



The political economy of human-wildlife conflict and coexistence

Robert Fletcher^{a,*}, Svetoslava Toncheva^b

^a *Sociology of Development and Change Group, De Leeuwenborch, Hollandseweg 1, Wageningen University and Research, 6707, KN, Wageningen, the Netherlands*

^b *Institute of Ethnology and Folklore Studies with Ethnographic Museum, Comparative Folklore Studies Department, Bulgarian Academy of Sciences, Bulgaria*

ARTICLE INFO

Keywords:

Human-wildlife conflict
Coexistence
Political economy
Capitalism
Uneven geographical development

ABSTRACT

Researchers have highlighted a conspicuous dearth of analysis focused on political-economic structures and processes in the rapidly expanding literature exploring human-wildlife conflict and coexistence. In this paper, we respond by highlighting the importance of attending to the influence of such dynamics in understanding and addressing both conflict and coexistence in human-wildlife interactions in particular locations and well as across levels and scales. We describe how analysis from the perspective of the capitalist political economy and the “uneven geographical development” (UGD) it produces can help to shed light on how different forms of such interaction arise in specific places and times. We illustrate this mode of analysis through comparative discussion of two contrasting case studies of human-wildlife interaction in Costa Rica and Bulgaria. We demonstrate how the particular positioning of our research sites within the overarching societies – as well as each society’s positioning within an evolving capitalist world-system – encourages either conflict or coexistence between people and wildlife depending on this positioning. We conclude by calling for more researchers to also explore the overarching political-economic structures shaping human-wildlife interaction in their own contexts of study in order to more effectively address this important formative factor in patterns of conflict as well as coexistence.

1. Introduction

An extensive body of research has explored instances in which human and nonhuman interests overlap and clash as forms of “human-wildlife conflict” (HWC). Yet increasingly, this frame is critiqued as overly negative in its focus on conflict and its mitigation, leading to mounting calls to refocus instead on cultivating more positive forms of human-wildlife coexistence (e.g., Pooley et al., 2017; Frank et al., 2019; Hodgson et al., 2020). Discussions of how to encourage coexistence have thus far been dominated by technocratic approaches advocating either modifications of wildlife behavior (via lethal control, relocation, fences, zoning etc.) or provision of economic incentives (e.g., compensation for livelihood impacts or payment for environmental services) to encourage human tolerance of wildlife (see e.g., Treves and Karanth, 2003; Dickman et al., 2011; Hodgson et al., 2020). Yet a longstanding critique of this technocratic approach emphasizes the importance of also attending to the “human dimensions” of human-wildlife conflict and coexistence (Dickman et al., 2013; Redpath et al., 2015; Pooley et al., 2017). As Dickman et al. (2013: 111-12) explain, given that “humans are the common thread in the highly variable arena of human-wildlife conflict, and the course and resolution of conflict are determined by the thoughts

and actions of the people involved, understanding the human dimension is the most crucial prerequisite for developing effective mitigation.” The ways that people’s perspectives and modes of interacting with both wildlife and one another impact human-wildlife relations have thus been explored in various dimensions, including via individuals’ attitudes and values, the collective cultural patterns shaping individual views, and as the institutions people create to govern themselves and other species (Dickman et al., 2013; Pooley et al., 2017).

Yet in most of this analysis, the focus remains squarely on the immediate context in which human-wildlife interactions occur, while another formative domain of human activity – the broader political-economic structures and processes shaping people’s livelihoods and forms of interactions in relation to these – have not yet become a sustained focus within this line of investigation. Highlighting this notable omission, Margulies and Karanth (2018: 153) call for more attention “to the broader economic and regional forces underpinning the politics of human-animal encounter often missing” from such discussions. In their own investigation of mounting HWC between people and tigers in Karnataka, India, the authors “highlight the political and economic linkages operating across scales of analysis in co-producing changing geographies of encounters between cattle and carnivores” (Margulies

* Corresponding author.

E-mail address: Robert.Fletcher@wur.nl (R. Fletcher).

<https://doi.org/10.1016/j.biocon.2021.109216>

Received 9 November 2020; Received in revised form 9 April 2021; Accepted 2 June 2021

Available online 16 June 2021

0006-3207/© 2021 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

and Karanth, 2018: 154) and encourage others to adopt a similar focus.

In this paper, we take up this call by highlighting the importance of attending to the influence of broader political-economic structures and processes more generally in understanding and addressing both conflict and coexistence in human-wildlife interactions in particular locations and well as across levels and scales. We begin by outlining in more detail the different ways that social dimensions of human-wildlife interaction have been identified and explored to date. We then describe how analysis from the perspective of the capitalist political economy and the “uneven geographical development” (UGD) it produces can help to shed light on how different forms of such interaction arise in different places and times. We illustrate the utility of this mode of analysis through comparative discussion of two empirical case studies of human-wildlife interaction in Costa Rica and Bulgaria. We demonstrate how the particular positioning of our research sites within the overarching societies – as well as each society's positioning within an evolving capitalist world-system – encourages either conflict or coexistence between people and wildlife depending on this positioning. We conclude by calling for more researchers to also explore the overarching political-economic structures shaping human-wildlife interaction in their own contexts of study in order to more effectively address this important formative factor in both conflict and coexistence in future conservation planning.

2. The social dimensions of human-wildlife interaction

As Redpath et al. (2015: 224) points out in emphasizing the importance of attention to the social dimensions of human-wildlife interaction, “in the majority of cases human-wildlife conflicts are between conservation and other human interests. In these cases, we suggest that it may be more productive to stop hiding behind the wildlife and be clear that those who are defending the conservation objectives are the antagonists.” Following from this acknowledgement, existing research exploring human interests, perspectives and disputes vis-à-vis wildlife has been undertaken from several different perspectives.

