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RESEARCH ARTICLE

From grassland to forest: the puzzle of land tenure and forest conservation in Costa Rica (1962–2014)

Wilson Picado-Umaña[1] and Elisa Botella-Rodríguez[2]

[1]Escuela de Historia, Universidad Nacional, Costa Rica and [2]Universidad de Salamanca, Spain
Correspoonding author. Email: ebotella@usal.es

Abstract
This article discusses Costa Rica's policies and institutions created by the state to redistribute land during the 1960s and 1970s, when Latin American was implementing agrarian reforms. The paper also addresses the creation of the national parks system and forest conservation state policy supported by different scientific organisations during the same period. Within this context, this research seeks to explore the interface between the agrarian question (surrounding land and agrarian reform) and the ecological question (related to forest, national parks and conservation policies). The study examines how the transformations in land tenure and forest conservation have led to the structuring of a 'new agrarian question', which encompasses the concentration of land as well as the concentration of payments for environmental services.

Introduction

Despite a period of deforestation, Latin America's woodlands have recovered following unexpected dynamics since 2000. According to Fearnside (2017), the rate of deforestation in the Brazilian Amazon fell from 27,772 km^2/year in 2004 to 4,571 km^2/year in 2012 (see also Hecht, 2014a: 881).[1] This pattern was also recorded in other places of Amazonia and Central America. Jadin et al. (2016) stress that while tropical deforestation remains widespread, some countries have experienced a forest transition.[2] According to Meyfroidt and Lambin (2011), despite global rates of tropical deforestation remaining high, they also experienced a decline during the period 2000–10. In this context, some developing countries have undergone a forest transition due its natural regeneration and the expansion of forest plantations, thus contributing to net global reforestation and diminishing pressure on woodlands. However, the environmental benefit of this process has been disputed in recent years for not taking into account the ecological quality of the forest transition associated with increased exports of agricultural and forest products. In this regard, the analysis of the impact of international policies in reducing global deforestation must consider the international trade of agricultural and forestry commodities (Meyfroidt, Rudel and Lambin, 2010).

Reforestation, as well as natural forest regeneration, have also been widespread in the Latin American tropics. This region regained 360,000 km^2 of woody vegetation cover in the early 2000s (Aide et al., 2013; Clark et al., 2013). Notably, deforested countries such as El Salvador also underwent a process of forest recovery during the same period (Hecht and Saatchi, 2007). As stated by Grainger, forest plantations doubled in Latin America between 1980 and 2005 (Grainger, 2014: 93–4). According to Hetch (2014a), these developments have led to significant transformations in Latin America's agrarian realities, rural areas and policies. These changes imply that previous models for understanding small-farmer dynamics in the region need to be adjusted in order to focus 'less on agriculture and more on emergent forest regimes, and in many

ways a new, increasingly globalised economic and policy landscape that emphasises woodlands' (Hecht, 2014a: 877).

In this regard, the incorporation of environmental dimensions within the agrarian question provides room for 'a fruitful dialogue' between political ecologists and researchers on agrarian studies (Gerber and Veuthey, 2010). Although critics have been calling for an exchange between political ecology and agrarian studies (Bernstein and Byres, 2001), a gap still remains between these fields of study, as well as with peasants studies (Gerber and Veuthey, 2010). According to Benjaminsen and Svarstad (2019), political ecology is a field within environmental studies focused on power relations as well as the coproduction of nature and society. Blaikie and Brookfield (1987) further define political ecology as a field of study that combines the concerns of ecology with political economy in a broad sense (See also Wolf, 1972). Martínez-Alier (2002) describes the field as the evaluation of conflicts over access to natural resources and services and over the problems of inequalities in terms of power, property and income among human groups. Peet and Watts (1996) added a new perspective, which addresses the social and power relations underlying environmental degradation. Overall, the relationship between political ecology, agrarian conflicts and environmental studies becomes quite clear in all of these analyses and it is particularly significant for Costa Rica's case.[3]

Despite high rates of deforestation during the 1970s and 1980s, Costa Rica is currently among a handful of countries where a net increase and stabilisation of forest cover have taken place in recent decades (de Camino Velozo, Villalobos and Morales Aymerich, 2015). From the 1950s to the early 1980s, Costa Rica experienced a period of deforestation as the minimum coverage fell to approximately 21–30 per cent of the national territory[4] (López, 2021). According to de Camino Velozo, Villalobos and Morales Aymerich (2015), the primary cause of deforestation was the substitution of forest area by other land uses, mainly for agriculture and pastureland. As stated by Jadin et al. (2016), forest transition in Costa Rica took place due to the intensification of export-led agriculture, as well as to reforestation. The decline in meat exports led to a decrease in pastures, freeing up large plots of land for forest natural recovery, while grain imports have saved land for tropical fruits and oil palm production (See Appendices 1–4). Although the forest transition in Costa Rica has been environmentally beneficial, the expansion of export-oriented farmland has encouraged deforestation in some regions of high ecological value. In addition to this, the production of pallets used for export-led fruit increased timber extraction from forest plantations (Jadin et al., 2016).

This article examines how the transformations in land tenure and forest conservation policies have led to the structuring of a 'new agrarian question' in Costa Rica linked to land concentration and the distribution of the so-called Payments for Environmental Services Program (hereafter PES). Despite the many studies on the subject, the connection between forest conservation (or forest transition as mentioned above) and the agrarian question has been neglected. In contrast to studies focusing on the analysis of *latifundia*[5] and their relationship with postwar livestock expansion, this article bridges more recent literature on forest conservation in Costa Rica to the agrarian question by exploring three dimensions. First, it examines the territorial change experienced in the Costa Rican countryside between 1950 and the 1970s, linked to the expansion of pastures and deforestation. Second, it identifies the contradictions underlying state policy that sought, on the one hand, to mitigate and control the extension of pastures and the process of deforestation, and on the other hand, to quell the social unrest through the creation of national parks and peasant settlements. Finally, the article discusses the recovery of forests in the national territory since the 1990s.[6]

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From forest to pasture: the perception of Costa Rica as a great grassland

Scholars have been analysing land concentration in Costa Rica since the 1970s. Between the late 1970s and the 1990s, the literature explored the dualism of the latifundia-minifundia land tenure structure as well as the framework and intensification of land conflicts (Barahona, 1980; Boza, 1978; Churnside, 1981; Edelman and Seligson, 1994; Edelman, 1992; González, 1987; Mora, 1990; Ramírez, 1981; Rodríguez, 1988; Villarreal, 1992). By and large, these studies demonstrated land concentration in large properties since the Second World War in Costa Rica. These scholars questioned the idea of Costa Rica as the 'country of the minufundio', as certain official mythology claimed (for instance Gudmundson, 2011; Molina, 1986; Hill, 1964; Rojas and Escoto, 1960). Many of these studies identified latifundia as the unit causing land concentration and deforestation in Costa Rica. In both cases, grasslands were symbolically regarded as the basic component of an old social structure surviving postwar capitalist modernisation, associated with latifundia and the power of landowners. At the same time, from an ecological perspective, grassland was associated with the depredation of natural resources caused by livestock and meat demands from developed countries.

During the 1970s, the process of deforestation in Costa Rica attracted the attention of national and international scholars.[7] Among them, M. E. Bozzoli, J. J. Parsons and J. A. Tosi warned about the '*potrerización*' of the national territory.[8] Bozzoli demonstrated that pastures constituted the dominant land use in almost the entire national territory (Bozzoli, 1977, based on agricultural census data). Bozzoli (1977: 571) also pointed out that 'the conversion of Costa Rica into a pasture' was a process that was developed over a period of about twenty years. Unless adequate measures were taken, if this trend was maintained 'the whole forest will have disappeared' within fifteen years. This anthropological analysis went further than territorial or ecological matters and indicated that livestock expansion had a clear social impact, consisting in the displacement and migration of rural populations, as well as the concentration of land in few hands. According to Bozzoli (1977: 571–2), this expansion strengthened a rural elite linked to meat exports and limited other production opportunities for peasants, tenants and family farmers.

Although Parsons (1976) and Tosi (1976) focused on the ecological dimension, they also revealed the contradictions of grasslands expansion. Parsons (1976) stressed that this process was associated in Central America with the increasing use of cultivated pastures that were in many cases related to plants brought from Africa at the turn of the twentieth century. According to Parsons (1976), *potrerización* was so deeply enrooted in the region that the agricultural frontier was only a transitory stage between forest elimination and the opening of pastures for livestock. From a social perspective this process was evidently contradictory. Whereas the area of pastures and cattle herd in Costa Rica doubled from 1959 to 1972, the same period witnessed a decline in meat consumption per capita (Parsons, 1976: 124–5; Kaimowitz, 1996: 30–1). Parsons (1976) further stressed that the ecological consequences of transforming forests into grasslands were poorly understood. The spread of African-native grassland improved the availability of fodder for livestock. However, this process resulted from the colonisation of aggressive species such as Jaragua (*hyparrhenia rufa – nees – stapf*), which became known as the 'Africanisation' of Central America's tropical landscape (Parsons, 1976: 130–1).

Tosi (1976: 139–41) also focused on the forest problem and stated that: 'Our concern with the scope, severity and rates of unfavourable ecological changes in our environment can be largely attributed, directly or indirectly, to the senseless and unbridled expansion of traditional livestock to lands less suitable for this activity' (Tosi, 1976: 139). Tosi was especially concerned about the waste of wood generated by pastures; a waste in terms of size and quality that would be difficult to recover in the future (Tosi, 1976: 140). He further claimed that a significant part of the felled forests formed part of 'advanced successional stages', with a high content of woods in large trunks. These species did not adapt easily to reproduction on degraded or ancient grazing soils.

