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Extractive Reserves in the Brazilian Amazon thirty years after Chico Mendes: social movement achievements, territorial expansion and continuing struggles

Reservas Extrativistas na Amazônia Brasileira trinta anos depois de Chico Mendes: conquistas do movimento social, expansão territorial e lutas contínuas

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RESUMO: The Brazilian Amazon contains the largest remaining contiguous forest in the tropics, but also faces strong development pressures and one of the highest rates of deforestation in the world. In the 30 years since the murder of the rubber tapper leader Chico Mendes and the subsequent creation of Extractive Reserves (ERs), this protected area model continues to be a conservation and development strategy that strives to secure land for forest-dependent smallholders and stem the advance of large-scale deforestation in the region. As of August 2018, 76 federal and state ERs have been created in the Brazilian Amazon, spanning over 14 million ha. Despite three decades of ER implementation and its importance to people-based conservation, there has not yet been a region-wide analysis of this model. In order to fill this gap, we analyze the spatial and temporal trajectory of ERs and how the implementation of this policy played out differently across Amazonian states. Grounded in a political ecology framework, we identify four phases of ERs implementation (inception, consolidation, expansion, and stagnation). We assess the land allotted in each state to ER protection and examine the federal and state-level political and institutional dynamics that

may have favored or limited the growth of the ER model. Although ERs made an impressive impact, and remain in the spotlight of environmental policy debates in Brazil, challenges remain to combat continued pressures at Amazon development frontiers. This paper contributes to better understanding the current condition of the ER model and provides lessons for its continued implementation in the Brazilian Amazon, and its role in forest conservation.

Keywords: Extractive Reserves; Brazilian Amazonia; Chico Mendes.

ABSTRACT: A Amazônia brasileira contém a maior floresta contígua remanescente nos trópicos, mas também enfrenta fortes pressões de desenvolvimento e uma das maiores taxas de desmatamento do mundo. Nos 30 anos desde o assassinato do líder seringueiro Chico Mendes e a subsequente criação de Reservas Extrativistas (RESEX), o modelo de RESEX continua a ser uma estratégia de conservação e desenvolvimento que assegura o direito à terra para comunidades extrativistas e a contenção do avanço do desmatamento em larga escala na região. Até agosto de 2018, 76 RESEXs federais e estaduais foram criadas na Amazônia brasileira, abrangendo 14 milhões de hectares. Apesar de três décadas de implementação do modelo e sua centralidade para a conservação integrando comunidades extrativistas, ainda não há uma análise regional do desempenho do modelo. Para preencher essa lacuna, analisamos a evolução espacial e temporal das RESEXs por estado da Amazônia. Com base na abordagem sobre ecologia política, enfatizamos quatro fases de implementação do modelo de RESEXs (inicial, consolidação, expansão e estagnação), documentando a área em cada estado sob proteção de RESEXs e dando enfoque às dinâmicas políticas e institucionais nos níveis federais e estaduais que podem ter favorecido ou limitado o crescimento do modelo de RESEXs. Embora o modelo de RESEXs tenha obtido protagonismo impressionante e permanece no centro dos debates sobre política de conservação ambiental no Brasil, persistem os desafios para combater a pressão contínua nas fronteiras do desenvolvimento da Amazônia. Este artigo contribui para a compreensão da condição atual do modelo RESEXs e fornece lições para sua contínua implementação na Amazônia brasileira.

Palavras-chave: Reservas Extrativistas; Amazônia Brasileira; Chico Mendes.

1. Introduction

Home to both the largest portion of the world's rainforests and the highest absolute deforestation rate, Brazil is a *de facto* leader in both the conservation and destruction of these forests. The state of Acre in the southwestern Brazilian Amazon is the birthplace of the rubber tapper movement, which originated in the late 1980s when a group of rubber tappers fought to protect their land against encroaching large-scale cattle ranchers (Hecht & Cockburn, 1990). The rubber tappers' movement was the first grassroots movement in Brazil to advocate the conservation of Amazonian forests through the establishment of Extractive Reserves (ERs). In the Amazon, ERs are traditionally protected forest areas inhabited by extractive communities which are granted long-term usufruct rights to collective manage their forest resources (Allegretti, 1989; Schwartzman, 1989). Chico Mendes was the primary leader behind the movement. In 1988, due to his social and environmental justice campaign against forest destruction, he was killed by cattle ranchers. The creation of ERs as one of the first formalized systems of people-based protected areas in the Brazilian Amazon has marked an unprecedented success of both social movement mobilization and environmental policy-making in the Brazilian Amazon (Allegretti,

1990; Schwartzman, 1991), and has been promoted as a major strategy for forest conservation while simultaneously providing sustainable economic return to local people.

Thirty years since the assassination of Chico Mendes and the creation of the first ERs in the region, the model has gained a solid foothold in Brazil's forest policy, while at the same time it has been evolving and diversifying significantly beyond the original concept. The question of what happened after the establishment of the first ERs is complex, and needs to be addressed in a contemporary context including their role in protection and conservation of forest peoples' livelihoods.

Since the creation of the first ER in 1990 in the Western Amazon state of Acre, the ER model now encompasses a great diversity of social groups, with a variety of forest-based livelihood systems, and spans a large range of ecological niches and under varied federal and state-level political contexts. The model has been implemented in all Amazonian states as both federal and state-level policy strategies, both of which have been used at different points in time and undergone important changes. More importantly, the ER model still serves as a primary mechanism to promote land conflict resolution. ERs have become a major land tenure strategy advocated by different socio-cultural groups in distinct Amazon ecosystems (Gomes, 2009). Overall, ERs are one of the original models of protected areas created not *despite* local people but *because* of them (Ehringhaus, 2005).

Environmental governance in Brazil has dramatically improved over the last few decades. The creation of ERs represented an important change in environmental law in the Brazilian Amazon, and major governmental investment in conservation has grown substantially in the region with innovative policies observed at both federal and state levels. As federal and state environmental policies are increasingly integrated in the Brazilian Amazon, it is important to understand how the ER model evolved at different scales, and what role ERs play in a more comprehensive conservation and development policy in Amazonia. In view of three decades of ERs´ existence, an analysis of their progress and an update on the current state of the ER model is long overdue. In this article we ask how the ER model has evolved both spatially and temporally throughout the Brazilian Amazon. More specifically, we offer a macro regional development analysis of ERs trajectory through a political ecology framework to understand how social movement forces, environmental agendas, and changing political opportunities shaped and reshape the creation of ERs in different Amazonian states during distinct periods of time.

