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Blaming the Poor for Biodiversity Loss: A Political Economic Critique of the Study of Poaching
and Wildlife Trafficking

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Abstract [100 Words]

Biodiversity has become a topic of study in a variety of disciplines. Within criminology the study of biodiversity loss is often emphasized in the poaching literature. However, an alternative perspective on the political economy of biodiversity loss exists within criminology. While both approaches to biodiversity provide important information for the discipline of criminology, the implications of those approaches have very different implications for environmental discourse related to poverty and social justice. We suggest that poaching studies be viewed with caution as there is a possibility that those studies can be used to 'blame the poor' for biodiversity loss.

Introduction

Criminologists have increasingly devoted significant attention to environmental or “green” issues. As environmental research within criminology continues to develop, various perspectives related to issues of biodiversity – or the variation of organisms in ecosystems – have started to emerge. More traditional criminologists interested in biodiversity loss tend to emphasize state-based definitions of crime and adopt the approach that environmental crime is “an act that violates environmental regulations” (Situ and Emmons 1999). As a result of this legalistic perspective, biodiversity loss is often viewed as an outcome of poaching and wildlife trade that are clearly violations of criminal statutes (except see Beirne 1999; Eliason 2012; Sollund 2013) [1]. Critical criminologists often take a different approach to biodiversity loss and emphasize the role of the economy in harming biodiversity through exploitative and unsustainable development. This latter approach draws on political economic explanations of biodiversity loss as well as the notion of social harm developed by Hillyard and Tombs (2007). As a result, the critical school suggests that crime causes or has the potential to cause harm to ecological systems to aid in the accumulation of wealth (Stretesky, Long and Lynch 2013; Mares 2010). While both traditional and critical approaches produce important knowledge about biodiversity loss, these two alternative perspectives have different and important implications for criminological discourse related to poverty and social justice.

We structure this essay to highlight issues of social justice and poverty and provide three reasons why criminologists should not lose sight of political economic forces as the major threat to biodiversity loss. First, researchers need to consider that economic development is a bigger threat to biodiversity loss than illegal poaching and wildlife trade.

Second, one of the major reasons that unsustainable development is such a significant threat to biodiversity loss is because it is driven by the need to accumulate wealth. That is, contemporary developmental forces are shaped by capitalism.

Third, the study of poaching and wildlife trafficking emphasize that typical offenders of biodiversity loss are the poor. Thus, a disproportionate emphasis on poaching and wildlife crime threatens to move criminology toward a position that encourages policies and practices that promote environmental injustice. Moreover, the focus on poaching presents problems because it may clash with traditional cultures, focuses attention on non-whites, and, in some instances, may deny the poor the right to subsist (Cantler 2007).

Biodiversity Loss: Poaching vs. Development

Criminologists often suggest that poaching and wildlife trade are a major threat to biodiversity loss. For example, Sollund (2013, 16) explains that in criminology “so-called poaching is seen as problematic because it entails loss in biodiversity.” Likewise, Herbig (2010, 110) proposes the “illegal exploitation in its various forms [poaching and trafficking] has for many years now been of critical concern to those interested in biodiversity” (see also Lemieux and Clarke 2009; Pires and Moreto 2011). Criminology has a role to play in the study of biodiversity loss and criminologists are well positioned to study threats to biodiversity, including poaching. However, within that context criminologists should not lose sight of the major causes of biodiversity loss such as development that is constantly mentioned in the wider scientific literature (Gaston and Spicer, 2013) [2].

Development related activities that decrease biodiversity include the expansion of pesticides and herbicides (Laurance 2008), over-use of blue water by humans, the construction of

dams and other water way use projects (Park et al 2003), human population densities (Brashares, Arcese and Sam 2001; Gaston 2005), the acceleration of deforestation (Brook, Sodhi and Ng 2003; Brook et al 2006), agriculture and habitat fragmentation (Thiollay 2006), and the production of climate change (Brook, Sodhi and Bradshaw 2008). Together, larger developmental pressures account for the most significant impacts on biodiversity loss. Poaching and wildlife trade are not often counted among the primary reasons for biodiversity loss. As Wilson (1989) suggests, the reduction in natural habitats is the main cause of biodiversity loss.