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To sum up, the projection of Costa Rica as 'a great grassland' was not far from becoming a reality (see Appendix 1). In 1978, the estimated linear rate of deforestation in the country was nearly 36,000 hectares per year (from 1950 to 1961), a figure that increased to 45,000 hectares from 1961 to 1977 (Pérez and Protti, 1978). Cross-referenced with data provided by Porras and Villarreal (1993), these figures show that most of this logging process was illegal. In 1977, the national total area legally exploited (through licences) was only 19,348 hectares (Porras and Villarreal, 1993: 44). Increased logging also gave rise to the relocation of the forest frontier. Pérez and Protti (1978) demonstrated that during the 1950s logging was concentrated in the Central and North Pacific regions, but it spread to the Caribbean and the northern and southern regions from 1961 to the 1970s. The shift in land uses that resulted from grassland expansion and logging activities clearly affected peasants in rural Costa Rica.

Identifying the causes of deforestation: the anti-ecological peasants

Whereas pastures increased their cover by about one-third during the period 1963–73, forests lost almost 400,000 hectares during the same period (Porras and Villarreal, 1993: 16–17). Despite these trends, scholars have not reached a consensus regarding the quantification of the rate and causes of deforestation. Joyce's data suggested an annual disappearance of about 50,000 hectares of forest, while González and Hatshorn indicated an average of between 25,000 and 60,000 hectares per year (cited by: Rodríguez and Vargas, 1988: 17–19; Sader and Joyce, 1988; Joyce, 2006: 127–30). Within this context, the notion of deforestation associated with peasant pressures and land invaders prevailed among forest extraction companies and international organisations. However, other positions proposed an alternative reading, linking forest conversion into pastureland to the growth of meat demands from the United States and the so-called 'Hamburger Connection' (Myres, 1981; Edelman, 1992).

Precaristas[9] and peasants on the agricultural frontier were generally singled out as the main contributors to forest logging. A 1983 report claimed that 'precaristas continue to invade both public and private lands with impunity', encompassing forest reserves and expanding their predatory occupation (cited by: Rodríguez and Vargas, 1988: 33). At the beginning of the 1980s, an industrialist from the logging sector stated that 'peasants not only commonly usurp land with traditional agricultural plantations, but they also specialise in irrationally destroying our forests' (cited by: Rodríguez and Vargas, 1988: 34). Ten years later, a renowned pioneer of Forest Conservation in Costa Rica maintained the same position: 'Of course, peasants should not be blamed directly for this action, since they seek subsistence, but they are deforesting agents, which in many cases sell their plots to landowners when they lose their initial potential, migrate to new lands and continue with their activity' (Fournier, 1991: 71).

The idea of the 'anti-ecological' peasantry was also patent in the founding history of Costa Rica's national parks, which highlighted the role of the state as a preservationist agent coupled with the relevant role of officials and scientists (Boza, 1978, 1993, 2015; Wallace, 1992; Allen, 2001). This narrative labelled the peasant as an enemy of conservation.[10] It also described the peasant as an invader of *haciendas* and forests, as well as the broker between the interests of logging and cattle raisers. According to Ramírez and Maldonado (1988: 88), 'the greatest threat to the integrity of wilderness areas are land invasions by a diverse group of actors ...: "precaristas" or landless peasants, land speculators, loggers paying third parties to invade land in order to extract timber from farms, [and] cattle raisers attempting to expand the area of pastures ...'.

Meanwhile, other accounts portray the peasants on the agricultural frontier as the main agents of deforestation, blaming them for the endangerment of protected areas. In their view, the peasantry cut down the forest to demonstrate that improvements ('*Mejoras*')[11] have been made to the property in order to claim its ownership. Peasants then sowed corn and other crops such as beans, which, as their yields dropped over the years, were replaced by pastures and livestock, facilitating

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soil degradation (Umaña, 1987: 32). This idea of land degradation prevailed until the 1990s. A study conducted in the 1990s stated that: 'The pace of agricultural colonisation is unsustainable ... Costa Rica has only 51,000 km^2, and practically the agricultural frontier has reached its boundaries.' Land under forest cover was not suitable for productive activities other than the protection of water resources, scenery, or biodiversity. However, 'the pressure to colonise new areas continues, without considering its high social, economic and environmental costs' (Ministerio de Recursos Naturales, Energía y Minas, 1990).

The debate on deforestation addressed the problem of land tenure in Costa Rica in two ways. The logging industry, international organisation officials and the state associated forest logging with peasant agriculture. In their view, deforestation and peasant land tenure were intertwined, while opposing the conservationist and developmental state policies. However, different scholars suggested that the deforestation was related to livestock expansion and therefore had an evident impact on the land tenure structure, favouring the formation of pastures and large livestock properties, usually in the hands of well-off social groups. As Bozzoli (1977) pointed out, behind the *potrerización* of the national territory there was both an ecological and social cost, stemming from land concentration and the expulsion of peasants from livestock regions, who headed towards urban or other areas of the country.

To sum up, both positions simplified the causes of deforestation. Neither the pasture nor the peasantry were the sole culprits of deforestation. On the one hand, deforestation and reforestation were developed as part of intense commercial activity, in both legal and illegal contexts, related to the presence of medium and large-scale farmers and businessmen. In the case of legal logging, most of the forest logging permits assigned in the 1970s and 1980s were concentrated in farms of over 100 hectares. Likewise, most of the area reforested through state incentives was concentrated in these types of properties (Rodríguez and Vargas, 1988: 88–92). On the other hand, since the formation of the Instituto de Tierras y Colonización (hereafter ITCO)[12] peasant settlement deforestation seemed to increase, as in 1986 the state had bought and accumulated 600,000 hectares for these settlements (Mora, 1990: 97).

Bringing back the woodlands: the state, peasant settlements and national parks

In the early 1970s, one of the state's main responses to *potrerización* and deforestation was the creation of protected areas such as national parks, as well as biological and forest reserves. Influenced by American conservationist tradition, the creation of these areas helped to contain accelerated deforestation (López and Granados, 2016). At the same time, the state had to deal with the social effects of land concentration around livestock; particularly the impoverishment of the rural population and its proletarianisation. Increasing land demands, social unrest and rural conflicts arose among former peasants and landless workers.[13] These tensions forced the Costa Rican government to create a programme based on the distribution of plots for peasant settlements, administered by ITCO. From an analytical perspective, ecological and land tenure policies shared a common basis: the creation of sites of ecological and social restoration. On the one hand, the establishment of national parks sought to curb grassland expansion and to recover forests affected by logging. On the other hand, peasant settlements sought to contain social conflicts derived from the unequal land structure associated with grassland expansion. Thus, the state also attempted to localise and contain social conflicts in specific sectors of the country.

From 1970 to 1973, the protected areas covered an area of approximately 43,000 hectares. The increase was even more significant during the administration of President Daniel Oduber (1974–78), which incorporated into the National Park System new areas such as Chirripó and Corcovado (in the south of the country) as well as a significant number of forest reserves and wildlife refuges (Rodríguez and Vargas, 1988: 168–72; Joyce, 2006: 160).[14] The governments of Carazo Odio (1978–82) and Monge Álvarez (1982–6) continued these trends and in 1986 almost half a million

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hectares were protected. These protected zones were consolidated during the 1990s and the early 2000s. By 2012, more than 1.3 million hectares had some form of protection, of which just over 600,000 were national parks, 200,000 national wildlife refuges and many forest reserves. The rest was distributed among wetlands, protected areas, biological reserves, or nature reserves.[15]

However, these achievements took place during a period of rising conflicts between *precaristas*, landowners and the state due to the concentration of land and agricultural resources. The modernisation of rice farming on the Pacific Coast led to the concentration of land and capital by medium and large producers (Cartín and Piszk, 1988; Matamoros, 1985). With regard to coffee production, while the Green Revolution technology made family farming profitable, it also excluded producers who failed to modernise their farms (Raventós, 1986). The same trends intensified in other regions such as the Guanacaste province where capitalist modernisation and aggravating land concentration led to the disappearance of peasants who became hired workers, worsening the land problem (Rodríguez, 1988).

From 1963 to 1979, different groups of peasants invaded more than 700,000 hectares, while during the period 1980–5 invasions affected approximately 120,000 hectares (Villarreal, 1992). In 1970, ITCO registered up to 817 occupied farms that covered about 400,000 hectares (Grupo Centroamericano de Tenencia de la Tierra y Desarrollo Rural, 1969; Barahona, 1980). In this context, state intervention was required as the ITCO coordinated the purchase of more than 4,000 hectares, for a total of 324 beneficiary families in 1963. In 1986, the accumulated area of land purchased by ITCO was approximately 663,000 hectares, for more than 32,000 beneficiary families (Mora, 1990: 97). The territorial impact of forest conservation and land settlement policies was notorious. In 1986, peasant settlements and protected forests accounted for approximately 35 per cent of the national agricultural area according to the 1984 Agricultural Census. In other words, one third of Costa Rica's effectively available land had been converted to other uses in the span of a decade, driven by both state 'conservationism' and social conflict in the countryside (see Appendix 2).