2. The Extractive Reserve in the people-based conservation debates through Political Ecology

The first ER, Alto Juruá, was created by presidential decree 98.987-01/30/1990, which was the first legal instrument to recognize ERs in Brazil. It was created through a coalition-based social and environmental movement concerned with land tenure rights and alarming deforestation rates in the Amazon in a pre-Eco 92 context (Allegretti, 1989; Schwartzman, 1991), pressuring the Brazilian government to consider environmental concerns and social justice issues in its development policy for the region (Becker, 1990a; Hecht & Cockburn, 1990; Revkin, 1990).

Later, in 2000, the National System of Protected Areas law (SNUC - law 9.985) was created, bringing together diverse models of protected areas at federal, state and municipal levels. These units were classified by two major categories: 1) "strictly protected", with biodiversity conservation as the main objective; and 2) "sustainable use" which allows for varying forms and degrees of sustainable exploitation by local traditional communities (MMA, 2000; MMA, 2002; Rylands & Brandon, 2005; Silva, 2005).[1] The ERs fall under the sustainable use model, or as some prefer to label them, "people-based conservation model" (Agrawal & Gibson, 2001; Ostrom & Nagendra, 2006).

SNUC law is innovative in its establishment of management plans and deliberative councils as major instruments for regulation and decision making within ERs. These mechanisms bring together a diverse set of local and regional stakeholders, which provides a broad development perspective for the territories. From their conception, ERs have redefined the conventional goals of conservation. Over time, their implementation has brought local people to the forefront of conservation in protected areas and led to a restructuring of the national and state environmental institution apparatus, establishing the *traditional peoples* category as legitimate stakeholder in environmental policy and conservation strategies (Vadjunec *et al*., 2011b).

The ER model remains of critical international policy importance because it contributes to the ongoing theoretical debate on people and parks as a means of effective conservation (See key texts by Kramer *et al*., 1997; Brandon, 1998; Oates, 1999; Terborgh, 1999; Schwartzman *et al*., 2000; Moegenburg & Levey, 2002; Peres, 2005; Redford & Painter, 2006; West & Brockington, 2006; Schmidt-Soltau & Brockington, 2007; Vadjunec & Rocheleau, 2009).With much of the "people and parks" literature citing people as predators, the ER model faced strong opposition, especially during its nascent stages of development. The most strident critiques of ERs were produced by Browder (1990; 1992) and Homma (1989; 1993), and continue to be cited as ground for criticism (more recently, see also Freitas *et al*., 2017; Homma, 2018), despite the lack of updated information. Despite early criticism by some, ERs also had strong early proponents as well. For instance, the Brazilian anthropologist Allegretti (1989; 1990; 1994) and the American sociologist Schwartzman (1989; 1991; 1992) who publicized the rubber tapper's cause, argue that ERs continue to illustrate a very vibrant example of an innovative policy that balances conservation and development among traditional communities (Hecht & Cockburn, 1990; Allegretti, 2002; Schwartzman & Zimmerman, 2005; Hecht, 2011).

Over the last decade or so, an interdisciplinary middle-ground has emerged that addresses the social, political, cultural and ecological complexities and contradictions in conservation and development efforts and attempts to eschew extreme black and white over-simplifications (Redford & Sanderson, 2000; Berkes, 2004; Brosius, 2004; Sanderson & Redford, 2004; Redford & Brosius, 2006; West & Brockington, 2006; Gomes *et al*., 2012a; Hoelle, 2018; Ribeiro *et al*., 2018). Overall, many debates surrounding ERs continue to refer primarily to pre-

[1] The "strictly protected areas" (as defined by SNUC) include national parks, biological reserves, ecological stations, natural monuments and wildlife refuges. The "sustainable use areas" include environmental protection areas, areas of particular ecological interest, national forests, extractive reserves, wildlife reserves, sustainable development reserves, and private natural heritage reserves.

-extractive reserve publications (Ehringhaus, 2005), not taking into account the now 30-year history of ERs. Yet a significant body of academic literature addressing a diversity of themes based on empirical studies has slowly documented the transformations of the ERs (see Ehringhaus, 2005; Gomes, 2009). These studies revisited old themes and emerging challenges surrounding forest dwellers' economic and forest resource management practice through the ER experience in Amazonia. In view of the influence that ERs had on people-based conservation debates, an update of the current state of the ER model is long overdue, and critical for further discussions in the broader context of regional development and conservation in the Brazilian Amazon.

ERs are among the most famous "people and parks" approaches (Bruntland, 1987) to sustainable development. They were first thought of as a federal model of an agrarian reform while promoting conservation. But soon after the first federal ERs were created, a state-level approach was created following the principles of the federal model. The main difference between the approaches concerns the institutional arrangements for establishment and monitoring of ERs. Federal ERs are created by presidential decree and the Ministry of Environment plays a major role in their administration. State ERs are created by state governments with approval of the State House of Representatives.

Advances and challenges to the ERs in Brazil have been the product of complex forces interacting over time at diverse levels. Properly investigating this complexity calls for a political ecology framework of analysis that considers wide interactions of state and local actors between each other and the environment (Bryant & Bailey, 1997, p. 191). Political ecology acknowledges the human production of nature, as well as the political, social, and economic forces behind such production (Robbins, 2004). We analyze the ER model, taking into particular account three interlinked political ecology framework themes (i) social movement forces, (ii) environmental agendas, and (iii) political opportunity at diverse levels, in explaining the different forms ERs have taken in different states at different moments over the past 30 years.

The evolution and importance of social movements are of particular interest in political ecology (Becker, 2004; Hecht, 2011). As Robbins (2004, p. 188-189) explains:

> "Changes in environmental management regimes and environmental conditions have created opportunities or imperatives for local groups to secure and represent themselves politically. Such movements often represent a new form ofpolitical action, since their ecological strands connect disparate groups, across class, ethnicity, and gender. In this way, local social/environmental conditions and interactions have delimited, modified, and blunted otherwise apparently powerful global political and economic forces".

As a "new social movement," Chico Mendes and the rubber tappers remain a landmark social movement that married class-based livelihood concerns with broader environmental interests. Previous studies have shown the fundamental importance of social movements in creating the original ERs, as well as in proposals for other innovative social-environmental policies in the Brazilian Amazon (Becker *et al*., 1990b; Hecht & Cockburn, 1990; Hall, 1997; Allegretti, 2002; Almeida, 2002; Allegretti & Schmink, 2009; Gomes *et al*., 2012a). Our analysis, therefore, examines to what extent the implementation of ERs has been associated with the social movement in different states at different periods. A key characteristic of new social movements is their

transnational and/or multi-scalar characteristics (Bebbington & Batterbury, 2001; Hoelle, 2018). Oftentimes such social movements become of interest to the international community primarily for environmental reasons (e.g. saving the Amazon) vs. humanitarian ones (e.g. protecting traditional livelihoods). As a result, social movements are interlinked with environmental agendas, particularly at broader spatial scales (regional, global).