The most common approach explores so-called “human dimensions of wildlife,” grounded primarily in quantitative social science methods. Summarizing the state of analysis from this perspective in addressing interaction with large carnivores specifically, Dickman et al. (2013: 111) assert that “attitudes towards carnivores are not merely determined by any direct costs imposed, but are the product of a dynamic and complex web of individual, societal and cultural factors.” They distinguish two main scales of such factors – *individual* and *societal/cultural* – each divided into several subcategories, explaining that “[u]nderstanding both individual and societal/cultural determinants of conflict with carnivores is critical for mitigation” (2013: 113). Among individual factors, the authors distinguish: 1) *personal experience*; 2) *attitudes*; 3) *emotions*; 4) *gender, age and parental role*; 5) *values and value orientation*; 6) *control, power and skills*; 7) *knowledge and education*; and 8) *wealth*. Societal/cultural factors include: 1) *collective experiences* (i.e., those shaped by “peers, elders, friends, family, teachers and local media” [2013: 118]); 2) *social norms*; 3) *social identity and intergroup tensions, folklore and religion*; *income sources*; and *consequences* (in terms of whether particular actions are rewarded or punished). From the same conceptual starting point, Manfredi et al. (2009) introduce another societal factor, highlighting how advancing “modernization” producing “postmaterialist values” (Inglehart and Welzel, 2005) ostensibly correlated with a higher proportion of a given population espousing a “mutualist” value orientation encouraging greater tolerance towards wildlife.

Adding to this catalogue of individual and societal-level influences on human-wildlife interaction in their own recent summary of social scientific approaches to investigating such interaction more broadly, Pooley et al. (2017: 516) highlight the importance of also adopting a *temporal* perspective in “[t]racking the history of how particular conflicts have arisen and been framed over time,” as well as a focus on

politics to explore the “different tools, or forms of power” that various stakeholders employ to “create and enforce the kinds of human-predator relations they want.” Pulling back from the immediate context of human-wildlife interaction, moreover, the authors further emphasize the influence of what they call “cosmopolitan natures,” defined as “the globalized, urbanized, Western view of wildlife” that signifies “changed relations between humans and a small number of popular images of charismatic animals that circulate in global media for the purposes of both entertainment and conservation campaigns” (2017: 518). Translated into “commodification of a small number of flagship species that appear in advertising and on film and are encountered face-to-face through ecotourism,” this abstract discourse can exert pressures for local people to tolerate wildlife in specific places due to the conservation priorities cosmopolitan natures promote and incentivize.

In short, current research exploring human dimensions of human-wildlife interaction has predominantly emphasised a focus on individual identity and values, social positioning, political power and/or cultural perspectives. While all of these factors are of course important for understanding and addressing both human-wildlife conflict and coexistence in diverse contexts, nowhere does this research mention another factor that is likely at least, if not more, important in also shaping such situations: the global capitalist political economy and the uneven geographical development it produces. Aspects of this dynamic are indirectly pointed to, for instance in Dickman et al.'s (2013) attention to the influence of different income sources and Pooley et al.'s (2017) emphasis on attending to history, politics and processes of commodification in shaping interactions with wildlife, yet how these different factors are themselves shaped by and come together within a broader political economy remains unaddressed.

As previously mentioned, Margulies and Karanth (2018) highlight this oversight in their own analysis of HWC in India. They assert that increasing conflict between local people and tigers in a space historically characterized by greater mutual tolerance is in large part the consequence of “increasing precarity and changes in the agrarian economy, increased enforcement of exclusionary wildlife management law, and changes in livestock demographics resultant from these economic and management transformations” (2018: 159).

In particular, they explain:

Coffee prices set on the global commodities exchange stagnate, regional rural labor costs skyrocket as a result of the urban transition, historical labor relations are unhinged, and crackdowns on violating conservation law intensify. These dynamics fuel increasing tensions between human communities and large carnivores as the economic costs of cattle injury and death escalate, the result of farmers shifting from extensive cattle grazing practices to small-scale dairy production in response to these emergent political, economic, and demographic conditions.

(Margulies and Karanth, 2018: 162)

Consequently, the authors conclude that “contextualizing our findings through broader regional political economic processes leads to a more complex assessment of what forces are involved in co-producing new kinds of human-wildlife geographies” (2018: 160). Elsewhere Margulies (2018: 187) expands on this analysis by exploring how HWC is also conditioned by conservation's function “as an ideological scaffolding supportive of a variety of opportunities for capitalist expansion and territorialisation by the state.”

Similarly, in their analysis of human-elephant conflict elsewhere in India, de Silva and Srinivasan (2019: 198) assert that the “ultimate causes” of this conflict “are fundamental changes in how certain privileged sections of human society used (and use) landscapes across the globe, and push marginalized people and marginalized wildlife into increasingly shrinking spaces.” They therefore advocate understanding HWC “as an outcome of the devastation of habitats and nonhuman life induced by colonialism, markets, lifestyles, and other associates of

'development', the benefits of which accrue to (human) enclaves of privilege" (2019: 198).

While constituting important first steps in developing an analysis of the political economy of human-wildlife interaction, these studies, we contend, do not go far enough in this direction. While describing changes in global economic markets and how this impacts livelihood options for local actors and hence the latter's particular forms of engagement with nonhumans, these researchers do not contextualize these changing markets within an understanding of the evolution of the capitalist system more broadly and how this shapes the political economies of specific nations and communities in different ways in relation to the place they occupy within the overarching system. Nor, with the exception of Margulies (2018), do these studies frame the shifting conservation practices they describe in relation to capitalist forces.

Yet a substantial body of research (on which Margulies draws) has explored how capitalism understood as a relatively coherent world-system has formed and evolved over time and how this shapes economic constraints and opportunities in particular places in line with the overarching logic of accumulation driving the system. And while conservation has commonly been understood by practitioners as something separate from this system – that is, as a campaign to preserve natural places free from the intrusion of economic forces (e.g. agriculture and extractive industries) that seek to transform them in pursuit of profit – another substantial body of research, influenced by the first, suggests that in reality conservation cannot be understood apart from capitalism but rather that “*conservation and capitalism have intrinsically co-produced each other*” (Büscher and Fletcher, 2020: 72, emphasis in original). In the next section we outline these twin discussions and how they cohere in a productive conceptual framework for analysing the political-economic dimensions of human-wildlife conflict and coexistence.