Is forest the new grassland? Towards a 'second generation' land tenure

As shown by studies, tropical forests are currently valued for their potential for carbon capture and sequestration. Developed in 2005, REDD+ is a global strategy for the reduction of greenhouse gas emissions through forest management in developing countries. REDD+ projects support policies that address the causes of deforestation, promote social and economic development, improve the conservation and sustainable management of natural resources, and increase carbon stocks as well.[16] Despite their environmental advantages, initiatives linked to the REDD+, such as the payment for environmental services, have been questioned by different experts. On the one hand, as stated by Fletcher et al. (2019), these programmes encourage the preservation of forest by farmers through market-based instruments, as part of a 'neoliberalisation' trend in forest management. Thus, by failing to deliver sufficient revenue from the incentives, these initiatives led to the extraction of natural resources (Fletcher et al., 2019: 1069; Fletcher, 2013). On the other hand, given that land ownership is a determining condition to participate in payment for environmental services, these initiatives exclude landless farmers settled in regions with unclear land tenure rights (Greenleaf, 2020).

The first environmental incentives in Costa Rica were created in the 1970s, when the state established a tax incentive to promote reforestation projects, while in the early 1980s, it launched an income tax deduction mechanism with the same purpose (Rodríguez and Vargas, 1988: 82–95; Segura, 1992; Porras and Villarreal, 1993: 79–99). The Certificado de Abono Forestal (CAF) was a credit certificate issued by the state in the 1980s and negotiable in the financial market. In the late 1980s, the Certificado de Abono Forestal para el Manejo de Bosques was issued and sought to improve the technical management of woodlands (Ortiz, 2004). Similarly, a series of certificates

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for small-scale reforestation producers emerged, such as the Certificado de Abono Forestal por Adelantado (CAFA) and the Fondo de Desarrollo Forestal (FDF); the latter was funded by Netherlands, Sweden and Finland. In the 1990s, the first carbon sales were finally made with Nordic countries (Camacho and Solano, 2010). In 1995, the accumulated number of hectares covered by these incentives (and others not referred to here) was approximately 139,000 hectares (González and Lobo, 1999).

In the early 2000s, Costa Rica also became one of the first countries to meet its international commitment to preserve lands and water sources through a funding initiative known as Forever Costa Rica (a debt-for-nature-swap brokered by the Costa Rican government and The Nature Conservancy with the US Treasury). This initiative has secured more than US $50 million to strengthen and expand the country's network of national parks and protected areas.[17] Considering Costa Rica's extensive support for forest and nature conservation, what have been the results in terms of forest land distribution/structure?

According to the 1963 Agricultural Census, of the total hectares covered by forests (1,171,663.2 hectares), 68 per cent was occupied by farms larger than 250 hectares, while only just over 1 per cent of the forests corresponded to farms smaller than 20 hectares. This distribution had barely changed two decades later. According to the 1984 Agricultural Census, whereas 59 per cent of forests were located within farms of more than 250 hectares, just over 3 per cent were located within properties smaller than 20 hectares (see Appendix 3). The 2014 Agricultural Census is especially useful for examining the changes that have occurred since 1963. The area covered by forests in 2014 experienced an increase after 1984, although the area is still lower than in 1963. Between 1984 and 2014, the forests increased their cover by approximately 244,000 hectares. However, this increase still does not reach the one million hectares of forest that existed in the early 1960s. The 2014 data also reveal the persistence of land concentration in forests (see Appendix 4). Farms of over 200 hectares comprise 58 per cent of the total land, while properties smaller than 50 hectares occupy only 15 per cent of the total. In comparison with 1984, farms of less than 50 hectares have doubled, but farms of more than 200 hectares have also increased by almost 70 per cent (INEC, 2015). Therefore, the forest recovery shown in the census data is the result of an increase in the number of small and medium scale farms as well as properties larger than 200 hectares. Thus, Costa Rican woodlands have been monopolised by protected areas and large forests in private hands.

Land concentration in forests also reveals a territorial transformation in Costa Rica that does not necessarily have positive social implications. It rather shows the appropriation of resources by different social groups.[18] As mentioned above, Costa Rica has developed a significant forest and environmental protection and incentives framework (institutionalised by REDD+ and also based on 'debt-for-nature' swaps), giving rise to a second level of land concentration; a 'second-generation' land tenure associated with the appropriation of such incentives by medium or large landowners (Ortiz, 2004). These incentives were established through the Payment for Environmental Services Program, under Forest Law 7575 (1996) and coordinated by FONAFIFO (Sánchez and Navarrete, 2017).[19] The goal of the programme is forest recovery and conservation in the country through financial incentives based on a four-goal framework: first, the mitigation of greenhouse gas emissions; second, water protection for rural and urban or hydroelectric use; third, biodiversity conservation and fourth, natural landscape and scenic protection. PES are based on five-year contracts with private landowners, NGOs, women farm owners, and indigenous communities. FONAFIFO makes annual payments per hectare conserved or subject to other established schemes within the framework of a five-year contract.[20] Rather than an incentive or a subsidy, the PES is a strategy of 'economic recognition' to landowners for forest conservation (or reforestation). Therefore, they constitute a practice of economic, social and ecological valuation of the forest (Sánchez and Navarrete, 2017).[21]

In summary, from 1997 to 2015, the area covered by PES ranged between 100,000 hectares in the first year and close to 69,000 hectares in 2015. Overall, in this period, the programme covered

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more than 1.1 million hectares.[22] In terms of the distribution of resources by type of protection, most of the resources were allocated to 'Forest Protection' which accounted for more than 80 per cent of the funds. Finally, data on the protected area within each farm indicate a phenomenon of payments concentration in properties between 100 and 300 hectares. Although just over half of the contracts are for areas of less than 50 hectares, most of the area covered by the payments is concentrated in projects of 100 to 300 hectares (46 per cent) and more than 300 hectares (18 per cent) (see Appendix 5).[23]

Conclusions

Although Costa Rica is regarded worldwide as a paradigmatic case of forest restoration, the history of this process has remained little known. The country's forest conservation policies were created at a time of social and environmental crises, characterised by conflicts between the state and poor/landless peasants. Between the 1960s and 1980s, Costa Rica had one of the highest rates of deforestation in the world, caused by first, the expansion of pastures for cattle-raising, and second, forest clearing for the sale of timber on national and international markets. At the same time, the country experienced a social crisis in those decades due to the invasion of private and state land by thousands of poor and landless peasants. Many of these peasants had been displaced from their land by the expansion of latifundia and the effect of the adoption of the Green Revolution, becoming '*precaristas*'. The state reacted to both crises by creating the national park system and ITCO. Both institutions, albeit with different goals, labelled the poor peasant as an anti-ecological agent, pointing to him as the culprit of deforestation, as well as an anti-democratic agent, a land invader, who disrespected private property.

As in other Latin American countries, in Costa Rica, latifundia monopolised most of the land between the 1960s and 1980s. However, the forest was also a space dominated by large landowners, as evidenced by the agricultural censuses of the time. In the 1980s, most of the land covered by forest belonged to large farms upper than 200 hectares in size; a trend that continued until 2014. In other words, during the period under study, Costa Rica's forests were never in the hands of peasants. Forest concentration in large farms demonstrates that the model of forest conservation in Costa Rica (although successful) has not extended land access to peasants and medium-sized farmers. In this context, the development of PES has created a second type of resource concentration, distributing most of the payments among medium and large farms. This trend suggests that the classic agrarian question, focused on the problem of latifundia and its relationship with cattle-raising has been transformed into a new agrarian question, concentrated on the commodification of forests. Although this is only a hypothesis, the case of Costa Rica demonstrates that forest conservation policies, beyond their ecological impact, have been constructed on a social reality characterised by economic inequality and the problem of land access for the poorest (Greenleaf, 2020).

Costa Rica is a useful case for rethinking the histories and narratives of Latin America's forest conservation and land tenure. Given that forest conservation policy coexisted with land reform policy in Costa Rica, conservationist institutions often clashed with land distribution institutions, evidencing different cultures and conceptions of forest and land use. Therefore, new power relations emerged within the Costa Rican state: while agrarian reform was questioned by the conservative elite for its anti-democratic and communist character, forest conservation gained state support thanks to its apolitical character. While *precaristas* lost legitimacy among state and the elite for 'encroaching' on private property, conservationists gained the state's favour due to their status as scientists and experts.

In order to have a better grasp of the history of forest conservation, we need to take into account the study of land tenure while the history of agrarian reform would improve by understanding the dynamics of the ecologic question (Hecht, 2014b; Hecht and Saatchi, 2007). On the

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one hand, it is necessary to question the heroic narratives written 'from above' that highlight the role of scientists and public officials in the creation of protected areas while erasing the history of peasants and indigenous people. As Jacoby suggests, it is essential to understand and describe alternative narratives developed 'from below'. On the other hand, the history of conflicts between conservationists, peasants and indigenous people becomes an essential perspective in rewriting the history of Latin America's agrarian reform. Both narratives will improve their analyses by bringing to the front the problem of social inequality, social class and ethnicity, as well as by incorporating concepts and methods from Political Ecology and Environmental Justice.