Negotiation, a key component of social movement related studies, can signal the success or failure of a group's ability to secure access to their resource base. Many of the outcomes of Amazon's development policy can be understood as the results of social conflicts, disputes, and negotiations over development models and practices (Hecht & Cockburn, 1990; Schmink & Wood, 1992). ERs were created because of local people, yet have been implemented in a very politicized environment that often involved disputes and complex power relationships among distinct political forces and social actors. The study, therefore, focuses on ERs as part of emerging negotiations among different interests regarding the future of Amazonian territories. As Vadjunec and colleagues argue (2011a, p. 15), Amazonian social movements are "producing new and complex partnerships among diverse actors seeking to resist and engage state policies, while articulating alternative discourses and policies more appropriate to their local contexts." Ultimately, these negotiations have resulted in "new Amazonian geographies" (Hecht, 2011, p. 203) and "emerging identities and landscapes" (Vadjunec *et al*., 2011a).

Central to political ecology, but often neglected (Walker, 2005; Robbins, 2015), the actual material environment or local ecology constantly intermingles and interacts with social movements, negotiations, and political opportunities, thus producing constant flux in the shifting dialectic between humans and the environment. In other words, politics don't occur in a vacuum, but rather they occur in, across, around and through cultural and physical (material and immaterial) environments, and ultimately have the ability to reshape "place" and vice versa (Vadjunec *et al*., 2011b). In truth, much of the ER model has been brought to fruition because of environmental concerns stemming from the international community related to biodiversity and forest loss, rather than sustaining local livelihoods. Research shows that protected areas often serve as a buffer area and have major positive impacts on forest conservation and fire suppression (Nepstad *et al*., 2006; Schwartzman *et al*., 2013).

Often tensions between diverse stakeholders with diverse needs remain unsolved and discourses can get muddled, or even reappropriated. For instance, research by Pereira *et al*. (2016) shows how smallholder agriculturalists in Pará may adopt a green discourse favored by the local NGOs (and the international community) while at the same time focusing their livelihood interests on cattle production. In doing so, agriculturalists, smallholders, and extractivists may be locked to some extent into a series of opportunities and constraints in terms of both land use and livelihood production (Gomes *et al*., 2012b). Recently, there have been multiple calls for the intersection of land change science and political ecology to ensure the study of both the physical and (culturally) constructed (co-produced) landscape (Turner & Robbins, 2008; Brannstrom & Vadjunec, 2013; Vadjunec *et al*., 2016; Hoelle, 2018). Using the quantitative methods of LCS such as Geographic Information Systems (GIS) and Remote Sensing techniques along with

the ethnographic approaches of political ecology is a way to balance such tensions between human and environment approaches.

Favorable political opportunity or support at federal, state, and local levels, as they interact with international political pressures, also plays an important role in determining policy outcomes (Schmink *et al*., 2014). Following a political ecology framework, we pay close attention to power relations and to the role of the state, or "governmentality," "coercion," and "control," in promoting development initiatives that may directly or indirectly lead to the success or failure of ER policy (Robbins, 2004, p. 150; Hecht, 2011). Additionally, previous studies show how the vast international success of the rubber tappers' social movement can lead to co-optation of rubber tapper discourses by political officials in an attempt to gain power (Schmink & Cordeiro, 2009; Gomes *et al*., 2012a). However, such relationships between rubber tappers and political officials are not black and white, but rather spaces of constant tension, negotiation, and even mutual exploitation (Robbins, 2004; Schmink *et al*., 2014). For instance, research by Bolaños (2011) illustrates how social movements can also co-opt ER discourses for territorial gain and re-defined identities. Furthermore, work by Hecht (2011, p. 203) shows how social movements such as the rubber tappers and other "insurgent citizens" have produced new political opportunities to create a new "Amazon Nation" and are constantly shifting Amazonian geographies.

In what follows, we assess these three interlinked political ecology themes that are central to the ERs in the Brazilian Amazon, as they help to explain the trajectory of ER policies in different Amazonian states over the past three decades.

3. Methods

To explore how ERs temporally and spatially expanded across all states in the Brazilian Amazon, we constructed a georeferenced database of ERs created in the region from 1990 to 2018. The database consists of information on each ER including the name, year of creation, status (state or federal), size, and location. Characteristics of creation such as number, size and population density were also evaluated and combined with political context. The database is structured according to the database of the Socio-environmental Institute (ISA) on protected areas, updated through august 2018. We first provide an overall cross-state analysis of the growth and distribution of ER system. Then, we further disaggregate the data through examining the time of ER creation, focusing our analysis on temporal progression of ER implementation. We structured the progress of ER implementation over four phases: 1) Inception (1990-1996); 2) Consolidation (1997-2001); 3) Expansion (2002-2009), and Stagnation (2010-2018). Figure 1 shows a spatial and temporal trajectory of ERs established in the region. These four phases were defined organically based on the relative increase related to the previous year's accumulated area defined as Extractive Reserve (i.e. natural breaks). Lastly, to further provide context, we draw on the coauthors' vast collective experience working with ERs in the Amazon to create a framework of spatial and temporal changes in the ER model using a political ecology approach explained above.