The idea that criminologists and the public may focus on a particular harm or crime at the expense of other more serious crimes or pressing social problems is nothing new to the discipline of criminology (Chambliss 1995). For example, Reiman and Leighton (2009) described the process as similar to looking into a carnival mirror because the waves of the mirror distort the true source of the problem and directed the public's gaze away from the harm caused by the economy toward the poor. We suggest this could also explain some of the popularity of poaching research in criminology. As a result, when criminologists study poaching and illegal wildlife trade they should note that poaching is harmful, but that the major factors of biodiversity loss are a result of the type of economic development that is occurring. We are not alone in our view that biodiversity discourse can become limited within a discipline. For instance, Brook, Sodhi and Bradshaw (2008) state that many biodiversity loss discussions tend to focus on a single indicator rather than the root cause of the problem. The researchers suggest that current ecological policies designed to protect species (e.g., anti-poaching laws) tend to be shortsighted because they lack comprehensive solutions.

As an example of the likely causes of significant biodiversity loss that is sometimes overlooked by criminology's preoccupation with poaching, consider evidence by Brook, Sohi

and Ng (2003) that biodiversity loss was linked to a quest for raw materials needed for production. Brook et al. (2003) suggest that the catastrophic extinction of animals and plant life in Singapore was a result of significant deforestation brought about by the British quest for profit that could be generated by natural resource extraction. These researchers note that since the British occupied Singapore in 1819, more than 95% of the original vegetation found in Singapore has been depleted. Moreover, the researchers suggest that 881 known species have become extinct as a result (i.e., 28% of all known species in the area). In the case of some amphibians the extinction rates reached 71% (Brook, Sohi and Ng 2003). Brook et al. (2003, 423) report that “undoubtedly rapid and large-scale habitat destruction, initially through deforestation for agriculture, and later, urban development. Habitat loss, fragmentation and modification cause extinctions by reducing breeding and feeding sites, increasing predation, soil erosion and nutrient loss, limiting dispersal, and enhancing edge effects.”

As an alternative to natural resource extraction in Singapore, consider tiger poaching as a source of biodiversity loss. Tiger poaching has attracted considerable attention. Law enforcement, the media and non-profit organizations have devoted significant effort toward protecting the tiger. For instance, the World Wildlife fund (http://www.wwf.sg/what_we_do/tigers/) suggests:

Tigers are found in the wild in 13 countries across Asia and Russia, but their numbers have been declining very rapidly that if we don't act now, they will be extinct by 2022...The biggest threat to tigers is poaching...

The tiger is but one of over 3,000 documented organisms and even if the poaching of tigers were to disappear, scientific evidence suggests that tiger populations would also still disappear given

suppressed reproduction associated with consumption of tiger forest habitats (see Dinerstein et al 2012).

Other estimates for Southeast Asia suggest that by 2100 the region's economic development will lead to a 42% loss in biodiversity (Sodhi et al 2004). Thus, the impact of natural resource extraction on biodiversity loss is probably more far-reaching and harmful to the ecology than poaching and illegal wildlife trade. Similar studies make the same points with respect to other ecological systems and in a variety of areas (e.g., for lizards see, Huey et al 2009; for waterway pollution see Dudgeon et al 2006). Together, these studies suggest to some scientists that the earth faces a sixth wave of extinction (Wake and Vredenburg 2008). This extinction process, identified as occurring during the Anthropocene period, is used to indicate that extinction is driven by human interference with the biosphere (Barnosky et al 2011; Lomolio et al 2001; Steffen, Crutzen and McNeill 2007; Steffen et al 2011; Stork 2010; Zalasiewicz et al 2010). Thus, while poaching may be one of the factors in Anthropocene extinction, it is not considered as one of the driving factors behind extinction in the majority of the scientific literature on biodiversity loss. While we do not diminish the harm caused by poaching and illegal wildlife trade we also emphasize that criminologists that do focus on poaching should also emphasize the role of political economy in biodiversity loss and recognize the implications of poaching on ensuing discussions about poverty and justice.