3. Capitalism and conservation

Among different perspectives in the Marxist tradition that explore the origin and evolution of capitalism, understood as an integrated world-system that expresses itself differently in different places and times (Wallerstein, 1974), likely the most productive for analysing contemporary conditions is the theory of “uneven geographical development” (UGD). While analysis of UGD has been undertaken from disparate perspectives, the most prominent approach closely associated with geographers David Harvey and Neil Smith understands capitalism as a particular mode of production and exchange driven by an imperative to perpetually accumulate (“capital” in this perspective is thus defined precisely as “value in motion” aiming to continually increase). Yet this process of accumulation is seen to be saddled by fundamental contradictions that periodically emerge to destabilize the system (Harvey, 2014). Chief among these is what Marx (1973) termed capitalism's “central contradiction” focused on the so-called “realization problem.” This refers to the fact that while individual capitalists aim to extract as much profit as possible from production by appropriating the surplus value of workers' labor, in aggregate they also need enough wealth to remain in workers' hands such that as consumers the latter are able to purchase the fruits of their collective labor and hence return value to capitalists for investment in further production. This tension produces periodic crises of “overproduction” or “overaccumulation” in which production stagnates due to lack of demand and capital is left with few existing avenues for reinvestment. Such crises can be temporarily resolved, however, by creating new avenues for investment, for instance, in new markets overseas or via research and development initiatives promising future return. Harvey (1989) terms these a series of spatial and/or temporal “fixes.” This perpetual quest for new fixes for overproduction, he claims, compels the capitalist system to continually expand into and integrate new spaces while simultaneously moving faster and faster “so that speed-up this year absorbs excess capacity from last year” (1989:182), producing a dynamic termed “time-space compression.”

This continual movement and expansion of capital in quest of profit thus drives the process of UGD, wherein certain places become sites of accumulation and hence wealth while others become sites of extraction (of both labor power and natural resources) and hence poverty as their value is appropriated for accumulation elsewhere (Smith, 2010). Within the framework of this analysis, consequently, for wealth to accumulate poverty must also, as wealth creation arises principally from “accumulation by dispossession,” that is, accumulation based on enclosure and appropriation of value previously held by others rather than wholly new value creation (Harvey, 2005). Hence, “instead of solving poverty, capitalist development has in fact long *produced*, and continues to produce, poverty, exclusion, marginalization and inequality” (Büscher and Fletcher, 2020: 99, emphasis in original).

Building on this UGD analysis, a growing body of research indicates a number of significant links between capitalism so characterized and processes of biodiversity conservation (see esp. Brockington and Duffy, 2010; Fairhead et al., 2012; Büscher et al., 2014). First and foremost, there is the obvious relation whereby conservation seeks to protect in situ natural resources from expanding capital in search of new sources of accumulation. Yet in addition to providing such a “bulwark against development” (Büscher and Fletcher, 2020: 104), conservation can also be seen as itself fundamentally shaped by capitalism, albeit in different ways and places over time. Firstly, in its origins in eighteenth century Europe the conservation movement provided an important impetus to capitalist production by enclosing rural spaces previously supporting agricultural livelihoods (Igoe, 2004) and hence forcing peasants to migrate to cities to become the urban proletariat fuelling industrial development (Büscher and Fletcher, 2020). Secondly, spaces so conserved often served as “a reserve of unexploited capital” (Morton, 2007: 113) for future development.

Thirdly, as conservation has evolved in recent decades away from its original focus on strict protected areas (PAs) towards a growing emphasis on integrating conservation with economic development (Brockington et al., 2008), it has increasingly done so by harnessing capitalist markets themselves as the basis of this integration. Via so-called market-based instruments (MBIs) such as ecotourism, payment for environmental services (PES), species and wetlands banking as well as current efforts to create a distinct conservation “asset class” within conventional financial markets, conservationists have increasingly sought to render in situ resources the basis of income generation strategies, a trend termed “neoliberal conservation” as it embodies core principles of neoliberal economics including commodification, marketization, decentralization, and privatization (see Castree, 2010; Büscher et al., 2014).

It is within this convergence of different capitalist processes that previous research highlighting the influence of issues such as income sources, history, politics and commodification on HWC and coexistence should be situated. Bringing these various discussions of capitalism and conservation together, one can thus begin to understand and assess the various ways that relations between humans and wildlife in particular places and times may be shaped by the overarching constellation of political-economic processes in which they are situated. Conventional forces of capitalist development produce particular pressures for both people and wildlife in their relation to one another, while efforts to counter such pressures through conservation measures that themselves relate to capitalism in particular ways add additional pressures that both sets of actors must also negotiate. The specific form this dual set of pressures assumes will depend on how the local context is situated within regional and national processes and well as how the national context is positioned within the overarching world-system. All of these dynamics can be taken into account in examining how they converge to produce particular constraints and opportunities for people and wildlife within a given locale.

In the remainder of this paper, we illustrate the utility of this analytical perspective by applying it to two contrasting cases studies of human-wildlife interaction in Costa Rica and Bulgaria. We begin by

explaining the methods used in our data collection.

4. Materials and methods

Our case studies are based in ethnographic research conducted independently by the two authors. Research for the Costa Rican case study was conducted during Fletcher residence in the country over a period of six years (2008–2014) with several short follow-up visits thereafter. During this time multiple trips to the specific research site were undertaken to investigate conservation politics there. This entailed semi-structured interviews with representatives of state conservation agencies, nongovernmental organizations (NGOs) both domestic and international, owners and managers of ecotourism operations and local residents involved in conservation and ecotourism work. Results of this research have been documented in several previously published papers, which are drawn upon for the specific discussion of HWC developed here (Fletcher, 2012, 2013).

The Bulgarian case study is based on four months of ethnographic research conducted by Toncheva between June and September 2018. During this time, semi-structured interviews were conducted with informants selected via snowball and purposive sampling to include different groups of relevant stakeholders: hunters, ecotourism guides, employees in tourism and pensioners, among others. In addition, participant observation was conducted throughout the research period, including the accompanying of two week-long bear watching excursions. Analysis of all this material is grounded in Toncheva's long-term observations in the area, via employment as mountain guide there for more than a decade. Results of this research have again been documented in previous publications on which the present analysis builds (Toncheva and Fletcher, 2021; Toncheva et al., in press).