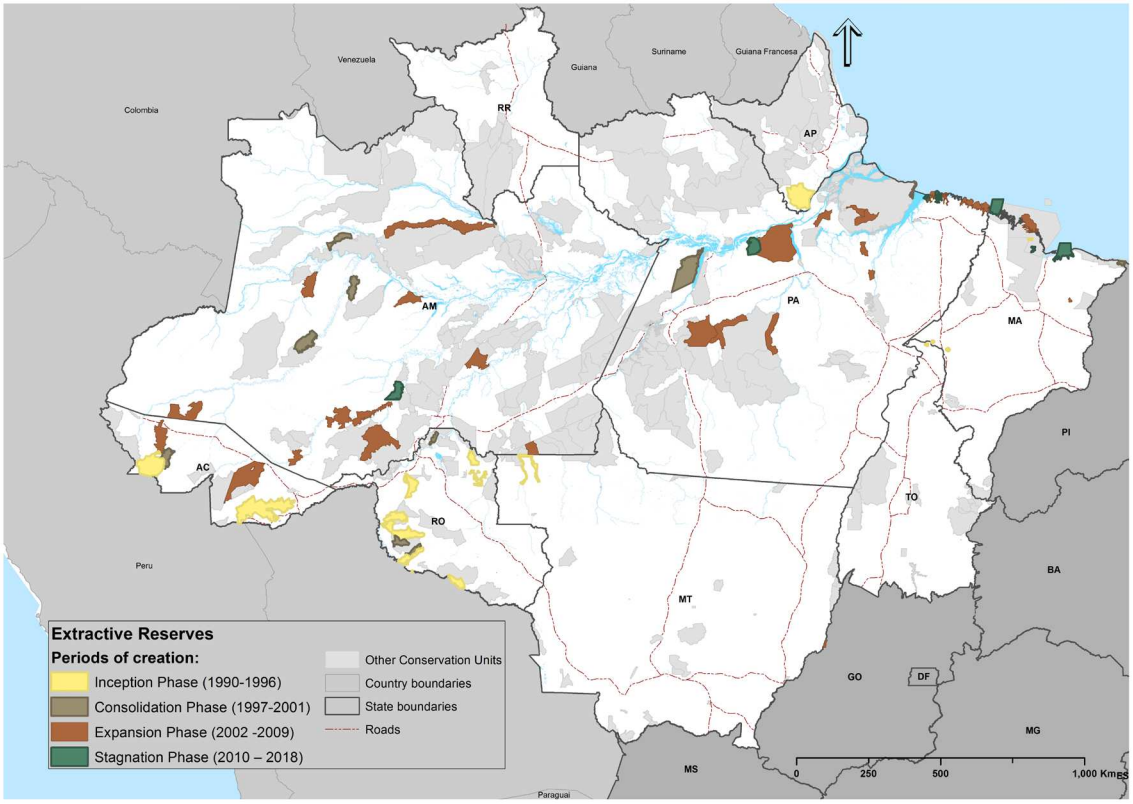

FIGURE 1 – Spatial distribution and phases of establishment of federal and state-level ERs in Amazonia.

4. Results

4.1. Cross state analysis: federal and state Extractive Reserves

As of August 2018, 51 Federal Extractive Reserves in Amazonia covered an area over 12 million ha while 25 state reserves covered approximately 2 million ha. In total there are 76 ERs encompassing an area of over 14 million ha in eight states of the Brazilian Amazon (Table 1). A varying approach for ER establishment in the region is observed through the creation of 21 state level ERs in Rondônia and 4 in Amazonas, as well as the later creation of Marine ERs on the Atlantic coast of Pará and Maranhão states.

Moreover, Table 1 shows the absolute area under ERs in each state and what this represents in percentage of state territory. It reveals that the state of Pará, with approximately 5 million ha under federal ERs, has the highest absolute amount of land under ERs, followed by Amazonas with 3.5 million ha and Acre with 2.7 million ha of federal ERs. The states of Amazonas and Rondônia, the only two states with state level ERs, appear with similar figures in terms of land protected under

state-level ERs, both with approximately one million ha. This ranking changes when comparing states according to the percentage of their territory under ERs, with greater shares observed in Acre (17.7%), and Rondônia (6%). These are relatively small states in the Brazilian Amazon, where the ER model was first implemented, having strong rubber tapper movement and/or extractivist organizations. Pará and Amazonas, on the other hand, are the two largest Amazonian states, with few historic ties to the rubber tapper social movement, where the ER model was finally adopted only starting in the late 1990s. These states present respectively 3.6% and 2.9% of their territory under ERs. Overall, these aggregated figures (Table 1, below) do not allow further discussion on the rates and recent trends of ERs establishment in the region, thus requiring further disaggregation through examining the time of ER creation.

4.2. The pace of Extractive Reserves policy: four phases

In this section, we focus on the temporal progression of ERs establishment throughout the Brazilian Amazon. Figure 2 shows the federal and state ERs progress across states over four phases, which are discussed below.

TABLE 1 – Number and area of federal and state ERs in the Brazilian Amazon.

States	Jurisdiction	Number	Area (ha)	% of state area
AC	Federal	5	2.690.847	17.64%
	State	-	-	0.00%
AM	Federal	9	3.569.034	2.27%
	State	4	966.705	0.62%
AP	Federal	1	499.942	3.50%
	State	-	-	0.00%
MA	Federal	5	66.936	0.20%
	State	-	-	0.00%
PA	Federal	25	4.950.949	3.62%
	State	-	-	0.00%
RO	Federal	4	437.841	1.84%
	State	21	988.270	4.16%
TO	Federal	1	9.125	0.03%
	State	-	-	0.00%
MT	Federal	1	165.683	0.18%
	State	-	-	0.00%
Total		**76**	**14.345.332**	

4.2.1. The inception phase

The inception phase (1990-1996) is viewed as an innovative, bottom-up, strong social movement policy process in which the ER model only reached a relatively modest scale. This phase represented an initial push in 1990, and led to the creation of four federal ERs in three different states: Acre (the Upper Juruá River and Chico Mendes), Amapá (Rio Cajari) and Rondônia (Rio Ouro Preto), covering approximately 2.2 million ha. After this first push, the total area of land under federal ERs changed very little, despite the 1992 creation of four new federal ERs in two states. Three small ERs were created in Maranhão (on about 30,000 ha) and one in Tocantins (10,000 ha). The biggest change during

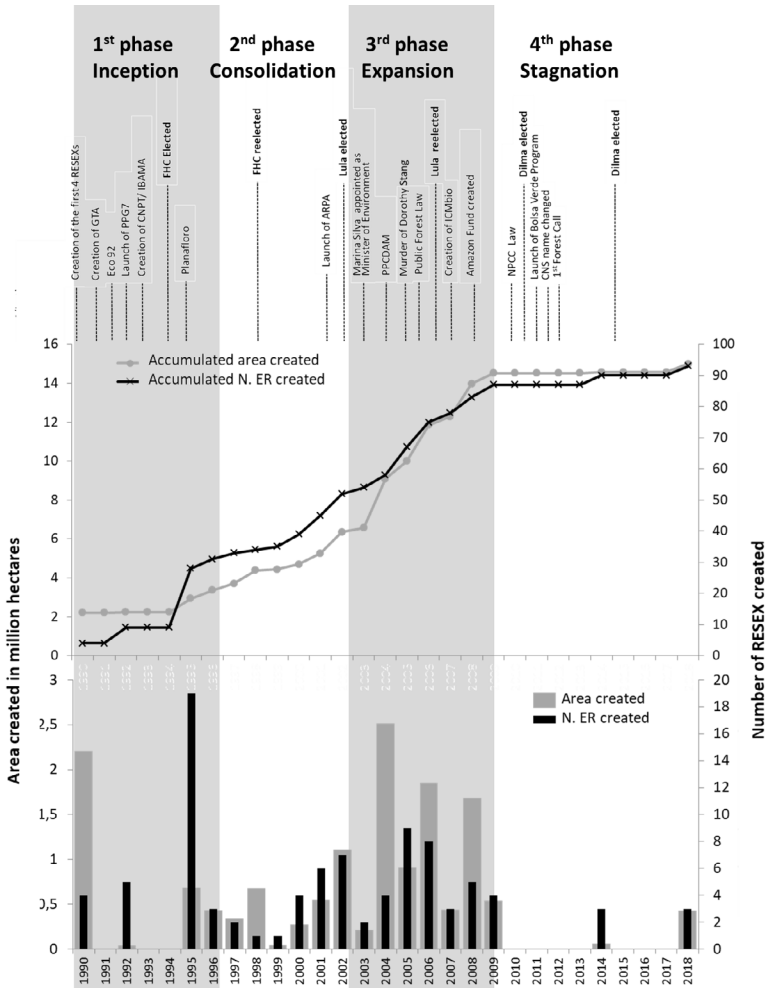

FIGURE 2 – ER Timeline: Area and number of ERs created by State and Federal governments by periods of establishment in the Brazilian Amazon.