The Political Economy of Biodiversity Loss

Development is a serious concern in biodiversity loss. However, development itself is not the ultimate problem. For instance, McNeeley (1992; see also Myers, 1979), who describes the earth's biodiversity loss as a "sinking ark," notes that "the ark is usually characterized in terms of pollution, habitat loss, poaching, introduced species and illegal trade in wildlife products, but

these are symptoms rather than causes.” Focusing on the symptoms – as McNeeley (1992) suggests – not only has the potential to exaggerate the role of illegal behaviors such as poaching in biodiversity loss, but can also lead to a situation (as described below) where the poor countries will be increasingly blamed and exploited for threatening the biosphere. Foster (2000, 1999, 1992) elaborates on McNeeley’s observations that we must look beyond the symptoms of biodiversity loss and suggests that the need to accumulate means that capitalism must destroy nature to expand and survive. From a political economic perspective, it becomes quite clear how smuggling and poaching (even among the poor as a reaction to their marginalization), biodiversity loss, extinction modernization and development are associated with and driven by the global capitalist world system. Capitalism and its proponents have so expertly legitimized capitalism’s exploitation of nature as necessary to the development of human society that capitalism’s exploitation of natural resources, which under other circumstances might ordinarily belong to native peoples, seems to be quite natural and indeed necessary for sustainability. Overlooked in such a view is that capitalist exploitation of the ecological system throughout the world has left little of the natural world behind for poor native peoples to use (Benton 1997; Foster 2002, 1999, 1992; Foster and Clark 2008; Foster, Clark and York 2011). In its quest for domination of the world ecosystem, capital has undermined the traditional way of life of native peoples, and has turned them into the peoples of the “under-developed” nations of the world to fulfill of its own economically derived needs for over-consumption and over-production in the developed world by exploiting the resources that native peoples could once access. The developed world cannot continue to over-produce and over-consume if the native people stand in its way, if they have property rights and land access.

Within political economic theory, unequal exchange – or the notion that biodiversity loss can be captured in the economic relationship between rich and poor nations – has a role to play in the countries that are suffering from biodiversity loss (Shandra et al 2009). One way to think about unequal exchange is to examine the ecological footprint of nations. As many political economists have pointed out, unequal exchange between poor and rich nations demonstrates that it is not the residents of poor countries that are unsustainable; rather it is the life of capitalism that is unsustainable (Burkett 2008; Burkett and Foster 2006; Clark and York 2008, 2005; Foster 2005, 2002, 2000, 1999; Jorgenson 2009, 2008, 2003). For capitalism, the existence of this native, self-sustaining population is a contradiction to its efforts to control the world economic and ecological systems – to its effort to consume and transform nature into commodities – and allowing indigenous peoples to survive on what they can extract from nature is an offense against capital decried in many of the laws the capitalist state has enacted (Eliason 2012).

The rules and regulations that shape the global flows of capital are one way to demonstrate the impact of capitalism on biodiversity loss. On this point, consider an important indicator of the description of capitalism’s effect on the world’s ecosystem, the ecological footprint (Jorgenson 2009, 2003). The ecological footprint may provide a better indicator for the metaphor of the ‘sinking ark’ than poaching. The footprint measures the quantity of nature humans in different societies consume in a year. Currently, the world ecological footprint is 1.5, meaning that the world’s economy is organized in such a way that humans consume 1.5 years of nature annually. The ecological footprint data are presented in Table 1 using data obtained from the Global Footprint Network.

[Table 1 about Here]

Table 1 indicates that humans are consuming nature's labor and the reserve that nature must set aside for ecological reproduction to meet the consumption demands of people in the global world capitalist system. This helps to illustrate the destructive consequence of development under capitalism. In Table 1, the footprint (or 'FP') is the consumption per capita average for each region of the world in hectares per capita; 'TC' is total consumption, or the per capita footprint multiplied by the regional population (in billions of hectares); '%pop' is the percentage of the world population in each region; '%GC' is the proportion of world consumption in each region; 'GC/Pop' is a measure of over-consumption derived by dividing %GC by %Pop. The measure GC/Pop indicates the proportion of global resources each region of the world consumes relative to its population. In effect, this measure indicates over- or under-consumption relative to globally available bio-capacity. When the ratio of consumption to population is greater than 1, this is an indicator of over-consumption relative to regional bio-capacity. Where this figure is less than 1, it indicates under-consumption or what should more appropriately be referred to as sustainable consumption. Thus, for example, while the North American population is about 7.2% of the world population (%Pop), its consumption percentage of world resources is 19.3%. Relative to its population, North America consumes approximately 2.7 times as much of the earth as it should to be in a state of ecological sustainability. This tendency toward overconsumption is not the work of the world's poor, but of two of its most "advanced nations", at least with respect to accumulation and consumption. In this case, however, being labeled as "advanced" means that North America is more ecologically destructive than other regions, or with respect to ecological values, retrogressive. In contrast, one can see that in the Asian Pacific – even though these consumption indicators are skewed by the presence of China and Japan – that these nations consume at rates that are ecologically