5. Human-jaguar conflict in Costa Rica

Our first case concerns conflict between jaguars (*Panthera onca*) and human residents of the Osa Peninsula, a province in the southwest of Costa Rica. While Costa Rica has long been a globally recognized exemplar of successful conservation (Evans, 1999), various forms of resource conflict persist in diverse local contexts (Vandermeer and Perfecto, 2005; Fletcher et al., 2020a, 2020b). In the Osa Peninsula, one of the principal forms of conflict is between jaguars and local small-holder farmers, who frequently kill the critically endangered animals in retaliation for attacks on livestock, resulting in at least 12 jaguar deaths between 2018 and 2020 alone (Hurdle, 2016; Osa Conservation, 2020). Consequently, the Peninsula's jaguar population is currently estimated at only 10–20, down from the 50 recorded in 2005 (Hurdle, 2016; Osa Conservation., 2020).

Biologists studying the situation attribute human-jaguar conflict mostly to the fact that the peninsula is a popular destination for hunters from around the country to stalk peccary (wild pigs) and agouti (large rodents). As these are also the jaguars' main food sources, jaguars are then forced to search for alternative sources of which local farmers' livestock (mainly cattle) is the most readily accessible (Hurdle, 2016; Robinson, 2020). Consequently, a local tour guide describes of local attitudes, "They just believe the jaguar is bad, they kill your animals, they could kill you... Their view is that the more you shoot, the better" (in Hurdle, 2016).

Yet a bird's-eye view of the situation highlights other important factors at play. Conservation efforts in the Osa Peninsula focused on jaguars and other forms of biodiversity centre on Corcovado National Park, located on the Peninsula's western coast and often considered the 'crown jewel' of the country's celebrated protected area system (Evans, 1999; Ankersen et al., 2006). Corcovado was established in 1975 through a land swap with a timber company (Osa Productos Forestal) that owned but had not yet logged the forest. By the time the park was established, more than 300 homesteaders were squatting the unused land, many of whom simply moved to the new park's borders to continue

to eke out a living there (Cuello et al., 1998; Ankersen et al., 2006). Meanwhile, colonization of the rest of the peninsula, which at the time was considered something of a remote frontier region due to difficulty of access (a paved road and electricity arrived only in the 1980s) had been encouraged by the national agricultural development agency, which granted title for land on condition of "improving" (i.e., clearing) it.

However, biologists quickly realized that conservation in Corcovado, a forest island lacking significant potential for genetic replenishment, could not succeed on its own in the long run. Hence, they set about working to extend conservation throughout the rest of the peninsula too (Cuello et al., 1998). First, a buffer zone (called the Golfo Dulce Forest Reserve) was created around Corcovado that encompassed much of the land now occupied by families formerly displaced from the park (which, as a "mixed-use" area, still permitted farming with certain restrictions). Then a second, smaller national park (Piedras Blancas) was established on the peninsula's eastern flank. The aim was then to connect these various protected areas through a biological corridor that would allow jaguars and other wildlife to move between them (Ankersen et al., 2006). While this corridor effort remains incomplete, conservationists still hope to also incorporate it into a larger (and similarly incomplete) initiative to connect conservation areas in Osa to the enormous La Amistad Biosphere Reserve traversing the Costa Rica-Panama border (Desanti et al., n.d.). And all of this, in turn, is intended to be encompassed within the very ambitious campaign to connect PAs through Central America within a Mesoamerican Biological Corridor that would allow jaguars to roam freely from Mexico to Colombia (Finley-Brook, 2007).

Most of this envisioned connection remains a pipedream, however, hampered by other transformations occurring in the interim. As a former Spanish colony primarily producing agricultural commodities for the global market, Costa Rica can be seen as on the "periphery" of the capitalist world-system. The unequal exchange between these agricultural exports and the need to import industrial products to fuel broader development goals forced the country to default on its international loans in 1980 as part of the debt crisis widely experienced throughout the Global South in that decade (Edelman, 1999). Subsequently, Costa Rica was subject to structural adjustment overseen by the World Bank and International Monetary Fund that strongly neoliberalized the country in many respects, entailing among other measures: extensive privatization of formerly national assets; reduced domestic protection from global market competition; liberalization of ownership laws to promote foreign direct investment (FDI); and cultivation of non-traditional agricultural exports (NTEs) to recapture market competitiveness (Edelman, 1999). In this way, uneven development was reinforced both externally and internally as the country's position as a primary commodity producer intensified while the state was forced to impose austerity through cutbacks on public services measure and removal important sources of financial support for rural farming livelihoods (Edelman, 1999).

One of the main outcomes of this transformation was a sudden influx of new transnational firms seeking to capitalize on NTEs, among the most prominent of which were pineapple, palm oil, and cattle for the exploding North American fast food market (Edelman, 1995, 1999). This integration into global capitalism resulted in a rapid spread of these new species throughout the country, including to the Osa Peninsula, where extensive plantations of pineapple and African palm were established along with expansive cattle pasture, impeding efforts to connect conservation areas on either side of the peninsula as well as between the peninsula and the rest of the country (and region). At the same time, numerous farmers displaced from other parts of the country due to subsidy reductions and newfound exposure to international competition also migrated to the peninsula in search of new land to cultivate.

The growing population of local farmers occupying Corcovado Park's buffer zone has thus been caught between the park to the west and large agricultural interests to the east. Peninsula jaguars have likewise been caught between the park, these farmers, and the expansive monocultural plantations that are much more difficult to traverse than forest or small

farms. While Corcovado offers the best protected habitat for the animals, the park is much smaller than their traditional migratory ranges while food sources available in the park have also been depleted by a similar inability of prey species to migrate for interbreeding as well as human predation. Hence the jaguars must increasingly leave the forest in search of other sustenance, at which point they come into conflict with local farmers occupying marginal land who cannot afford to lose the livestock on which they depend.

Meanwhile, longstanding efforts to involve these smallholders in local conservation efforts to encourage their tolerance of jaguars and other wildlife have largely failed to date (Fletcher, 2012, 2013). This is partly due to the same forces encouraging the spread of large-scale agriculture resulting from the country's ongoing neoliberalization. Efforts to enrol local farmers in sustainable agriculture and agroforestry initiatives have been impeded by farmers' lack of ability to compete on unregulated global markets. Meanwhile, ecotourism, the most widely promoted MBI intended to generate conservation-based income in the region, has been dominated by foreign entrepreneurs attracted by relaxed FDI restrictions who are often already committed to conservation and also better positioned to capture the high-end market to which peninsula tourism mostly appeals (Horton, 2009; Fletcher, 2012). Efforts to develop ecotourism around jaguars specifically, moreover, are hampered by the fact that the animals are elusive and hence very unlikely to encounter (Hurdle, 2016; Robinson, 2020). A national system of payment for environmental services (PES) for forest conservation also tends to direct payments towards wealthier landowners who can afford to leave part of their land uncultivated and for whom transaction costs are lower than for more numerous smaller landholders (Sierra and Russman, 2006; Fletcher, 2012).