this phase came with the adoption of state-level ERs in Rondônia, which in 1995 alone created 21 reserves covering approximately two million ha. Therefore, the inception phase was characterized by an initial push with the establishment of four ERs in three different states, and an adaptation of the federal model, represented by the creation of state level ERs in Rondônia.

The ER model was initially implemented in these states due to land use conflicts provoked by sponsored government programs. While in Acre the state government promoted the occupation of former rubber tapper estates by migrant cattle ranchers from southern Brazil, Rondônia was under alarming deforestation rates and land conflict with indigenous peoples and rubber tapper communities due to the paving of the World Bank-funded BR-364 highway. These state ERs were created in the domain of the World Bank-funded Planafloro Program (1993-2002) as a response to previous major Bank investments that resulted in negative environmental and social impacts[2] (Brown & Rosendo, 2000). The program's main goals were biodiversity protection through a zoning program, and the creation of a diverse system of conservation units, with the state ERs being one of the models proposed by social movements. The option for state-level reserves was also a source of debate; even though the areas assigned to state reserves were on federal land, state-level units were preferred because federal ERs would take longer to be implemented. Grassroots organizations could then lose the political momentum of social movements supported by external donors pressuring the state government for the legal designation of those areas. By adopting an innovative state-level model, the local social movement guaranteed that the rubber tapper communities would at least acquire immediate rights to the land.

Meanwhile, on the opposite side of the Brazilian Amazon, Brazil nut collectors in Amapá were being threatened by the "Jari Project," a major cellulose production endeavor in the southern portion of the state where the majority of extractivist communities as well as the greater expanses of Brazil-nut groves –the major non-timber forest product of the state -- were located.

During the inception phase, the rubber tappers movement was the primary driving force behind ER policy. Early on, the leaders of the rubber tapper movement understood that holding public office was an important component of their struggle. Chico Mendes served as city councilor several times in Xapuri and ran for state deputy in 1982 and 1986 (he was not elected). The Rubber Tappers' Movement became closely linked with the Labor Party (PT), including a direct relationship between Chico Mendes and Lula.

Two events, specifically, were crucial for the creation of the ERs during the inception phase. The first was the realization of the First National Meeting of Rubber Tappers in Brasilia in 1985, where rubber tappers from the Amazon discussed land reform and tenure rights issues, forest destruction by deforestation, and public policies for the category (CNS, 1985). As a result of this meeting, the National Council of Rubber Tappers (CNS) was created, an entity that came to represent the interests of a previously invisible and unknown social

[2] In the late 1980's, the Bank's POLONOROESTE road construction (highway BR 364) project that opened the western of the Brazilian Amazon to slash-and-burn agriculture, logging, and cattle ranching gained international attention due to the environmental and social damage it provoked in the region, and is widely considered today as one of the worst ecological disasters ever supported by the Bank.

group; and they formulated an innovative proposal and solution to the land issue - an agrarian reform inspired by the model of indigenous reserves, called Extractive Reserves. The second decisive event was the assassination of Chico Mendes in December 1988, which produced an international repercussion, leading Brazilian media and Brazilian society to discover the existence of a social movement aimed at defending the Amazon. Chico Mendes was identified as an environmental symbol in the context that preceded the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 (Allegretti, 2008). In sum, the strength of pressure from the rubber tappers' movement and the assassination of Chico Mendes strongly influenced the inception phase. In addition, the Rio Conference in 1992 played an important role in this phase, adding pressure to international and multilateral agendas for increasing biodiversity protection and sustainability (Bruntland, 1987), and creating a supportive political environment for the rubber tapper movement demands for ERs (Cardoso, 2002).

The rubber tappers movement was still an external protest movement that used its connections with international activist groups to create pressure on the development banks to change their funding policies for development projects and on the Brazilian government to create ERs. They used these external linkages to demand that the international community worked to protect the Amazon, in part by creating funding mechanisms like the Pilot Program for the Conservation of Brazilian Rainforests (PPG7). The PPG7, which operated from 1992 to 2008, was an initiative of forest governance which introduced "global environmentalism" to the Brazilian Amazon by means of governmental and multilateral structures as well as throughout social movements and NGOs, spreading values, concepts, and projects for sustainability and the reduction of the deforestation rate in the Amazon, including support for protected areas (Abdala, 2007).

The PPG7 played a major role in the expansion of protected areas (including the ER model) in Brazil after Rio 92. The program provided funding to continue to mobilize communities, to facilitate the creation of sustainable forest product markets, to train protected area managers, and to demarcate protected areas. The Extractive ReserveProject that was a subcomponent of the PPG7, not only directly supported the four Federal ERs created during the inception phase in the states of Acre, Rondônia, and Amapá, but also supported several other state ERs in Rondônia and funded efforts for land regulation and demarcation and social mobilization to create new ER territories (MMA, 2009). PPG7 funded many workshops to train ER community members in participatory management techniques and to strengthen their community associations. The PPG7 also played an important role focusing on promoting and establishing markets for the forest products that were the economic rationale of the ER model.

With the Rio 92 conference, social movements in the Amazon created the Amazon Working Group (GTA), an alliance of dozens of civil society organizations representing small farmers, extractivists, indigenous people, fishermen and *quilombolas* to articulate their demands in various platforms of public policies definition for the region. With the support of CNS and COIAB (indigenous representatives) the GTA played a critical role in coordinating the efforts of grassroots organizations that pushed the demands of extractivist communities to create new ERs, including strong participation in PPG7 de-

cision making. In addition, once the first extractive reserves were created, the movement led by rubber tappers, through an articulation with government agents, sought to ensure the establishment of the National Center for Traditional Populations (CNPT) in 1992, a center directly linked to the presidency of the National Environmental Agency (IBAMA) and originally chaired by a council of extractivists communities. The CNPT's creation allowed the movement to extend their reach to include other territorial demands for ERs establishment.