sustainable. The same is true for African nations, where the ecological footprint is the lowest among all regions of the world – though these nations remain the focus of criminological research on poaching. Thus, in the general picture, it is not where the poorest people are located that problem of ecological destruction through consumption is greatest, but rather, where it is of the least concern.

The point this table illustrates is that the greatest demand and the most global ecological damage is caused by North American nations followed by European Union nations. Regions that contain the vast majority of “under-developed” nations have the smallest ecological footprints. These are the regions where capitalism is least developed internally and where external exploitation of ecological resources by capitalism is greatest. Clearly, this table indicates the consequences of global capitalism for the world ecosystem. Comparing each region’s footprint to the mean for the world (1.5) is another indicator of the relative impact of each region of the world. Here, we can see that North America’s footprint is well above the world mean of 1.5, while the footprint in the Asian Pacific and Africa are well below the world mean. These measures, too, indicate that it is the wealthy nations of the world that are driving global ecological over-consumption. As a result, the organization of the world economy appears to be related to the location of ecological destruction and biodiversity loss.

Blaming the Poor for Biodiversity Loss

In an influential article published in the journal *Nature*, Thomas et al., (2004) suggests that by 2050, between 15% to 37% of the species that cover one-fifth of the earth’s surface will be on an irreversible path to extinction (see also Araújo et al 2005; Pearson et al 2006; Thuiller et al 2004). These massive levels of extinction are not, as Clark and York (2005) point out, a condition imposed on the biosphere by the poor. Instead they are caused by economic over-

production and consumption tendencies imposed by the global capitalist economy.

Unfortunately, the poor, who often rely on subsistence for survival, are also likely to suffer the most from biodiversity loss related to climate change (see Thomas and Twyman 2005). We propose that the poor – who suffer greatly from biodiversity loss – are likely to be blamed for that loss and that criminology can help reinforce stereotypes when placing too much emphasis on poaching and the illegal wildlife trade as a cause of biodiversity loss.

Blaming the poor for environmental problems is not recent; it predates the establishment of criminology. That is, the poor are believed to cause biodiversity loss because they give up long-term ecological needs for short-term economic benefits (Lopez 1992). The United Nations Brundtland Report (entitled *Our Common Future*) has also helped to institutionalize that relationship between poverty and sustainability (Commission on Environment and Development [COED], 1987). For example the Report clearly states that “poverty is a major cause and effect of global environmental problems” and that poverty has “increased pressure on environmental resources as more people have been forced to rely on them.” The Report acknowledges that “the poor are forced to overuse environmental resources to survive day to day” and that “poverty itself pollutes the environment.” While the Brundtland report states that the poor do not inherently lack the ability to plan for environmental sustainability, the suggestion that an association exists is sometimes interpreted as “blaming the poor” for negative ecological conditions (Gray and Moseley 2005; Lele 1991; Way 2006). We argue that there are disciplinary consequences for making a link between poverty and biodiversity loss and that criminology perpetuates the ideas that the poor are responsible for biodiversity loss as alluded to in the Brundtland report. This is accomplished through studies on poaching that may often emphasize that poaching is the most important factor in biodiversity loss. For example, wildlife poaching

and smuggling research points toward the impact of organized black-market operations (Wyatt 2014, 2009). It also suggests that poachers tend to be well armed, rural and *poor* (Warchol and Johnson 2009). While these studies are important, they draw attention away from the source of the problem: the demise of species is not primarily a problem linked to the wildlife smuggling or poaching or behaviors of the poor, or even organized crime, but rather, is in large part, due to development and ecological resource consumption influenced by the expansion of capitalism. We argue that absent a theoretically relevant approach to the study of environmental crime that is rooted in the political economy, the identification of the poor's role in wildlife smuggling and poaching will become more widespread in the criminological literature, potentially causing a misinterpretation of the causes of biodiversity loss. These studies, then, may prompt policies similar to those adopted in other areas of criminal justice that serve to marginalize the poor (see Reiman, and Leighton 2009; Reiner 2007).

