the same species and renders invisible the possibility for coexistence. Nevertheless, "human-wildlife conflict" continues to dominate the literature, and the term is useful in allowing scholars and practitioners to refer to a broad class of problems that, while diverse, are still easily recognisable and understood by those working in the field.

2 Note that although there are important differences between governance models in which authority is vested in local non-state actors and those in which authority is vested in local governmental actors (Murphree 2000), both qualify as varieties of DEG and are relevant to our discussion.

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