4.2.2. The consolidation phase

During the consolidation phase (1997-2001), an additional four federal ERs were created, covering an area of over 1.2 million ha. This phase is characterized by the creation of ERs in the two biggest states in Amazonia where no previous ERs had existed before. In 1997, the state of Amazonas created the Médio Juruá ER with an area of over 250,000 ha. Then, in 1998, the 674,000 ha Tapajós-Arapiuns ER was created by the state of Pará.

On the 10th anniversary of the creation of ERs in the Amazon, the federal model was again expanded in two primary states where the model was first established. The Alto Tarauacá (180,000 ha) and Lago Cuniã (50,000 ha) ERs were created in Acre and Rondônia, respectively. This can be considered a consolidation phase despite the fact that little increase occurred in the total ER territories. However, during this phase the model was reapplied at the state-level, especially where it was first implemented. State ERs began to be created in the two largest Amazonian states, making a huge contribution to the expansion of the ER model in subsequent years. In this phase, strong, vocal, and politically involved social movements created an agenda for the broad application of ERs. Moreover, the concept of ERs spread out and generated discussion among actors on multiple scales, from traditional communities to political decision-makers. Also, after Chico Mendes' assassination, members of the rubber tapper movement, and those who had advised the movement, followed his lead and entered politics (Vadjunec *et al*., 2011b; Schmink *et al*., 2014). Actors with ties to the social movement working from within the government played a major role in the support of ERs principles in the consolidation phase. This consolidation phase occurred during the second presidential term of Fernando Henrique Cardoso (FHC) and may have been pressured by the high deforestation rates in 1994/95, which culminated in legislative measures to change the proportion of land (from 50% to 80%) that Amazonian private properties should maintain as forest - that is, as a legal reserve (Fearnside, 2005).

During the Consolidation Phase, key advisors to the rubber tappers movement began to work from inside the Brazilian government to shape ER policy in ways that were not possible when they were social movement groups creating external pressure. Anthropologist Mary Allegretti was appointed as Amazon Coordination Secretary (Secretária de Coordenação da Amazônia*)* in Brazil's environment ministry (MMA) from 1999-2002. Allegretti had tremendous influence during the Consolidation Phase by developing the planning mechanisms that led to the subsequent expansion of Amazonian extractive reserves. Allegretti's work as Secretary coincided with a key period of international interest in the Amazon that was symbolized by PPG7 Program, which was key for the improvement of

environmental policy and was one of the primary reasons that ERs expanded in subsequent years.

Also, the political success of the rubber tapper movement in creating the concept of ERs transformed politics in the state of Acre. Jorge Viana, a forester and one-time close adviser to Chico Mendes, was elected governor in 1998 and re-elected in 2002. Acre's government launched innovative policies to strengthen the forest-based extractivist economy (Kainer *et al*., 2003; Wallace & Gomes, 2016). Support for ERs is a major component of this approach, and thus from 2000 to 2006 a new cycle of ERs establishment blossomed as three new federal reserves were created. Acre's forest government highlighted the social component of local and regional development, as evidenced in the government's innovative forest conservation and development paradigm – "Florestania" or forest citizenship, built around the recognition and appreciation for local knowledge systems.

4.2.3. The expansion phase

The Expansion Phase (2002-2009) was characterized by the intense expansion of ERs, both in quantity and area. This phase saw the establishment of 29 ERs, covering approximately 6.9 million ha of land. This represented an increase of over 50% of land under the ER system compared to the previous two phases. During this time, ERs continued to be established every year in the region. In 2003, the lowest amount of land (216,874 ha) was designated to ERs, with the implementation of only one state-level ER in Amazonas. In 2004, the highest amount of land was designated with over 2.5 million ha of land devoted to the creation of ERs. This represented an annual increase of over 1.1 million ha of ER land during this phase. The state of Pará alone provided an important contribution to this large increase: 16 federal ERs were created covering approximately 3.1 million ha. This included the innovative adoption of the ER concept to the marine coast of the state of Pará, starting with the establishment of the Soure Marine Extractive Reserve in 2001 in Marajó Island, followed by four others in 2002, and advancing in 2005 with the creation of four new territories of Marine ERs. These territories represent a significant mosaic of marine ERs to protect mangroves ecosystems in the state (Glaser & Oliveira, 2004). The ER model inspired coastal extractive communities, and created new institutional and political contexts for the pioneer social movement; Marine ERs continue to be demanded by fishing and other extractive communities which depend on the mangrove crabs on the coast of Pará and more recently in Maranhão for their income.

The state of Amazonas followed similar trends to Pará. During the expansion phase, six federal ERs were created, covering over 1.9 million ha. In addition, Amazonas state created two state level ERs, covering 368,000 ha. The increase in ER land during that phase also resulted from two ERs established in Acre (Cazumbá-Iracema and Riozinho da Liberdade), respectively in 2002 and 2005, which increased Acre's area under federal ER by over one million ha. During this phase, the application of the ER model was widespread in the states of Pará and Amazonas. This is likely a result of the popularization of ERs model at multiple scales, from regional grassroots organizations to governmental acceptance of ERs as a productive conservation and development strategy for the region.

The expansion phase of ERs began in the last year (2002) of the FHC government, gaining strength during Lula government (2003-2010), especially his first term. A gradual shift from a focus on biodiversity conservation to a sustainable development agenda based on forest resource use by extractivist people, as well as the need for proper land-use planning, may have been the reasons for the expansion of ERs in this phase. The increased involvement of states in environmental governance, as well as the increased involvement of rubber tappers and their allies in governmental roles also contributed to this expansion (Vadjunec *et al*., 2011b).

During the Expansion Phase, Marina Silva, who was the first former rubber tapper elected to the federal senate in 1994 and reelected in 2002, was later appointed Minister of the Environment by Lula in 2003.Silva was a major supporter for the establishment of ERs during the Expansion Phase until her resignation in 2008. As a Minister, Marina played a major role in defining innovative environmental policies for the region, including the creation in 2007 of the Chico Mendes Institute for Biodiversity Conservation (ICMBio), linked to the Ministry of the Environment (MMA), responsible for the management of federal conservation units in Brazil, including the ERs.