During the 1960s and 1970s, anthropologists and historians rediscovered the peasant focusing mostly on the characterisation of his economic and material background (Wolf, 1966). However, due to its broadly productive and cultural diversity, the social scientists struggled to unravel the complexities of the peasantry (Kearney, 1996). Despite the extensive literature on the subject, there is still a lack of understanding on the agricultural-frontier peasants and '*precaristas*' in Latin America. The Costa Rica case shows how these peasants were blamed for deforestation and labelled as anti-ecological. Was this a common pattern for Latin America? The emerging narratives, born out of different theoretical approaches, takes into account new issues such as the socio-ecological relations established between peasants and forests, as well as the 'moral universes' of peasants, conservationists and officials, as suggested by Jacoby (2001) and Griffin et al. (2019).

Finally, Costa Rica's case shows that the agrarian question is also an ecological question. Latin America underwent significant territorial change in recent decades due to the creation of protected areas and the recovery of forest. Hence, such transformations call for a new evaluation beyond the Rural Development perspective. In this context, it seems relevant to confront forest conservation and agrarian reform ideologies. An exchange between rural and environmental history, as well as between history and other fields linked to economics and agrarian studies, will be extremely useful for this purpose. Considering that the history of forest conservation and agrarian reform in Latin America is at the 'crossroads' of multiple theories, methods and histories, Costa Rica exemplifies such intersection.

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Notes

1 According to many reports, deforestation in the Brazilian Amazon has accelerated since Bolsonaro took office in 2019. See Gomes and Ferns (2021).

2 As pointed out by Rudel et al. (2005) forest transitions imply a decline in deforestation as well as an increase in forest cover. Forest transitions may sometimes respond to: (a) increasing non-farm jobs that pull farmers away from the land, with the subsequent regeneration of forest on former plots; or (b) The lack of forest products has encouraged state policy and landowners to plant trees. The Global Forest Resources Assessment (FRA, 2015) demonstrated that total forest area dropped by 3 per cent, from 4,128 M ha in 1990 to 3,999 M ha in 2015 (Keenan et al., 2015). Whereas the forest area expanded in Europe, North America, the Caribbean, East Asia, and Western-Central Asia, it declined in Central America, South America, South and Southeast Asia and three regions in Africa. Keenan et al. (2015) further stress that thirteen tropical countries may have experienced different forms of forest transition from 1990 to 2015 (Keenan et al., 2015).

3 As an example of the above-mentioned relations between environmental and agrarian studies see: Hecht (2011, 2007); Greenleaf (2020); Fletcher et al. (2019); Yeh (2013); and Gerber and Veuthey (2010).

4 It should be noted the lack of consensus among specialists on this figure, which was difficult to calculate accurately at the time (Joyce, 2006: 127–43; Sánchez-Azofeifa et al., 2001; Lutz, 1993).

5 Due to the small size of Costa Rica, the meaning of latifundia is different compared to other Latin American countries. In Costa Rica, a farm of more than 100 hectares is considered a 'large farm'. This is even more evident in labour-intensive coffee production, where there are a large number of small and medium-sized producers. This does not imply that in the past there were farms of thousands of hectares that perfectly corresponded to the term 'latifundio'.

6 It should be noted that although the article contributes to the forest transition literature from a qualitative perspective this is not the main approach or framework of this research.

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7 While the size of Costa Rica's pastureland more than doubled, from about 680,200 hectares to about 1,558,053 hectares between 1950 and 1973, the woodlands contracted from just over one million hectares to 716,000 hectares during the same period (Porras and Villarreal, 1993: 17). This was a change closely related to livestock expansion, and especially to the growth of the beef industry responding to growing US demand. Throughout the period, this activity was consolidated as one of the most important in Costa Rica's productive structure, showing a non-stop increase in the size of the herd. Since the Second World War, the total number of cattle in the country had stood at about 374,800 heads. Eleven years later, this figure reached 607,900 heads. In 1973, this figure was 1,693,900 heads and only seven years later it had exceeded two million heads (León, 1982). During the 1950s and early 1960s, beef production exhibited a similar trend, with annual growth rates exceeding 4 per cent (Myers and Tucker, 1987).

8 The phenomenon of '*potrerización*' is the conversion of forest into pasture for livestock grazing. '*Potrero*' is a popular term in rural Costa Rica, used to refer to pastures for livestock use.

9 '*Precarista*' (squatter) refers to a landless peasant who encroaches on private or state lands with poor soils usually abandoned by their previous owners.

10 In relation to the idea of anti-ecological peasants in Costa Rica, see Griffin, Jones and Robertson (2019) on the policies of conservation, protest and environmental history based on the seminal work on moral ecology by Jacoby (2001). These scholars present a systematic and multidisciplinary study of how elite conservation schemes and policies identify as banditry traditional or ancestral forms of managing common resources. Drawing from Jacoby's moral ecology, they extend the concept beyond the founding of American national parks. These authors demonstrate that from eighteenth-century Europe, through settler colonialism in Africa, Australia and the Americas, to postcolonial Asia and Australia, conservation language and practices often dispossess Indigenous peoples and settlers, and their resistance in everyday life (Griffin et al., 2019: 1–34).

11 The 'mejoras' consisted of the forest clearing by the peasants, the creation of pastures and grain cultivation such as maize and beans, as well as the construction of houses, corrals and fences, among other actions.

12 ITCO was renamed as IDA in 1982 and, is currently known as INDER. It was created within the framework of the Punta del Este Agreements (1961) and the Alliance for Progress. ITCO policy had three main lines of action between 1962 and 1982: first, the formation of colonies between 1962 and the end of the same decade. Second, when this model failed, peasant settlements were created with the objective of addressing land conflicts in the region where they occurred. And third, in the 1970s the 'Development Regions' model was added, which sought to comprehensively address settlements in large territorial units (Salazar et al., 1977).

13 Agrarian reforms inspired by the Alliance for Progress focused on settlement and colonisation projects on public and private lands (Kay 1997; Thiesenhusen, 1995).

14 The Servicio de Parques Nacionales (SPN) was created by Law 6084 of 24th August 1977. Before that it constituted a Departamento de Parques Nacionales, attached to the Dirección Forestal of the Ministerio de Agricultura y Ganadería, in accordance with the provisions of Forestry Law 4465 of 25th November 1969.

15 Programa Estado de la Nación en Desarrollo Humano Sostenible, *Estadísticas ambientales* <https://estadisticas.estadonacion.or.cr/> [23rd May 2022].

16 Costa Rica REDD+ strategy is led by the Fondo de Financiamiento Forestal (hereafter FONAFIFO), attached to the Ministerio de Ambiente y Energía (MINAE). In 2012 the Costa Rican government issued the Executive Decree No. 37352-MINAET published in *La Gaceta*, No. 220 (14th November 2012) to define the organisational structure and functions for the REDD+ Executive Committee and the REDD+ Executive Secretariat. (FONAFIFO, 2022). Available at: <http://reddcr.go.cr/en> [27th June 2022].

17 The idea for Forever Costa Rica was created in 2007. Two years later a debt-for-nature-swap worth US $27 million underpinned this deal. In particular, under the US Tropical Forests Conservation Act terms, Costa Rica received over US $20 million in debt oriented to payments into the new conservation fund (Linden et al., 2012).

18 In addition to this problem, the expansion of forest plantations of exotic species such as eak (*Tectona grandis L. f*) and melina (*Gmelina arborea*) should also be considered. Since the 1990s, plantations of both species have grown significantly, reaching in 2014 a total of 47,167 hectares for teak and 18,235.1 hectares for melina (INEC, 2015).

19 On the green markets discussions, see: Borner and Wunder (2007); Daniels et al. (2010); McAfee and Shapiro (2010); Danielsen et al. (2011); de Koning et al. (2011); Ibarra et al. (2011); Barbier and Tesfaw (2012); McAfee (2012); Shapiro-Garza (2013); Hetch (2014a).

20 There is a diverse set of PES payment modalities. The following stand out: protection of forests, protection of water resources, protection of forests in conservation voids, protection of forests in protected wildlife areas, reforestation, reforestation with endangered native species, reforestation in protected areas, natural regeneration in Kyoto Lands, natural regeneration in pastures, natural regeneration with productive potential, agroforestry systems, agroforestry systems in coffee, agroforestry systems with endangered species, agroforestry systems with native species and forest management, among others.

21 Although Costa Rica pioneered the creation of PES in developing countries, its strategy was part of a broader movement in the conservation of tropical forests, as contextualised by Wunder (2007) in an analysis of experiences in Costa Rica, Ecuador, Bolivia, Indonesia and Vietnam. There is extensive literature on Costa Rica's PES. Daniels et al. (2010) critically review and synthesise the current understanding of the impact of PES in the country. Pagiola (2008) studies the experience of the PES programme in Costa Rica, while Chomitz et al. (1999) provides information on the early years of the programme. Miranda

et al. (2006) and Zbinden and Lee (2005) analyse PES through case studies in the northern Caribbean of Costa Rica. As detailed by Rojas and Aylward (2003), PES is also an element of the national strategy of non-traditional conservation approaches including agri and ecotourism. Despite this extensive literature, few studies focus on the impact of PES on Costa Rica's land structure and on the ecosystem services that PES was intended to preserve.

22 The following data were obtained from FONAFIFO's 'Statistics on Payment for Environmental Services' section <https://www.fonafifo.go.cr/es/servicios/estadisticas-de-psa/> [23rd May 2022].

23 It is important to note that there is a 300-hectare limit for signing contracts with individual landowners; contracts set on larger farms refer to forests held by private foundations or indigenous communities, for example. According to Daniels et al. (2010), Costa Rica's PES implementation has resulted in intensive land use in the northwest region and forest expansion on marginal lands. However, this process has affected lowland wetlands, which have been used for export-led agriculture (Daniels and Cumming, 2008).