Consequently, efforts to capitalize conservation to encourage human-jaguar coexistence end up largely bypassing the local stakeholders most likely to enter into conflict with the animals in question (Fletcher, 2012). One local organization has sought to remedy this by offering direct compensation for livestock loss, but thus far funding for this programme has been limited (Robinson, 2020; Osa Conservation, 2020). Caught between plantations and the park, lacking access to significant revenue linked to conservation and suffering economic losses due to jaguar predation, local farmers thus resort to retaliation against the animals to preserve precarious livelihoods.

6. Human-bear coexistence in Bulgaria

Our second case is one of relatively successful coexistence between humans and brown bears (*Ursus arctos*) in the Rodopi mountains of Bulgaria. Surrounded by forests on all sides, the small village of Yagodina is excellent habitat for brown bears whose numbers have increased substantially in recent years. Despite this increase, no significant conflicts between people and bears have occurred, and the situation can therefore be characterized as a landscape of tolerance (Toncheva et al., in press). There are a number of factors responsible for this situation, related to local ecological conditions and cultural patterns that have been documented elsewhere (see Toncheva and Fletcher, 2021; Toncheva et al., in press). But another significant factor is the way socio-economic transformations within the overarching society have shaped the local context.

Bulgaria has undergone a long period of transition after collapse of the socialist regime – the period of ‘postsocialism’ (Creed, 1995; Dorondel, 2016) – and still struggles to find its way within the common European cultural and economic space. Postsocialist transformations have been described as “the greatest transformation in modern times” (Dorondel, 2016: 4). In the postsocialist era, Bulgaria, like other ex-communist countries, has embraced a neoliberal philosophy in its integration into global capitalism. The transformations accompanying this neoliberalization were a kind of “shock therapy” (Dorondel, 2016) for the population, entailing decollectivization of the land (i.e., destruction of the former collective farms) and privatization of state enterprises in

the context of a global economic integration producing the worst economic conditions in Eastern Europe. Consequent to such policies, the country remains bonded to global forces and international financial institutions – particularly the World Bank, EU, and NATO – while the extent of privatization is still regarded by many as a symbol of corruption, sowing feelings of distrust towards the state. New forms of market liberalization diminish state authority even more, inspiring among a large part of the population nostalgia for the previous socialist period. Via this process, capitalist expansion to include the former Soviet bloc has produced uneven development, resulting in Bulgaria's positioning at the semi-periphery of the world-system as primarily a provider of low-wage labor for industrial manufacturing by transnational firms based elsewhere in Europe.

Yet unlike in Costa Rica's Osa peninsula, this particular positioning has instead produced conditions facilitating coexistence between people and bears in our specific research site (unlike in other areas of the country where, for various reasons, more human-bear conflict persists; see Toncheva and Fletcher, 2021). Postsocialist political and economic transformations resulted in changes to the agrarian landscape, establishment of new social relations and penetration of new environmental values in accordance with neoliberal ideology. The outcomes were often different from those intended by the state: fragmentation of the land did not often create independent capitalist farmers (Dorondel, 2016) but rather concentration of land among a small elite (who control more than half of the country's agricultural land) as well as spurred a revival of pre-collectivization practices, a turn to rural tourism, and unplanned ‘rewilding’ (Lorimer et al., 2015), with people finding their own ways of negotiating neoliberal policies. This is also the case with a number of EU rural development, landscape protection, biodiversity and Natura 2000 programmes, resulting in a widespread perception of “incorrectly implemented” Europeanisation (Петров, 2018).

Bulgaria is a leading country in Europe in terms of biodiversity and protected territories but is rarely a focus of research in the existing conservation literature (Toncheva et al., in press). Occupying only 2.5% of EU territory, the country supports about 70% of the protected bird species and 40% of the protected habitats within the EU (Natura 2000). Despite its high percentage of PAs, the country faces numerous threats of biodiversity loss due to lack of enforcement, corruption, the existence of a grey economy, and disregard of legislation (including European legislation).

In the past, bears were allowed to be hunted and killed throughout the country. Since 2002, however, the Biodiversity Law, later re-established in conjunction with European Union legislation, grants brown bears protected status.¹ Exceptions are problematic bears that can be shot after the granting of a special permit from the Ministry of Environment and Food, following investigations and proof that the animals have actually caused economic or physical damage. Measures against bear poaching are considered so strict, by some respondents, that “it is easier to kill a man and get away with it than to kill a bear”. Still, the fine for illegal hunting is not so high, even by local standards (up to 5000 lv. or 2500 euro), especially considering the prices for bear products on the black market.

Despite the fact that bears' protected status requires their habitats to be included under Natura 2000 protection, many remain outside of existing PAs. Such is the case not only in Yagodina but throughout the Rodopi mountains, one of the regions with the highest bear population in the country but where, due to various economic interests, no national parks have been established (only small fragmented areas designated as nature reserves). This makes this area the region with the most intense human-bear interactions in the country (Дуцов и др, 2012). Suitable habitat in the Rodopi is considered the largest and most important in the

¹ Some changes in 2010 introduced a minimal 3% limit to be hunted, a provision that was, after intervention from the European Commission, removed again in 2012.

country, which, along with the lack of protected territories and the numerous mountain villages that exist in these mountains, has led to inevitable coexistence encompassing various conflicts and other forms of interactions.²

During the socialist period, Yagodina experienced collectivization of the land, state planned agriculture and animal breeding that led to economic development of the region with the provision of employment opportunities (including three active factories, large levels of animal breeding – around six thousand sheep – production of dairy products, timber, etc.). After the collapse of the socialist regime and introduction of neoliberal agricultural reforms, however, the population faced severe problems: land fragmentation that resulted in land ownership conflicts, lack of financial resources for cultivation, social transformations related to urban migration and emigration, privatization (and in fact abandonment) of existing enterprises and, consequently, scarcity of employment opportunities.