In addition, the experience of the PPG7 Program enabled MMA to lead the Federal Government in the formulation of the "Sustainable Amazon Plan-PAS" (Brasil, 2008) and the "Regional Development Plan for the Area of Influence of the BR 163 Highway" (Brasil, 2006), which sought to articulate integrated actions of federal agencies, state governments and organized civil society organizations in search of new principles of collaboration and participation, for the debate on new regional public policies for development and sustainability (Abdala, 2007). Aligned with main policies and strategies for Amazon conservation, including the "Sustainable Amazon Plan" and laid on the groundwork of PPG7, in 2002 the Brazilian government, through partnership with diverse institutions, ranging from government agencies to NGOs and civil society organization, created the Amazon Region Protected Areas Program (ARPA). The program led by the Ministry of the Environment aimed to support initiatives of large-scale conservation through the creation and support of diverse modalities of protected areas in the region over a 15-year period (WWF, 2017). As the biggest program regarding protected areas conservation in Brazil, ARPA played a key role in establishing new ER territories during the Expansion Phase, as well as supporting initiatives of management and promotion of sustainable economic development in the already created ERs in the region.

During the Expansion Phase, a multitude of traditional peoples' social movement groups coalesced into a larger Pan-Amazonian social movement that used its larger political base to try to expand ER policy. During this phase, which coincided with Lula's first term, a large number of former social movement activists with different types of experiences held positions at all levels of the government. Many of these individuals maintained direct contact with the leaders of Amazonian social movements. These direct contacts and direct channels to policy makers certainly made it much easier to create ERs during the Expansion Phase.

Increased environmental governance policies for controlling large-scale deforestation in the development frontier in the 2000s (Nepstad *et al*., 2002; Schmink *et al*., 2017; Thaler, 2017), and con-

tinued agrarian conflicts, including the murder of Dorothy Stang in 2005 (Le Breton, 2008; Mendes, 2015), accelerated the creation of protected areas in Pará. Local extractivist communities and small farmer colonists suffering from the absence of state assistance developed an important resistance movement with support of the GTA, Catholic Church and Rural Workers' Unions, creating the "Movimento Pelo Desenvolvimento da Transamazônica e Xingu"(MDTX). The MDTX built a common agenda among different groups and strengthened its local and regional alliances in order to demand concrete changes in government policies in the region (FVPP, 2000). The MDTX's strongest period in building bridges to consolidate its voice took place through the "mobilization" regarding the paving of the Cuiabá-Santarém Highway (BR-163), a road connecting soybean producers from the state of Mato Grosso to the port of Santarém. The efforts of the MDTX network, combined with the support of environmental NGOs, and along with governmental policy to mitigate deforestation and solve drastic land tenure conflicts in the region, resulted in the creation of a mosaic of protected areas covering approximately 30 million hectares in the *Terra do Meio* region (IPAM, 2004; ISA, 2004; Schwartzman *et al.*, 2010). The ER Verde Para Sempre (Forever Green), the largest ER in Amazonia today, created in 2004, and the Rio Iriri ER, created in 2006, are examples of this social movement coalition during the Expansion Phase.

The establishment of federal ERs in Pará during the Expansion Phase thus represented a complex context of negotiation in Amazonia, one which alleviated long standing land tenure problems and agrarian conflicts (Campos & Nepstad, 2006). It also represented an important example of increased environmental governance through dialogue and negotiation among different development interests, the continuing coalition of social movements, and the increased presence of federal government institutions in frontier areas.

4.2.4. The stagnation phase

The stagnation phase (2010-2018) is characterized by an abrupt discontinuity in the creation of new territories of Extractive Reserves. At this phase, even with the support of the social movement, the Dilma government did not give priority to these agendas that had been widely attended to in the previous phase. Other political forces gained more space on the broader government agenda, such as energy production, mining, and agribusiness sectors, which have led to downsizing and reclassification of Amazonian protected areas (Bernard *et al*., 2014; Ferreira *et al*. 2014; Magalhães & Cunha, 2017). These political forces are contrary to the agendas of the various social movements linked to securing land tenure rights as well as broader environmental concerns in the region. Obviously, greater historical distance is needed for more in-depth reflections on the context and invisible forces influencing this phase. However, one can argue that during this phase there was a clear reluctance of the government to meet social movements' demands, which are not only reflected by blocking the creation of ERs territories, but in several agendas directly linked to social movements' demands, such as the broad demand for agrarian reform, and indigenous land demarcation, for example.

Furthermore, regulatory setbacks and threats to ER growth and environmental and social justice

concerns are evident. For instance, there has been a reduction in some areas of categories of protected areas, including ERs. The case of the Marine ER of Baia do Iguape in the state of Bahia is very emblematic, as the ER territory was decreased to create petroleum platforms for the national oil company (Petrobras). Other examples, includes the diminution of the territories of three national parks: *Parque Nacional da Amazônia* created in the state of Pará in 1974 and *Parque Nacional dos Campos Amazônicos* and *Parque Nacional Mapinguari,* created in 2006 and 2010 respectively, both located between the states of Amazonas and Rondônia. Their borders were changed to exclude areas that would be flooded by the construction of the hydroelectric plants of Jirau, Santo Antonio and Tabajara in the State of Rondônia.

With the first government of the workers' party (PT) under Lula there was wide participation by sectors of social movements in political decisions of government, with discontinuity, however, during the subsequent Dilma government. Links to social movements suffered a sharp reversal of political inclusion within the Dilma government, collapsing almost entirely within the current Temer government.

Recent setbacks during the Temer administration include the discontinuation of the *Bolsa Verde* Program, which aimed to promote the social inclusion of communities by combining income transfer with environmental conservation activities. The *Bolsa Verde* Program was launched in 2011 as a Payment for Environmental Service policy with the main goal of promoting conservation and the well-being of local communities in ERs and settlement projects. Since the beginning, the number of beneficiaries increased from 8.000 in 2011 to 76.000 in 2016. Despite its increased importance in conservation practices and poverty alleviation, during Temer's administration the program faced a radical budget cut and was terminated in 2018.

With the boom of ERs creation perceived in the Expansion Phase, one can easily conclude that there was a stagnation in the last decade. However, this stagnation could also be interpreted as a natural part of the creation process or an arrival at a "stable phase". In the "stable phase," one could argue that demands put forth by social movements were widely attended to, resulting in the culmination of new territories. After all, throughout these four phases, more than 14 million hectares were created in ERs territories. However, considering that there are now more than one hundred pending formally constituted processes for the creation of new ERs, it is safe to state that there is a political barrier to meeting the demands of the social movement for the creation of new ERs in the Amazon.

It is clear that the final decision to create new ERs is always political. The only ERs created during the Stagnation Phase are examples of such political maneuvers. The three marine reserves created in the state of Pará in 2014 were enacted in the context of political bargaining with social movements during Dilma's presidential re-election campaign. Likewise, the new three marine reserves created in the state of Maranhão in 2018 were enacted as the last act of the acting environmental minister Sarney Filho, who left the Temer government to run for Senator from Maranhão.