References

Aide, T. M., Zimmerman, J. K., Rosario, M. and Marcano, H. 1996. 'Forest recovery in abandoned cattle pastures along an elevational gradient in northeastern Puerto Rico', *Biotropica*, **28**: 537–48.

Aide, T. M., Clark, M. L., Grau, H. R., López-Carr, D., Levy, M. A., Redo, D., Bonilla-Moheno, M., Riner, G., Andrade-Nunez, M. J. and Muniz, M. 2013. 'Deforestation and reforestation of Latin America and the Caribbean 2001–2010', *Biotropica*, **45**: 262–71.

Allen, W. 2001. *Green Phoenix: Restoring the Tropical Forest of Guanacaste, Costa Rica* (New York, NY).

Barahona, F. 1980. *Reforma agraria y poder político* (Costa Rica).

Barbier, E. B. and Tesfaw, A. T. 2012. 'Can REDD+ save the forest? The role of payments and tenure', *Forests*, **3**: 881–95.

Benjaminsen, T. A. and Svarstad, H. 2019. *Encyclopedia of Ecology*, Second Edition.

Bernstein, H. and Byres, T. J. 2001. 'From peasant studies to agrarian change', *Journal of Agrarian Change*, **1**:1, 1–56.

Blaikie, P. and Brookfield, H. 1987. *Land Degradation and Society* (London).

Borner, J. and Wunder, S. 2007. *Divergent Opportunity Costs of REDD on Private Lands in the Brazilian Amazon*, ed. CIFOR (Belem).

Boza, M. 1978. *Los Parques Nacionales de Costa Rica* (San José, Costa Rica).

Boza, M. 1993. 'Conservation in action: past, present, and future of the national park system of Costa Rica', *Conservation Biology*, **7**:2, 239–47.

Boza, M. 2015. *Historia de la Conservación de la naturaleza en Costa Rica, 1754–2012*, Editorial Tecnológica (Cartago, Costa Rica).

Bozzoli, M. E. 1977. 'Comentario de la Dra: María Eugenia Bozzoli', in *La Costa Rica del año 2000* (San José, Costa Rica), pp. 567–76.

Bromley, D. W. and Cernea, M. M. 1989. 'The Management of Common Property Natural Resources: Some Conceptual and Operational Fallacies', World Bank Discussion Paper No. 57 (Washington, DC).

Brunner, J., Seymour, F., Badenoch, N. and Ratner, B. 1999. *Forest Problems and Law Enforcement in Southeast Asia: The Role of Local Communities*, Resources Policy Brief (Washington, DC).

Camacho, A. and Solano, V. 2010. *Un nodo de cooperación sobre los servicios ambientales en Costa Rica* (San José, Costa Rica).

Cartín, S. and Piszk, I. 1988. *Producción de granos básicos en Costa Rica: Evolución histórica y participación del Estado en su desarrollo*, Tesis de Licenciatura en Sociología, Universidad de Costa Rica (San José, Costa Rica).

Chomitz, K. M., Brenes, E. and Constantino, L. 1999. 'Financing environmental services: the Costa Rican experience and its implications', *Science of the Total Environment*, **240**: 157–69.

Churnside, R. 1981. 'Concentración de la tierra en 1935 y 1800–1850: algunas consideraciones de tipo metodológico', *Revista de Ciencias Sociales*, **21–2**: 7–34.

Clark, M. L., Aide, T. M. and Riner, G. 2013. 'Land change for all municipalities in Latin America and the Caribbean assessed from 250-m MODIS imagery (2001–2010)', *Remote Sensing of Environment*, **126**: 84–103.

Daniels, A. E. and Cumming, G. S. 2008. 'Conversion or conservation? Understanding wetland change in northwest Costa Rica', *Ecological Applications*, **18**: 49–63.

Daniels, A. E., Bagstad, K., Esposito, V., Moulaert, A. and Rodriguez, C. M. 2010. 'Understanding the impacts of Costa Rica's PES: are we asking the right questions?', *Ecological Economics*, **69**: 2116–26.

Danielsen, F., Skutsch, M., Burgess, N. D., Jensen, P. M., Andrianandrasana, H., Karky, B., Lewis, R., Lovett, J. C., Massao, J., Ngaga, Y., Phartiyal, P., Poulsen, M. K., Singh, S. P., Solis, S., Sorensen, M., Tewari, A., Young, R. and Zahabu, E. 2011. 'At the heart of REDD+: a role for local people in monitoring forests?', *Conservation Letters*, **4**: 158–67.

de Camino Velozo, R., Villalobos, R. and Morales Aymerich, J. P. 2015. 'Costa Rica Case Study', prepared for FAO as part of the State of the World's Forests 2016.

https://doi.org/10.1017/S0956793322000139 Published online by Cambridge University Press

de Koning, F., Aguinaga, M., Bravo, M., Chiu, M., Lascano, M., Lozada, T. and Suarez, L. 2011. 'Bridging the gap between forest conservation and poverty alleviation: the Ecuadorian Socio Bosque program', *Environmental Science and Policy*, **14**: 531–42.

DGEC. 1953. *Censo Agropecuario de 1950*, Dirección General de Estadística y Censos (San José, Costa Rica).

DGEC. 1959. *Censo Agropecuario de 1955*, Dirección General de Estadística y Censos (San José, Costa Rica).

DGEC. 1965. *Censo Agropecuario de 1963*, Dirección General de Estadística y Censos (San José, Costa Rica).

DGEC. 1974. *Censo Agropecuario de 1973*, Dirección General de Estadística y Censos (San José, Costa Rica).

DGEC. 1987. *Censo Agropecuario de 1984*, Dirección General de Estadística y Censos (San José, Costa Rica).

Edelman, M. 1992. *The Logic of the Latifundio: The Large Estates of Northwestern Costa Rica Since the Late Nineteenth Century* (Stanford, CA).

Edelman, M. and Seligson, M. A. 1994. 'La desigualdad en la tenencia de la tierra: una comparación de los datos de los censos y de los registros de propiedad en el sur de Costa Rica en el siglo XX', *Anuario de Estudios Centroamericanos*, **20**:1, 65–113.

FAO's Global Forest Resources Assessment (FRA). 2010. (Rome).

FAO's Global Forest Resources Assessment (FRA). 2015. (Rome).

Fearnside, P. M. 2017. 'Deforestation of the Brazilian Amazon', in H. Shugart, ed., *Oxford Research Encyclopedia of Environmental Science* (New York, NY).

Fletcher, R., Dressler, W. H., Anderson, Z. R. and Büscher, B. 2019. 'Natural capital must be defended: green growth as neoliberal biopolitics', *The Journal of Peasant Studies*, **46**:5, 1068–95 <DOI: 10.1080/03066150.2018.1428953>.

Fletcher, R. 2013. 'Making "Peace with Nature": Costa Rica's Campaign for Climate Neutrality', in C. Roger, D. Held and E. Nag, eds, *Climate Change Governance in the Developing World* (London), pp. 155–73.

FONAFIFO. 2022. 'Statistics on Payment for Environmental Services' section https://www.fonafifo.go.cr/es/servicios/estadisticas-de-psa [27th June 2022].

FONAFIFO. 2022. 'REED+ Costa Rica' <http://reddcr.go.cr/en> [27th June 2022].

Fournier, L. 1991. *Desarrollo y perspectivas del movimiento conservacionista costarricense* (San José, Costa Rica).

Gerber, J.-F. and Veuthey, S. 2010. 'Plantations, resistance and the greening of the agrarian question in coastal Ecuador', *Journal of Agrarian Change*, **10**:4, 455–81.

Gomes, M and Ferns, G. 2021. 'Brazil Signs Agreement to Halt Deforestation – But Bolsonaro Cannot be Trusted', The Conversation (3rd November) <https://theconversation.com/brazil-signs-agreement-to-halt-deforestation-but-bolsonaro-cannot-be-trusted-171091> [5th May 2022].

González, F. and Lobo, S. 1999. 'Breve descripción del estado de los recursos forestales de Costa Rica', in C. Kleinn and R. Davis, eds, *Memoria del Taller sobre el Programa de evaluación de los recursos forestales en once países latinoamericanos*, FAO.

González, R. 1987. 'Consideraciones sobre el Censo Agropecuario de 1984', *Revista de Ciencias Sociales*, **37–8**: 91–101.

Grainger, A. 2014. 'Pan-Tropical Perspectives on Forest Resurgence', in S. B. Hecht, C. Padoch and K. Morrison, eds, *The Social Lives of Forests: Past, Present, and Future of Woodland Resurgence* (Chicago, IL), pp. 84–96.

Greenleaf, M. 2020. 'The value of the untenured forest: land rights, green labor, and forest carbon in the Brazilian Amazon', *The Journal of Peasant Studies*, **47**:2, 286–305 <DOI: 10.1080/03066150.2019.1579197>.

Griffin, C., Jones, R. and Robertson, I. J. M. 2019. *Moral Ecologies: Histories of Conservation, Dispossession and Resistance*, Palgrave Studies in World Environmental History (Switzerland).

Grupo Centroamericano de Tenencia de la Tierra and Desarrollo Rural. 1969. *Costa Rica: tenencia y uso de la tierra*, Programa de Capacitación Campesina para la Reforma Agraria (San José, Costa Rica).

