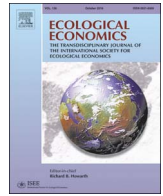


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## Brazilian Conservation Under the Light of Historical Materialism

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## ABSTRACT

Brazilian biodiversity is being target of many scientific efforts to preserve it. However, there is an enormous contradiction in the country between what is discussed in scientific theory and what government measures are actually doing in practice. In this work, we discuss Brazil's conservationist aspirations under a human and social aspect, which the scientific view of natural scientists seldom explores: the historical materialist conception. From this analysis, we argue that current scientific efforts are important, but merely palliative, because at the heart of capitalist society the logic of value precedes any political decision making of the state. Therefore, the analysis of Brazilian biodiversity conservation under the premises of historical materialism elucidates with more clarity the forces that are at play in the country to inform the practice of conservation. This is a way of understanding the relatively ineffective role that science and technology has had in the permanent control of environmental destruction in Brazil.

## 1. Introduction

The premises of historical materialism reveal that human history has its basis structured in the roots of the material world, and modes of production must be interpreted as the way humanity behaves to develop and allow its continuity of species. The historical materialism foundation is the most adequate way to understand the main driving forces of the transformation of modern societies (Brand, 2016). The power of this approach on conservationist studies is that it provides a rigorous method for studying the interchange between society and nature. It reveals that environmental conservation is historically shaped according to the social relations of production (Clark and Foster, 2010).

Greater success in biodiversity conservation can be achieved articulating knowledge from the natural sciences to those of the human and social sciences (Williams and Gordon, 2015). Relating scientific theories that deal with the influence of economy and culture on the environment (Brosius, 2006), we mean to address an alarming problem of the Brazilian biodiversity conservation: a paradox between exemplary legislation linked to solid management and conservation proposals of protected areas and increasing environmental impacts on Brazilian ecosystems (Mittermeier et al., 2010; Dobrovolski et al., 2011; Bernard et al., 2014). Here, we intend to discuss conservation biology under a poorly explored human and social aspect, an attempt to explain why theory differs from conservationist practice. The question posed is: how the implementation of new political-administrative regulatory

instruments in favor of Brazilian biodiversity conservation is subordinated to the general law of capitalist accumulation?

## 2. The Conservation's Forces at Play in Brazil

High-quality scientific data on biodiversity and conservation in Brazil have been gathered by many Brazilian and foreign scientists. However, there is a clear abyss between science and decision-making in the country (Azevedo-Santos et al., 2017). Considering the worldview of historical materialism, two important considerations must be discussed in order to interpret this contradiction.

## 2.1. Brazil as an Environmental Leader?

The first consideration concerns to recognize a pattern revealed in biodiversity conservation studies in the Brazilian territory. Over the past two decades, Brazil has a crucial role in motivating and supporting sustainable development in other countries. However, the integrity of its biodiversity and the credibility of its environmental leadership are compromised (Ferreira et al., 2014). While awareness of nature conservation needs has grown dramatically in recent decades (Agostinho et al., 2005), leading the country towards a status of environmental leader (Mittermeier et al., 2010; Scarano et al., 2012), measures recently undertaken by the Brazilian government are threatening this leadership (Ferreira et al., 2014; Loyola, 2014). As the country

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undergoes rapid economic growth, several decisions seriously threaten its biodiversity and its ecosystem services (Pelicice et al., 2014). Therefore, at the same time that the country leads international negotiations to set sustainable development goals, national policies are constantly making decisions that go against established global agreements (Scarano et al., 2012; Bernard et al., 2014; Loyola, 2014).

Brazil is a country with continental dimensions and has the guard of the biggest repository of the world's biodiversity (Fernandes et al., 2016). This enormous, but finite, Brazilian biodiversity, is mainly threatened by to serve the interests of agribusiness (Fearnside, 2005; Soares-Filho et al., 2006; Metzger et al., 2010; Soares-Filho et al., 2014), mining and hydroelectric activities (Tollefson, 2011; Ferreira et al., 2014; Lima Junior et al., 2015; Less et al., 2016; Winemiller et al., 2016). Government measures have neglected the risks of biodiversity loss (Metzger et al., 2010; Loyola, 2014; Vitule et al., 2015), like controversial revisions to Brazil's Forest Code (see Soares-Filho et al., 2014), and a variety of proposed laws, constitutional amendments, and provisional measures (see Azevedo-Santos et al., 2017; Buenafuente et al., 2017). Thus, political decisions taken by the Brazilian government have ignored conservationist practices supported by scientific studies, that is, conservation efforts predominantly do not materialize in what they propose to oppose.

In Brazil, political-administrative decision makers are in a dilemma: either accept mitigation proposals from conservationists or open the country's doors to large international companies targeting larger and faster profits. It seems that Brazil has abdicated its international leadership (Loyola, 2014). Therefore, the pattern appears here! The lucrative need of capitalist enterprises definitively supplants scientific rationality that authenticates the deleterious consequences of environmental destruction for several forms of life (Clark and Foster, 2010; Foster and Clark, 2012; Zhang, 2013).