Local hunters, who are most familiar with the bear population, estimate the number of bears as around 10–13 just in areas around the village. As many people believe that so many bears were never present before, this forces both humans and bears to adapt to a new situation in which both species must “learn” to live together. Thus far, this has occurred with few evident conflicts (Toncheva et al., *in press*). Such relatively peaceful coexistence is visible in the positive attitude of local residents, the majority of whom claim that humans and bears can cohabitate peacefully (Toncheva et al., *in press*).

This situation can be partly explained in relation to the changes produced by Bulgaria's global integration under postsocialism. Population decline in the village due to urban outmigration caused by shrinking local economic opportunities has led to a situation in which, several people predicted, “in some years there will be more bears than people here.” At the same time, agricultural decline has caused huge amounts of previously cultivated land to be abandoned. This has led to an unplanned rewilding of sorts wherein now one can find forests where, according to local people, “we used to grow wheat before”. These factors thus combine to create a situation in which fewer encounters and therefore potential conflicts between people and bears occur. Reduced dependency on agriculture also means that bears are less likely to engage in behaviors that impact local livelihoods (e.g., through attacks on livestock).

Meanwhile, facing diminished avenues for traditional livelihoods based on resource extraction and lack of state or foreign investment in the area, the local population has been left to develop alternative livelihood strategies in the context of available natural resources. Logically, in the context of postsocialist neoliberalization and European integration, one of these strategies was tourism, given the village's location in the high mountains proximate to two famous gorges (Buynovsko and Trigrad) and caves (Yagodina and Devil's Throat) as well as the well-preserved nature with extremely high biodiversity. A large number of Yagodina residents admit that the fact that the village is still inhabited today is mainly due to the development of tourism in the last 10–15 years as an alternative to previous employment opportunities. Respondents estimate the number of villagers involved in tourism as high as 90% and view tourism as an essential livelihood that literally keeps the village alive.

² Estimation of the size of the bear population in Bulgaria is quite complex, due to the fact that in the past the data was not collected in a scientific and controlled way, and hence estimates were far too high. The total Bulgarian population is currently believed to be between 600 and 800, with the population in the Rodopi between 206 and 334 bears (on the basis of collected genetic samples from bear hairs and scats; Frosch et al., 2014). This number is lower than the carrying capacity calculated by a habitat suitability model developed by Zlatanova (2010), according to which the region could accommodate between 430 and 540 bears (with a possible potential population between 1000 and 2000 for Bulgaria as a whole).

As an alternative to and in parallel with this conventional tourism, ecotourism centred on hiking and related to the area's biodiversity has also been established during the last decade. The main actor in this is a tour operator of British origin who brings foreign clients (British, Dutch, American, etc.) into the region for different itineraries. A specific form of tourism this operator has developed within this ecotourism niche in the last several years comprises excursions to encounter bears. The trip has thus far successfully brought around 5 groups of foreign tourists per season, each staying in the village for a week at a time and visiting a bear hide on a daily basis. This results in around 25 trips to the hide per week plus occasional visits from interested clients from the other walking groups organized by the same operator (which form more than 60%–70% of the total bear observations). Moreover, the length of the dedicated groups' stay in the village brings more economic benefits for the local population, as other occasional visitors to the hide rarely stay overnight or remain only briefly in the village.

As a quintessential form of neoliberal conservation, one of ecotourism's primary objectives is to provide an economic incentive for conservation (see Honey, 2008; Fletcher, 2012), in addition to or as an alternative to compensation schemes, payment for ecosystems or other neoliberal instruments (see Dickman et al., 2011). Local people are aware that the foreign groups undertaking bear tourism stay in their village for a week specifically because of the bears. Consequently, they see an economic benefit from their coexistence with the bears, since the tourist don't just occupy the village hotels and guest houses but also eat village food and purchase local products (honeys, jams, mushrooms, herbs, souvenirs and handicrafts) and services (Toncheva et al., *in press*).

In short, the society-wide process of neoliberalization Bulgaria experienced in the postsocialist transition as a function of its uneven integration into the capitalist world-system has simultaneously: 1) diminished traditional livelihood avenues that historically brought people into conflict with bears; 2) precipitated population decline by compelling outmigration in search of new economic opportunities; and 3) incentivized new livelihood options centred on provision of (eco) tourism. In this way, “post-industrialization” of the countryside prompted by Bulgaria's absorption into global capitalism has, in this particular case, produced conditions facilitating fairly peaceful coexistence between people and bears.

7. Conclusion

In this article, we have highlighted the relative dearth of attention in existing research on human-wildlife conflict and coexistence to the overarching political-economic structures and processes shaping interactions between people and wildlife in specific contexts. We have argued that greater attention to such structures and processes, in addition to the various other social dynamics highlighted in existing research, can help us to understand how human-wildlife interaction in such contexts takes its particular form. We have demonstrated the utility of this approach via our two contrasting case studies of human-jaguar conflict in Costa Rica and human-bear coexistence in Bulgaria, showing how both cases can be understood in part in terms of overarching political-economic conditions in the countries that have in turn been shaped by the countries' relative positions within the capitalist world-system. We have shown that both extractive forces threatening wildlife conservation and the forms of conservation employed to protect wildlife from these same forces can be understood in relation to how the capitalist imperative to continually accumulate produces distinct constellations of pressures and incentives in different contexts.

Caught in the centre of this complex conversion of forces, both humans and wildlife must figure out how to sustain their own livelihoods while simultaneously negotiating one another in the process. A focus only on the immediate context of such negotiations may overlook the ways that these are conditioned by overarching forces invisible from this vantage point. Our comparative analysis has demonstrated that how

these forces influence human-wildlife interaction depends on the particular ways that they cohere in specific places and times. In our Costa Rican case, global integration has currently intensified human-wildlife conflict by opening the Osa Peninsula to penetration by transnational agricultural firms whose colonization cannot be successfully countered by efforts to promote neoliberal conservation via ecotourism or PES. In Bulgaria, by contrast, human-bear coexistence around Yagodina village has instead been facilitated by the country's capitalist integration under postsocialism, which, like many other places subject to neoliberal restructuring, has experienced depopulation resulting from diminishing supports for rural livelihoods (de Koning et al., 2021), coupled with novel options for tourism development afforded by newfound access to international travel markets. Our analysis thus reveals that the particular ways that political-economic forces shape human-wildlife interaction are context-specific, requiring attention to the intersection between local realities and global processes.