Just like Reiman and Leighton (2009), we are concerned about the depiction that the poor green “offender” – struggling for survival within the ecological context society has “leftover” for them – as poacher and smuggler of wildlife is much like orthodox criminology's focus on the poor as the source of street crime, a stance that has led to the neglect of the crimes of the powerful and the great crimes that occur within and across nations. This, in our view, promotes environmental injustice by drawing attention away from political economic structures and placing that attention on the offender. Suddenly, it seems, we are faced with the possibility of a criminology that replicates that time-worn, class-biased orthodox tradition of criminology within the study of crimes, and the emergence of the poor “native” offender who, lacking other means of economic support and attachment, is viewed as the source of biodiversity loss. It is to this depiction of “poor locals” in less developed nations to which we object. Clearly, some less

developed nations have high rates of poaching, illegal wildlife trade and natural resource extraction. However, even these crime rates can be situated by looking at the position of those countries in the world economy (Roberts and Grimes 2002).

Criminology has forgotten, or perhaps is unaware, of the long history of discussions concerning the effort to remove the poor from access to natural resources (for an exception see, Eliason 2012). This is an issue of environmental justice because denying the working class access to raw materials serves as a mechanism for isolating them and fixing their place by denying to them any alternative means of existence that cannot be anchored to the global economy (Sachs 2004; e.g., on water access rights see, Drew 2008; for a case study see, Moore 1993). Karl Marx best illustrates this point. In his essays on the theft of wood, Marx (1842) discussed the customary right of the poor to access nature, and several emergent factors that were at work in the denial of the poor's customary rights to nature. Prominent among these is that denying the rights of the poor to access nature promotes the monopoly power of capital, and limits access to raw materials to the owning classes. Such a focus on access to nature is a central theme in the environmental justice movement (Bullard 2000; Taylor 2000).

The criminological literature that draws attention to the poor as driving biodiversity loss, then, is an inversion of the reality of biodiversity loss. This inverted reality makes it appear that the damage to biodiversity is not caused by unsustainable development that is encouraged in a system that relies on accumulation, but by the powerless poor who seek to survive, whether their access to nature means direct consumption (i.e., food, clothing, shelter) or feeding the interest of the capital market place for rare commodities. Thus, the depiction of the native poor as ecological offenders ignores the long history of self-sufficiency of native populations and hunter-

gatherers on lands that provided their subsistence independently from larger global economic forces in sustainable ways (e.g., Gowdy 1997; Sahlins 1972).

As Marx (1842) argues, in selecting to punish the poor for accessing their customary rights to nature, the law has remade rights so that they now reinforce the right only of capital to access nature, and deny the right of the poor to subsistence. Marx noted, the law “knows how to whitewash,” which in this case is to make the harmful acts of corporations and capital more generally appear as performing socially responsible actions that lead the world further toward greater development, equity and opportunity, to the supposed fulfillment of the ideological claims of capital and the higher development of the human species. These claims, however, ring hollow in the real global world capitalist market, where we do not see equity or opportunity with respect to access to nature, but rather striking inequality between the developed and under-developed nations on this account. Capitalism has no real incentive to lead the under-developed or less developed nations of the world toward sustainable development, for in doing so its losses it domination over the developing and under-developed nations. Should those other nations develop to an extent that they can ignore the needs of developed capital, this would be harmful to the global economy that relies on the extraction of resources. To maintain that domination over under-developed nations, capital must likewise dominate the poor of the under-developed world and maintain them in their under-developed state as the most marginal of the world’s population, cut off even from their customary rights to nature and survival. As a result, the law often holds the poor responsible for poaching under the justification that it diminishes biodiversity. The question is whether criminology will develop in a way to promote this discourse in biodiversity.