## 2.2. The Link Between Natural and Social Sciences

The second consideration is related to how to interpret this pattern. In this case, the scientific-ideological perspective adopted circumscribes alternative action's modes to face important practical problems proper of Brazilian biodiversity destruction. The biggest difficulty is that scientific theory can either explain or conceal social determinations that directly interfere in the practical development of environmental conservation. In other words, science may or may not, depending on its theoretical-ideological substance, bring to the light and explain the problems and contradictions, which social relations of capitalist production impose on the conservationist struggle (Mészáros, 1989). The social context shall help scientific findings and conservation proposals to understand their own ineffectiveness.

In times of environmental crisis, biologists and other conservation scientists often do not consider social determinations manifested in the natural world. Natural scientists are usually guided by positivist science patterns, which presuppose a reality independent of the historical moment (Moon and Blackman, 2014). The scientific efforts incorporated in this perspective radically liquidate the historical dimension of science embedded in the scientific paradigm itself (Williams and Gordon, 2015). Therefore, it is not considered that science's development is social and based on the society where it is inserted. A humanization of scientific research that defies epistemological unconsciousness with preference for objectivity is necessary within the field of natural sciences (Moon and Blackman, 2014). The humans are trapped and addicted to the current regime therefore presenting evidence about risks of biodiversity destruction is important, but it should be contrasted with social values if we hope to change behavior at societal levels (Costanza et al., 2017).

In opposition to positivism, there are many alternative approaches to scientific inquiry that embody different and legitimate principles, assumptions and interpretations for their research (see Moon and Blackman, 2014). In approaching historical materialism, the efforts for

Brazilian biodiversity conservation should be related to a concrete and current socio-historical force: the accumulation of value in the capitalist society. The struggle for environmental conservation and the accumulation of value are not isolated, but rather are interacting social complexes. Thus, it is understood that the focus on the general laws of capitalist accumulation penetrates into concrete circumstances within which the environmental resources become a powerful profit generator (Clark and Foster, 2010).

## 3. The Logic of Value and Its Implications for Conservation

Capitalist accumulation is not an accumulation of wealth in its material form. It is rather an accumulation of value already expressed in the general equivalent of commodities, money. It is money applied in business that is valued and expands to produce more money. This is the general law of capitalist accumulation: an incessant movement of valorization and expansion of value (Marx, 1910). About this law, Brand (2016: 509) explains:

“In societies under the dominance of the *capitalist* mode of production, a powerful ‘grammar’ or logic of societal development consists of profit making, capital accumulation and the related social power of capital. Previously invested money capital needs to be increased by means of production processes which create surplus value (...) (author's emphasis)”.

It is seen that in order to understand this social law, a fundamental distinction must be traced between matter and value. This distinction is very important because the capitalist form of production is not interested in matter as such but only in the expansion of the value set in motion by the transformation of this matter into commodity. Despite the fact that capitalist society presents itself as an immense accumulation of commodities, capitalism is not distinguished by commodity production. Several societies had contact with commodities and money, which has always been a facilitator of exchanges, setting the formulation  $C_x \rightarrow M \rightarrow C_y$ . By this means, commodities are transformed into money to exchange for another product that fulfils the desires of the individual. In the case of capitalism, the commodity circulation is given by formulation  $M \rightarrow C \rightarrow M'$  representing the specific meaning of the capitalist action that buys to sell. Thereby, money only produces commodities to get more money. This is the historical specificity of capitalist society. Money has its own purpose; an endless accumulation profit (Marx, 1996).

The rationale for the irresistible movement of capital towards universalism is the own expansion of investment, business, and profit (Mészáros, 1989). The large international companies cultivate a cosmopolitan orientation through the extensive accumulation of commodities and competition. This fact creates a tendency for capital to transform social relations and nature into commodities and gain momentum to a permanent land-taking (Brand, 2016). Thus, precisely because this is a structural social law of capitalism, there is no logical basis for environmental conservation unless this will expand the already existing value, that is, unless it will produce surplus value. The capitalist system has an inherently unsustainable character throughout the accumulation process (Clark and Foster, 2010) because it cannot separate progress from waste. Because of its inherent uncontrollability, capitalism could only adopt self-restraint as a significant feature of its mode of operation by ceasing to be capital. Moreover, by the radical disjunction between genuine production and self-reproduction of capital, the barriers to capitalist production are supplanted without taking into account the devastating implications for the future (Mészáros, 1995).

The capitalist industrial civilization has created a global economy that will lead to the destruction of the environment of the third world countries by recklessly plundering natural resources (Zhang, 2013). Thus, it is no less problematic to think about conservation of Brazilian biodiversity without considering the logic of value in capitalist society.

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