Gudmundson, L. 2011. *Costa Rica antes del café* (San José, Costa Rica).

Hecht, S. B. 2014a. 'Forests lost and found in tropical Latin America: the woodland "green revolution"', *The Journal of Peasant Studies*, **41**:5, 877–909.

Hecht, S. B. 2014b. 'The Social Lives of Forests: Successions and Forest Transitions: Theories Forest Resurgence', in **Hecht, Padoch and Morrison**, eds, *The Social Lives of Forests*, pp. 97–113.

Hecht, S. B. and Cockburn, A. 1989. *The Fate of the Forest, Developers, Destroyers and Defenders of the Amazon* (London and New York, NY).

Hecht, S. B. and Saatchi, S. S. 2007. 'Globalization and forest resurgence: changes in forest cover in El Salvador', *Bioscience*, **57**: 663–72.

Hecht, S. B. 2011. 'From eco-catastrophe to zero deforestation? Interdisciplinarities, politics, environmentalisms and reduced clearing in Amazonia', *Environmental Conservation*, **39**:1, 4–19 <DOI: 10.1017/S0376892911000452>.

Hill, G. 1964. 'The agrarian reform in Costa Rica', *Land Economics*, **40**:1, 41–8 <DOI: 10.2307/3144459>.

Ibarra, J. T., Barreau, A., Del Campo, C., Camacho, C. I., Martin, G. J. and McCandless, S. R. 2011. 'When formal and market-based conservation mechanisms disrupt food sovereignty: impacts of community conservation and payments for environmental services on an indigenous community of Oaxaca, Mexico', *International Forestry Review*, **13**: 318–37.

INEC. 2015. VI Censo Agropecuario. San José, Costa Rica ≥<http://www.inec.go.cr/censos/censo-agropecuario-2014≥ [28th April].

Jacoby, K. 2001. *Crimes against Nature: Squatters, Poachers, Thieves and the Hidden History of American Conservation* (Berkeley, CA).

Jadin, I., Meyfroidt, P. and Lambin, E. F. 2016. 'International trade, and land use intensification and spatial reorganization explain Costa Rica's forest transition', *Environmental Research Letters*, **11**:3, 035005.

Joyce, A. T. 2006. *Land Use Change in Costa Rica as Influenced by Social, Economic, Political, and Environmental Factors: 1966–2006* (San José, Costa Rica).

Kaimowitz, D. 1996. *Livestock and Deforestation in Central America in the 1980s and 1990s: A Policy Perspective* (Indonesia).

Kay, C. 1997. 'Latin America's Exclusionary Rural Development in a Neoliberal World', paper presented at the meeting of the Latin American Studies Association (LASA), Continental Plaza Hotel, Guadalajara, Mexico, 17th–19th April.

Kearney, M. 1996. *Reconceptualizing the Peasantry: Anthropology in Global Perspective* (Boulder, CO).

Keenan, R. J., Reams, G. A., Achard, F., de Freitas, J. V., Grainger, A. and Lindquist, E. 2015. 'Dynamics of global forest area: results from the FAO Global Forest Resources Assessment 2015', *Forest Ecology and Management*, **352**: 9–20.

Larson A. M. and Dahal, G. R. 2012. 'Forest tenure reform: new resource rights for forest-based communities?', *Conservation and Society*, **10**: 77–90.

León, J. 1982. *Desarrollo tecnológico en la ganadería de carne* (San José, Costa Rica).

Linden, L., McCormick, S., Barkhorn, I., Ullman, R., Castilleja, G., Winterson, D. and L. Green. 2012. 'A big deal for conservation', *Standford Social Innovation Review* <https://ssir.org/articles/entry/a_big_deal_for_conservation#> [14th July 2022].

López, M. 2021. 'Explotación del oro verde en Costa Rica: matices sobre la deforestación entre 1900 y 1950', *Revista de Historia*, **84**: 5–45.

López, M. and Granados, R. 2016. 'Desnudando el mito: un balance sobre las tensiones del modelo de conservación en Costa Rica (1970–2015)', *Revista Historia Ambiental Latinoamericana y Caribeña-HALAC (Brasil)*, **6**:1, 61–85.

Lutz, E. et al. 1993. 'Interdisciplinary Fact-Finding on Current Deforestation in Costa Rica. The World Bank', Environment Working Paper No. 61.

Martínez-Alier, J. 2002. *The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation* (Cheltenham, UK).

Matamoros, A. 1985. *La Revolución Verde y el cultivo del arroz: un intento de interpretación del desarrollo agrario en Costa Rica*, Tesis de Maestría en Sociología Rural, Universidad de Costa Rica (San José, Costa Rica).

McAfee, K. 2012. 'The contradictory logic of global ecosystem services markets', *Development and Change*, **43**: 105–31.

McAfee, K. and Shapiro, E. N. 2010. 'Payments for ecosystem services in Mexico: nature, neoliberalism, social movements, and the state', *Annals of the Association of American Geographers*, **100**: 579–99.

Meyfroidt, P. and Lambin, E. F. 2011. 'Global forest transition: prospects for an end to deforestation', *Annual Review of Environment and Resources*, **36**: 343–71.

Meyfroidt, P., Rudel, T. K. and Lambin, E. F. 2010. 'Forest transitions, trade, and the global displacement of land use', *Proceedings of the National Academy of Sciences*, **107**:49, 20917–22.

Ministerio de Recursos Naturales, Energía y Minas. 1990. *Estrategia de conservación para el desarrollo sostenible de Costa Rica* (San José, Costa Rica).

Miranda, M., Dieperink, C. and Glasbergen, P. 2006. 'Costa Rican environmental service payments: the use of a financial instrument in participatory forest management', *Environmental Management*, **38**: 562–71.

Molina, I. 1986. 'Los jueces y los juicios del legado colonial del Valle Central de Costa Rica', *Revista de Ciencias Sociales*, **32**: 99–117.

Mora, J. 1990. 'La distribución de la tierra y los asentamientos humanos en Costa Rica', in *FAO, Centroamérica y los problemas del desarrollo en el campo* (Santiago de Chile), pp. 61–107.

Myers, N. and Tucker, R. 1987. 'Deforestation in Central America: Spanish legacy and North American consumers', *Environmental Review*, **11**:1, 55–71.

Myres, N. 1981. 'The hamburger connection: How Central America's forests became North America's hamburgers', *Ambio: A Journal of the Human Environment*, **10**: 3–8.

Ortiz, E. 2004. 'Efectividad del Programa de Pago de Servicios Ambientales por Protección del Bosque (PSA-Protección) como instrumento para mejorar la calidad de vida de los propietarios de bosque en zonas rurales', *Kurú: Revista Forestal*, **1**:2, 1–11.

Pagiola, S. 2008. 'Payments for environmental services in Costa Rica', *Ecological Economics*, **65**: 712–24.

Parsons, J. 1976. 'Forest to pasture: development or destruction?', *Revista de Biología Tropical*, **24**: 121–38.

Peet, R. and Watts, M. 1996. 'Liberation Ecology: Development, Sustainability, and Environment in an Age of Market Triumphalism', in R. Peet and M. Watts, eds, *Liberation Ecologies: Environment, Development, Social Movements* (London), pp. 1–45.

Pérez, S. and Protti, F. 1978. *Comportamiento del sector forestal durante el período 1950–1977*, Oficina de Planificación Sectorial Agropecuaria (San José, Costa Rica).

Poffenberger, M. 2001. *Communities and Forest Management in Southeast Asia* (Gland, Switzerland).

Poffenberger, M. 2006. 'People in the forest: community forestry experiences from Southeast Asia', *International Journal of Environment and Sustainable Development*, **5**:1, 57–69.

Porras, A. and Villarreal, B. 1993. *Deforestación en Costa Rica: Implicaciones sociales, económicas y legales* (San José, Costa Rica).

Programa Estado de la Nación en Desarrollo Humano Sostenible, *Estadísticas ambientales* <https://estadisticas.estadonacion.or.cr/> [23rd May 2022].

Ramírez, A. and Maldonado, T. 1988. *Desarrollo socioeconómico y el ambiente natural de Costa Rica: situación actual y perspectivas* (San José, Costa Rica).

Ramírez, M. 1981. 'La polémica de la concentración de la tierra en Costa Rica: mitos e ideologías', *Revista de Ciencias Sociales*, **21–2**: 35–54.

Rao, K. and Geisler, C. 1990. 'The social consequences of protected areas development for resident populations', *Society and Natural Resources*, **3**: 19–32.

Raventós, C. 1986. 'Desarrollo económico, estructura y contradicciones sociales en la producción de café', *Revista de Historia*, **14**: 179–98.

Robbins, P. 2004. *Political Ecology: A Critical Introduction* (Oxford, UK).

Rodríguez, C. 1988. *Estructura agraria de Guanacaste y políticas estatales en el Distrito de Riego Arenal-Tempisque*, Tesis de Licenciatura en Sociología, Universidad de Costa Rica (San José, Costa Rica).

Rodríguez, S. and Vargas, E. 1988. *El recurso forestal en Costa Rica: políticas públicas y sociedad* (Heredia, Costa Rica).

Rojas E. A. and Escoto, C. 1960. *Respuesta de Costa Rica al Cuestionario de la Comisi6n Especial para el Estudio de las necesidades financieras que plantea la ejecuci6n de planes de Reforma Agraria* (San José, Costa Rica).