Conclusion

Different approaches in criminology seek to examine the issue of biodiversity loss but also have different implications for poverty and social justice. We suggest that too much emphasis on wildlife poaching and trafficking may serve to distract attention away from the more important cause of biodiversity loss: unsustainable development that arises from capitalism's need for accumulation and expansion (Foster 2000). Our interpretation of empirical studies and the ecological footprint suggest that the biggest threat to biodiversity is not poaching and illegal wildlife trade, but capitalist tendencies that promote unsustainable practices.

Unfortunately, when poaching, smuggling and poverty are combined together in criminology studies of biodiversity loss there is significant potential to follow in the footsteps of the Brundtland report and blame the poor. This would not be the first time criminology has faced such problems as is evidenced by early orthodox criminological approaches to street crime, and a significant radical critique around these issues was once important in the development of radical/Marxist criminology (see, for instance, an overview by Lanier and Henry 2004).

In the end it is not our intention to dissuade researchers from studying poaching and smuggling of wildlife or other species. Instead, we emphasize that there must be more attention focused on the important mechanisms of biodiversity loss and that those mechanisms should be situated within the political economy. That is, the first humans appeared in a sustainable world, and humans had little negative impact on the world ecological system until the advent of capitalism. The continued expansion of capitalism from the 15th century onward has much to do with the unhealthy state of the world's ecological system, the depletion of nature and natural resources and the extinction of species. It is not the poor native peoples of less developed nations that drive this process, but the profit and expansionary tendencies of capitalism (Foster 2000; Foster and Clark 2009). And, it is only in their forced connection to capitalism today that native

peoples have any ecological repercussions on ecosystems. Detached from their native rights to the land and forced to adapt to capitalism, the native integrates the demands of the capitalist economy to which they must now be attached and to which they must bend, into their native surrounding. Those native environments are constantly under attack from the machinery of capital through various forms of high intensity production involving deforestation, destructive mining and drilling technologies, and any other forms for exploiting nature capitalism can invent to turn nature into a commodity.

In contrast to this structural view of the poor, the blame-the-poor implications of poaching and smuggling research depicts the crimes of the native people of poor countries as serious offenses that threaten the world's biodiversity. This is, as we have argued, a distortion of reality. Data on the global ecological footprint suggests exactly the opposite is true. In the real world of capitalism, the poor in less developed nations are left to pick at the left-overs of an economic system that uses more than the earth can sustainably produce. The "blame the poor" approach magnifies the offenses of the native poor, seemingly blind to the larger crimes of capital in those same locations. Criminology, then, needs to ensure that critical voices contribute to the discourse on poaching and that issues of political economy are not forgotten.

The issue we have raised also has relevance to other related environmental problems such as pollution and ecological destruction stemming from resource withdrawal. These issues have received limited attention in the criminological literature (Stretesky, Long and Lynch, 2013), and unlike the criminological literature on poaching, takes a clear political economic approach to these concerns, and one that also emphasizes that it is mass consumption and production and not the behavior of any specific groups of individuals that should be the focus of research.

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Endnotes

[1] This generalization does not always hold true. For example, Eliason (2012) analyzes poaching by drawing upon Marx's concept of historical materialism. Beirne (1999) and Sollund (2013) take a critical view of violence against non-humans.

[2] As we suggest, it is not development that is directly responsible for biodiversity loss as many poor populations are not only 'developed,' but live in sustainable ways. We therefore agree with Worm et al. (2006:790) that "there is no dichotomy between biodiversity conservation and development." It is the way that development is carried out and the type of economic development undertaken. As Worm et al (2006, 790-791) make clear, "...business as usual would foreshadow serious threats to global food security, coastal water quality, and ecosystem stability, affecting current and future generations."

Table 1. Ecological Footprint of World Regions, 2005 (World FP = 1.5).

	FP	TC	%Pop	%GC	GC/Pop
North America	9.1	3,003	7.1	19.3	2.7
European Union	4.8	2,337	7.6	15.0	2.0
Non-EU	3.0	720	3.7	4.6	1.2
Latin America	2.5	1,383	8.6	8.9	1.1
Middle East	2.2	805	5.7	5.2	0.91
Asian Pacific	1.7	6,055	55.3	38.9	0.70
Africa	1.4	1,263	14.0	8.1	0.58