Sarney Filho also attended to a long-standing demand of the ERs social movement for macro policies to strengthen the regional extractivist economy. He instituted the National Plan for the Strengthening of Extractive and Riverine Communities - Planafe

(Presidential Decree Nº 9.334). Launched in 2018, the plan is the result of a long term dialogue between different sectors of the government and the social movements that surround ERs and their inhabitants -- babassu nut breakers, fishermen, rubber tappers, and collectors of fruits, clams, crabs, and roots, among other extractivist communities. Planafe aims to integrate and adapt governmental measures aimed at improving the quality of life and environmental conservation in extractive territories, with four main lines of action: social inclusion; promotion of sustainable production; infrastructure development; and environmental and territorial management, following the directives of the National Policy for the Sustainable Development of Communities and Traditional People (Presidential Decree Nº 6040/2007). Although this represents an important conquest for the social movement, those policies are unlikely to evolve in the current political contexts of Brazil, dominated as it is by the interests associated with agribusiness over conservation.

5. Discussion

"A land without men, for landless men", one of the main directives used by the military government to stimulate the migration and occupation of the Amazon in the 1970s, illustrates just how much Amazonian extractivists were invisible to the Brazilian nation state. An initial combination of disruptive tactics, along with the establishment of a network of contacts including the Catholic Church as the main supporter, provided resources and helped to articulate dialogue between extractivists from different regions of the Amazon. The expansion of the social movement's network, through the adoption of a more extensive framework as well as collaborations with other groups, such as environmentalists and researchers, allowed the prosperity of the group as well as the group's involvement with international actors (Keck & Sikkink, 1998).

From early on, the social movements incorporated politics into their strategies to achieve social justice and environmental change in Brazil. It is clear from their behavior that they understood that real change could only be made if they not only protested government policies from without, but also directly changed them from within. One of the primary reasons the ER model expanded so dramatically in the Expansion Phase was because during that phase (Lula's first term) a large number of members of Amazonian social movements became politicians and employees in government agencies. This resulted in the adoption of less disruptive strategies and the establishment of spaces of open dialogue between the government and social movements in general (Pacheco, 2011). These individuals maintained their close contacts with the leaders of the grassroots Amazonian social movements to which they had belonged (or which they had advised) during the 1970s, 80s, and 90s. During the Expansion Phase, social movement leaders were able to present their demands for ERs to people in the Lula government who had either been directly involved in the movements or were sympathetic to their demands based on their experiences with CEBs, labor unions (*sindicatos*), and other efforts at grassroots mobilization in Brazil. However, if the reach of strategic positions for the movement was important to guarantee the advance of demands, it also created a sometimes difficult dilemma or tension between being part of the movement and being part of the government.

What started as localized rubber tapper movements in dispersed areas of the Amazon has become a Pan-Amazonian collection of social movements of diverse groups of resource users that work together based on shared interests to maintain a diverse set of traditional livelihood strategies that depend upon access to natural resources that are under threat. Many former tappers now identify themselves as *ribeirinhos,* or self-identify as other types of resource users and/or ethnic groups (Gomes *et al*., 2012a). Even the National Council of Rubber Tappers (CNS) changed its name to the National Council of Extractive Populations in 2010, which is another reflection of the changes that have occurred in the different time periods mentioned in the paper.

Among the three states of the ER Inception Phase, Acre has shown the strongest commitment to the policy, with the so-called "Forest Government" making Chico Mendes and ERs part of its platform (Vadjunec *et al*., 2011b). It is unlikely that ERs will continue to grow in number in Acre since almost 20% of its territory is already under the ER model, but rather the state seeks to continue improving livelihood conditions of the communities living in established areas. It is fair to say that Acre exemplifies the strongest scenario of the ERs model in the Amazon. However, the state political context in neighboring Rondônia provides no prospects for the establishment of new ERs. ERs in Rondônia are often seen by local elites and local governments as antagonistic to the state-wide development goals. This, in turn, resulted in a political and institutional fragility that has made them difficult to consolidate over the long term. ERs in Rondônia have likely had to face the greatest pressures of all the ERs in the Amazon. Rubber tapper leaders are still living in an atmosphere of sustained rural conflicts, constantly harassed by local opposition pushing for other land uses, resulting in constant illegal practices (especially logging) and deforestation in the state's ERs (Ribeiro *et al*., 2005; Euler *et al*., 2008).

As the ER policy evolved over three decades, ER establishment in Rondônia was short-lived, while in Amapá the establishment of ERs did not expand at all. The ER model in the small states may thus have been exhausted, while in Pará and Amazonas (Expansion Phase), the model will continue to be considered. Comparatively, Pará and Amazonas are far from reaching the percentage of land under ERs compared to states where it was first implemented in the 1990s. Yet, these states have demonstrated a consistent process of establishing ERs since the early 2000s until the stagnation phase, and may represent the trend for future growth in ER area.

6. Final considerations

Here, we offered a macro-level regional development analysis of ERs trajectory using a political ecology framework to understand how social movement forces, environmental agendas, and changing political opportunities continue to shape and reshape the creation of ERs in different Amazonian states during four distinct periods of time. The political ecology framework used here allows us to explore these phases as well as the ERs as spaces of contestation, success, negotiation, and constant change. The model has moved beyond forest environments to encompass a diversity of riverine floodplains and marine ecosystems, as well as diverse social groups with distinct historical and cultural backgrounds. In addition, the ER system has been a true pioneer in the development of people and parks

scenarios, paving the way for the creation of other people-based protected areas, as well as hybrid land tenure models (Ehringhaus, 2005), that are being implemented by various institutions at both the federal and state level, and respond to social movement forces and changing political contexts and opportunities. These sustainable-use protected areas include Sustainable Development Reserves (RDS), Extractive Settlement Projects (PAE), Sustainable Settlement Projects (PDS) and more recently Forest Settlement Projects (PAF). In this context, if an ER is not exactly the primary choice model for direct conservation units in some states, it has still provided the foundation for the creation of several other conservation unit modalities in the region. The ER model is not the only option available, under "sustainable use conservation units"; state governments in the region are also making political choices for the designation of specific models.

As a public policy, ERs are widely considered one of the important tools to simultaneously decrease deforestation rates in the region, while also responding to social justice demands. Federal ERs appear to be less vulnerable to state political interferences, while the state-level approach seems to depend on closer alignment with the goals of the state government's development agenda. Aside from proposing the ER model, the rubber tapper movement has evolved from being a movement of powerless workers to a powerhouse influencing both environmental policy and land reform, with its activists operating in and contributing to local, regional and national governments, legitimizing and even institutionalizing its philosophy of social and environmental justice. The rubber tapper movement's success has come as a result of its efforts to pioneer strategies to open new political spaces, create long-lasting partnerships with other social groups, to establish the successful and dynamic concept of ER, and develop the capacity and flexibility to adapt to diverse social and political contexts in Amazonia.

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