Even if political-economic forces are taken into account in conservation planning, of course, many conservationists will understandably consider these beyond the purview of what they are able to influence. Thus, they may choose to ignore consideration of such forces in favour of a more conventional focus on changing the behavior of the protagonists in the immediate interaction. Yet if overarching political-economic forces are indeed influential in shaping local dynamics, choosing not to engage with them may fatally compromise the interventions in question. Moreover, the history of conservation policy makes clear that how global policy frameworks develop, how they change over time, and how they influence on-the-ground practice are all in turn influenced by the experience of conservationists working in diverse local contexts, who help to assess and provide evidence concerning the relative efficacy of different approaches (Igoe, 2004; Büscher and Fletcher, 2020). Thus, global policy discussions can be shaped by how conservationists reflect on the conditions in which they work and the factors they consider most important in either facilitating or inhibiting their work. We therefore encourage other researchers to consider whether the framework of analysis proposed in this paper helps to illuminate dynamics in their own contexts of study, and if so, how these can be brought into focus and addressed as a core component of efforts to encourage human-wildlife coexistence along with other forms of effective biodiversity conservation moving forward.

CRedit authorship contribution statement

Both authors contributed equally to the research, writing and editing of this article.

Declaration of competing interest

No conflict of interest.

Acknowledgments

Work on this paper has been supported by the NORFACE and Belmont Forum Transformations to Sustainability Joint Research Programme Project #949 'Towards Convivial Conservation: Governing Human-Wildlife Interactions in the Anthropocene (CONVIVA)', and by financial support of the Ministry of Education and Science of the Republic of Bulgaria and the Swiss State Secretariat for Education, Research and Innovation through the Independent Fellowship programme for Bulgarian Junior Scholars and Bulgarian Academic Diaspora research grant at the Centre for Advanced Study Sofia for the project entitled "Living with or versus Nature? - Mitigation of Human-Bear Conflicts as a Bridge towards „Politics of Conviviality", No. MON-CAS-BG-3/01.10.2019.

References

- Ankersen, T., Regan, K., Mack, S., 2006. Towards a bioregional approach to tropical forest conservation: Costa Rica's Greater Osa Bioregion. *Futures* 38, 406–431.
- Brockington, D., Duffy, R. (Eds.), 2010. *Antipode* 42(3), Special Issue on "Capitalism and Conservation".
- Brockington, D., Duffy, R., Igoe, J., 2008. *Nature Unbound: Conservation, Capitalism and the Future of Protected Areas*. Earthscan, London.
- Büscher, B., Fletcher, R., 2020. *The Conservation Revolution: Radical Ideas for Saving Nature beyond the Anthropocene*. Verso Books, London.
- Büscher, B., Dressler, W., Fletcher, R. (Eds.), 2014. *Nature Inc.: Environmental Conservation in the Neoliberal Age*. University of Arizona Press, Tucson, AZ.
- Castree, N., 2010. Neoliberalism and the biophysical environment: a synthesis and evaluation of the research. *Environ. Soc.* 1 (1), 5–45.
- Creed, G., 1995. The politics of agriculture: identity and socialist sentiment in Bulgaria. *Slav. Rev.* 54 (4), 843–868.
- Cuello, C., Brandon, K., Margoluis, R., 1998. Cost Rica: Corcovado National Park. In: Brandon, K., Redford, K., Sanderson, S. (Eds.), *Parks in Peril: People, Politics, and Protected Areas*. Island Press, Washington, DC, pp. 143–192.
- de Koning, J., Hobbs, S.K., McNeill, J., Prinsen, G., 2021. Vacating place, vacated space? A research agenda for places where people leave. *J. Rural. Stud.* 82, 271–278.
- de Silva, S., Srinivasan, K., 2019. Revisiting social natures: people-elephant conflict and coexistence in Sri Lanka. *Geoforum* 102, 182–190.
- Desanti, L.C., D. Lizano, A.G. Guazman, J. Cole and M.C. Lopez (n.d.) 'Construyendo el Corredor Biológico Amistosa' ['Constructing the Amistosa Biological Corridor']. (Unpublished manuscript).
- Dickman, A.J., Macdonald, E.A., Macdonald, D.W., 2011. A review of financial instruments to pay for predator conservation and encourage human-carnivore coexistence. *Proc. Natl. Acad. Sci.* 108 (34), 13937–13944.
- Dickman, A., Marchini, S., Manfredo, M., 2013. The human dimension in addressing conflict with large carnivores. In: *Key Topics in Conservation Biology*, vol. 2(1), pp. 110–126.
- Dorondel, S., 2016. *Disrupted Landscapes: State, Peasants and the Politics of Land in Postsocialist Romania*. Berghahn Books, New York.
- Edelman, M., 1995. Rethinking the hamburger thesis: deforestation and the crisis of Central America's beef. In: Painter, M., Durham, W. (Eds.), *The Social Causes of Environmental Destruction in Latin America*. University of Michigan Press, Ann Arbor, MI, pp. 25–62.
- Edelman, M., 1999. *Peasants Against Globalization*. Stanford University Press, Stanford, CA.
- Evans, S., 1999. *The Green Republic*. University of Texas Press, Austin, TX.
- Fairhead, J., Leach, M., Scoones, I. (Eds.), 2012. *Journal of Peasant Studies* 39(2), Special Issue on "Green Grabbing".
- Finley-Brook, M., 2007. Green neoliberal space: the Mesoamerican biological corridor. *J. Lat. Am. Geogr.* 6 (1), 101–124.
- Fletcher, R., 2012. Using the master's tools? Neoliberal conservation and the evasion of inequality. *Dev. Chang.* 43 (1), 295–317.
- Fletcher, R., 2013. Between the cattle and the deep blue sea: the Janus face of the ecotourism-extraction nexus in Costa Rica. In: Büscher, B., Davidov, V. (Eds.), *The Ecotourism-Extraction Nexus: Political Economies and Rural Realities of (Un) Comfortable Bedfellows*. Routledge, London.
- Fletcher, R., Büscher, B., Massarella, K., Koot, S., 2020a. Close the tap! COVID-19 and the need for convivial conservation. *J. Aust. Polit. Econ.* 85, 200–211.
- Fletcher, R., Dowd-Urbe, B., Aistara, G.A. (Eds.), 2020b. *The Ecolaboratory: Environmental Governance and Economic Development in Costa Rica*. University of Arizona Press, Tucson, AZ.
- Frank, B., Glikman, J.A., Marchini, S. (Eds.), 2019. *Human-Wildlife Interactions: Turning Conflict into Coexistence*, vol. 23. Cambridge University Press, Cambridge, UK.
- Frosch, C., Dutsov, A., Zlatanova, D., Valchev, K., Reiners, T.E., Steyer, K., Pfenninger, M., et al., 2014. Noninvasive genetic assessment of brown bear population structure in Bulgarian mountain regions. *Mamm. Biol.* 79 (4), 268–276.
- Harvey, D., 1989. *The Condition of Postmodernity*. Blackwell, Oxford.
- Harvey, D., 2005. *A Brief History of Neoliberalism*. Oxford University Press, Oxford.
- Harvey, D., 2014. *Seventeen Contradictions and the End of Capitalism*. Oxford University Press, Oxford.
- Hodgson, I., Redpath, S., Sandström, C., Biggs, D., 2020. *The State of Knowledge and Practice on Human-Wildlife Conflicts*. Luc Hoffmann Institute, Cambridge, UK.
- Honey, M., 2008. *Ecotourism and Sustainable Development: Who Owns Paradise?*, 2nd ed. Island Press, Washington, DC.
- Horton, L.R., 2009. Buying up nature: economic and social impacts of Costa Rica's ecotourism boom. *Lat. Am. Perspect.* 36 (3), 93–107.
- Hurdle, J., 2016. In Costa Rica, photographing jaguars to help save them. August 11, *The New York Times*. <https://www.nytimes.com/2016/08/14/travel/costa-rica-eco-tourism.html>.
- Igoe, J., 2004. *Conservation and Globalization: A Study of National Parks and Indigenous Communities From East Africa to South Dakota*. Wadsworth/Thompson, Belmont, CA.
- Inglehart, R., Welzel, C., 2005. *Modernization, Cultural Change, and Democracy: The Human Development Sequence*. Cambridge University Press, New York.
- Lorimer, J., Sandom, C., Jepson, P., Doughty, C., Barua, M., Kirby, K.J., 2015. Rewilding: science, practice, and politics. *Annu. Rev. Environ. Resour.* 40, 39–62.
- Manfredo, M.J., Teel, T.L., Henryk, L., 2009. Linking society and environment: a multilevel model of shifting wildlife value orientations in the western United States. *Soc. Sci. Q.* 90 (2), 407–427.