Rojas, M. and Aylward, B. 2003. *What Are We Learning from Experiences with Markets for Environmental Services in Costa Rica? A Review and Critique of the Literature* (London, UK).

Rudel, T. K., Coomes, O. T., Moran, E., Achard, F., Angelsen, A., Xu, J. and Lambin, E. 2005. 'Forest transitions: towards a global understanding of land use change', *Global Environmental Change*, **15**:1, 23–31.

Sader, S. and Joyce, A. 1988. 'Deforestation rates and trends in Costa Rica, 1940 to 1983', *Biotropica*, **20**:1, 11–19.

Salazar, J. M., Rodríguez, E. and Salazar, J. M. 1977. *Una política agraria innovadora: el caso de Costa Rica* (San José, Costa Rica).

Sánchez, O. and Navarrete, G. 2017. 'La experiencia de Costa Rica en el pago por servicios ambientales: 20 años de lecciones aprendidas', *Revista de Ciencias Ambientales (Trop J Environ Sci)*, **51**:2, 195–214.

Sánchez-Azofeifa, G. A. et al. 2001. 'Deforestation in Costa Rica: a quantitative analysis using remote sensing imagery', *Biotropica*, **33**:3, 378–84.

Segura, O. 1992. *Incentivos forestales en Costa Rica: políticas económicas del sector* (Heredia, Costa Rica).

Shapiro-Garza, E. 2013. 'Contesting the market-based nature of Mexico's national payments for ecosystem services programs: four sites of articulation and hybridization', *Geoforum*, **46**: 5–15.

Thiesenhusen, W. 1995. *Broken Promises: Agrarian Reform and the Latin American Campesino* (Boulder, CO).

Tosi, J. A. 1976. 'Transformación del bosque en pastizal: ¿desarrollo o destrucción?', *Revista de Biología Tropical*, **24**: 139–41.

Umaña, A. 1987. 'La colonización agropecuaria y deforestación en Costa Rica', *Revista Abra*, **7–8**: 29–34.

Villarreal, B. 1992. *Precarismo, campesinado y democracia* (San José, Costa Rica).

Wallace, D. R. 1992. *The Quetzal and the Macaw: The Story of Costa Rica´s National Parks* (San Francisco, CA).

Wolf, E. R, 1972. 'Ownership and political ecology', *Anthropological Quarterly*, **45**: 201–5.

Wolf, E. R. 1966. *Peasants* (Hoboken, NJ).

Wunder, S., 2007. 'The efficiency of payments for environmental services in tropical conservation', *Conservation Biology*, **21**:1, 48–58.

Yeh, E. T. 2013. 'The politics of conservation in contemporary rural China', *Journal of Peasant Studies*, **40**:6, 1165–88 <DOI: 10.1080/03066150.2013.859575>.

Zbinden, S. and Lee, D. R. 2005. 'Paying for environmental services: an analysis of participation in Costa Rica's PSA program', *World Development*, **33**: 255–72.

Appendix 1

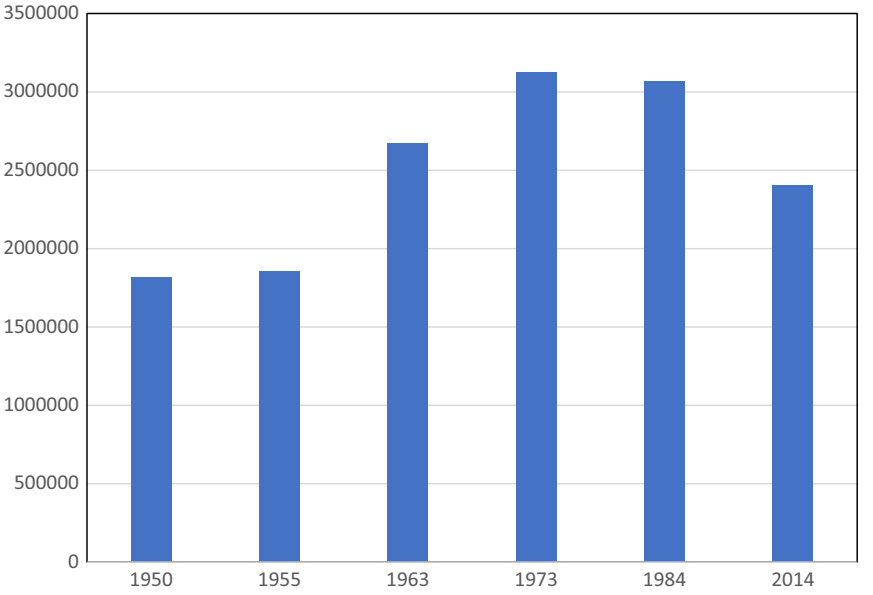

Figure 1. Evolution of agricultural area in Costa Rica (1950–2014) (hectares).
Sources: (DGEC, 1953, 1959, 1965, 1974,1987; INEC, 2015).

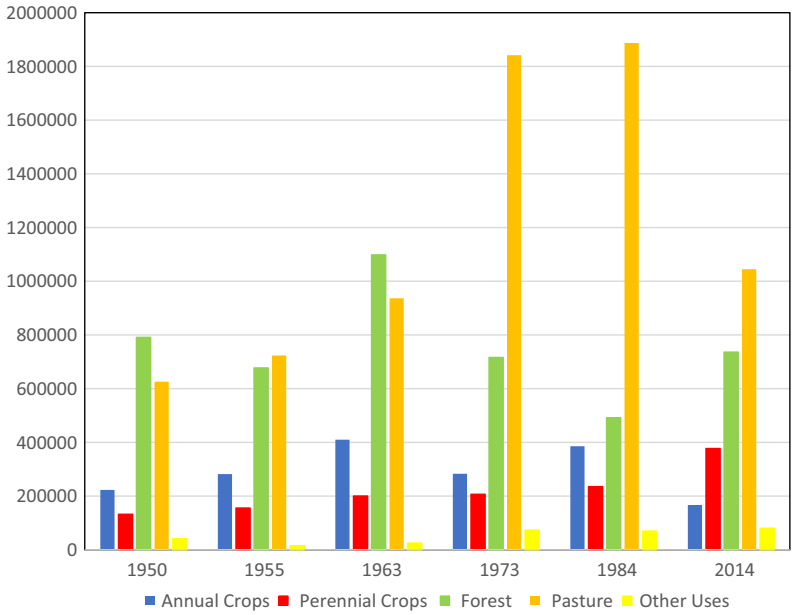

Figure 2. Evolution of land use in Costa Rica (1950–2014) (hectares).
Note: Annual Crops: This concept refers mostly to the cultivation of rice, corn and beans. Perennial Crops: This concept refers mostly to monoculture of coffee, sugar cane, palm oil and bananas.
Sources: (DGEC, 1953, 1959, 1965, 1974, 1987; INEC, 2015).

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Appendix 2

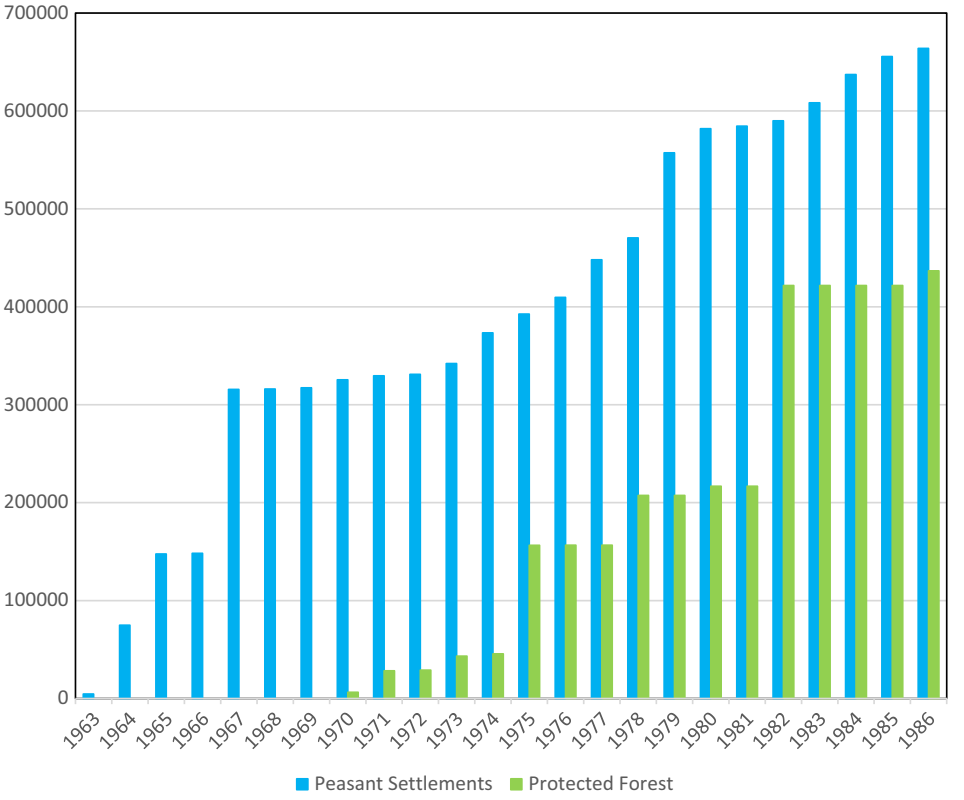

Figure 3. Evolution of the area covered by peasant settlements and protected forests in Costa Rica (1963–86) (hectares). *Sources*: (Mora, 1990; Rodríguez and Vargas, 1988).