- Margulies, J.D., 2018. The conservation ideological state apparatus. *Conserv. Soc.* 16 (2), 181–192.
- Margulies, J.D., Karanth, K.K., 2018. The production of human-wildlife conflict: a political animal geography of encounter. *Geoforum* 95, 153–164.
- Marx, K., 1973. *Grundrisse: Foundations of the Critique of Political Economy*. Penguin, Harmondsworth.
- Morton, T., 2007. *Ecology Without Nature: Rethinking Environmental Aesthetics*. Harvard University Press, Cambridge, MA.
- Osa Conservation, 2020. Threats to Osa's jaguar population. April 18, Osa Conservation blog. <https://osaconservation.org/threats-to-the-osas-jaguar-population/>.
- Pooley, S., Barua, M., Beinart, W., Dickman, A., Holmes, G., Lorimer, J., Sillero-Zubiri, C., 2017. An interdisciplinary review of current and future approaches to improving human–predator relations. *Conserv. Biol.* 31 (3), 513–523.
- Redpath, S.M., Bhatia, S., Young, J., 2015. Tilting at wildlife: reconsidering human–wildlife conflict. *Oryx* 49 (2), 222–225.
- Robinson, R., 2020. In search of Jaguars in the wild. November 3, JAGUAR. <https://media.jaguar.com/en-us/blog/2010/search-jaguars-wild>.
- Sierra, R., Russman, E., 2006. On the efficiency of environmental service payments: a forest conservation assessment in the Osa Peninsula, Costa Rica. *Ecol. Econ.* 59, 131–141.
- Smith, N., 2010. *Uneven Development: Nature, Capital, and the Production of Space*. University of Georgia Press, Athens.
- Toncheva, S., Fletcher, R., 2021. Knowing bears: a multispecies exploration of human–bear cohabitation. *Environ. Plann. E*. <https://doi.org/10.1177/25148486211015037>.
- Toncheva, S., Fletcher, R., 2021. From conflict to conviviality? Transforming human–bear relations in Bulgaria." *Frontiers in Conservation Science* (forthcoming, in press).
- Toncheva, S., Fletcher, R., Turnhout, E., 2021. Convivial conservation from the bottom up: Human–bear cohabitation in the Rodopi mountains of Bulgaria. In: *Conservation and Society* (forthcoming, in press).
- Treves, A., Karanth, K., 2003. Human–carnivore conflict and perspectives on carnivore management worldwide. *Conserv. Biol.* 17, 1491–1499.
- Vandermeer, J., Perfecto, I., 2005. *Breakfast of Biodiversity: The Political Ecology of Rain Forest Destruction*, second edition. Food First Books, Oakland, CA.
- Wallerstein, I., 1974. The rise and future demise of the capitalist world system: concepts for comparative analysis. *Comp. Stud. Soc. Hist.* 16 (4), 387–417.
- Zlatanova, D., 2010. *Modelling the Habitat Suitability for the Bear (Ursus arctos), the Wolf (Canis lupus) and the Lynx (Lynx lynx) in Bulgaria* (Ph.D. thesis). Sofia University, Sofia, Bulgaria.
- Дуцов, А., et al., 2012. План за действие за кафявата Мечка в България. Министерство на околната среда и водите.
- Петров, П. (Ed.), 2018. *Агрокултурни трансформации в условията на европеизация и глобализация*. ИК Гутенберг, София.