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Appendix 3

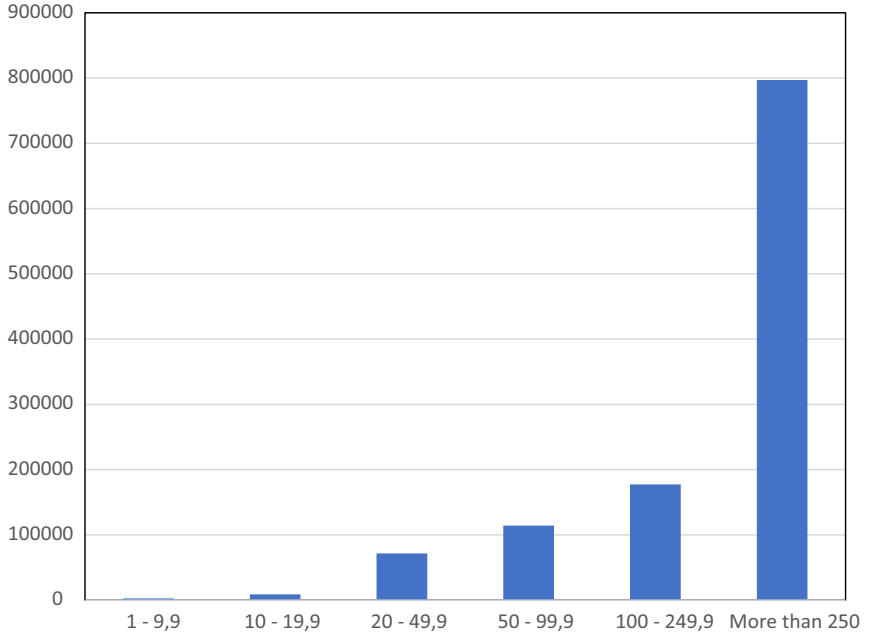

Figure 4. Distribution of the area covered by forests in Costa Rica in 1963 according to farm size (hectares).
Source: (DGEC, 1965).

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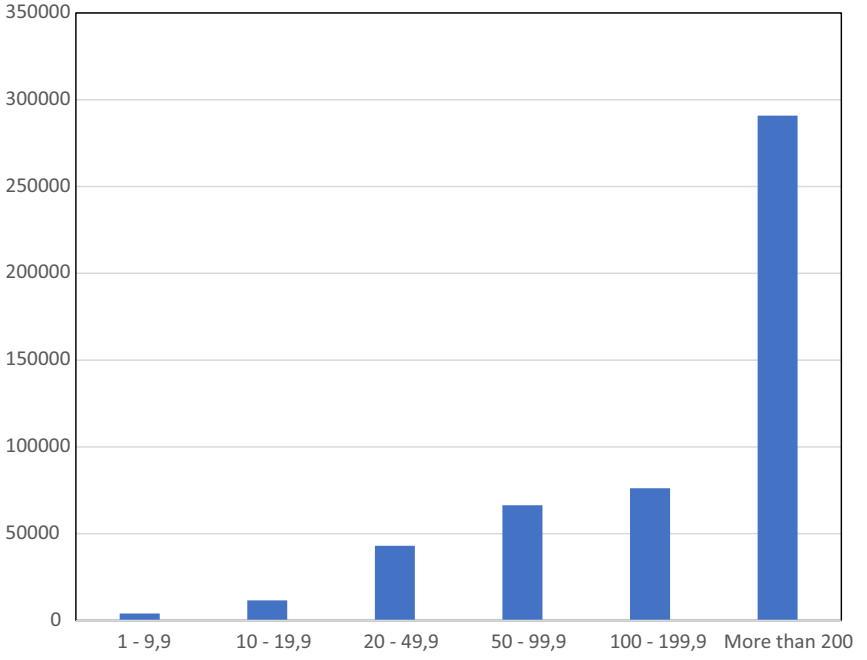

Figure 5. Distribution of the area covered by forests in Costa Rica in 1984 according to farm size (hectares).
Source: (DGEC, 1987).

Appendix 4

Table 1. Variation in the number of farms and area covered by pastures and forests in Costa Rica (1984–2014)

	1984		2014		Compound annual rate of growth (1984-2014)	
Activity	Farms	Area	Farms	Area	Farms (%)	Area (%)
Pasture	53,793	1,651,560.5	44,285	1,044,909.7	−0.6	−1.5
Forests	17,359	429,065.9	33,128	736,505.2	2.2	1.8

Sources: (DGEC, 1987; INEC, 2015).

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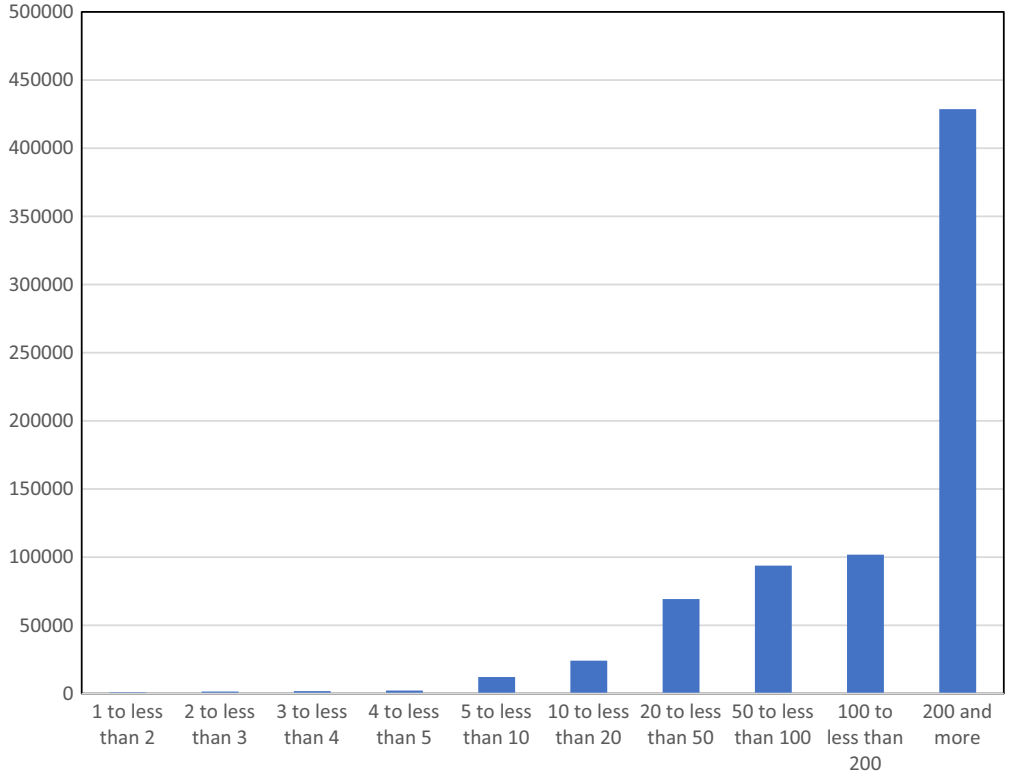

Figure 6. Distribution of the area covered by forests in Costa Rica in 2014 according to farm size (hectares).
Source: (INEC, 2015).

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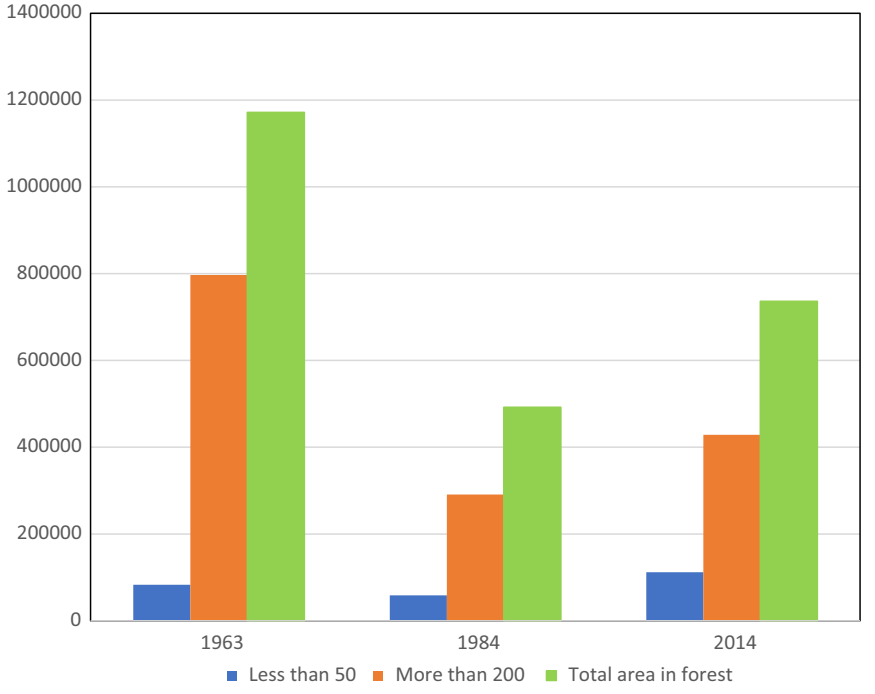

Figure 7. Area covered by forests on farms of less than 50 and more than 200 hectares in Costa Rica (1963–2014). *Sources*: (DGEC, 1965, 1987; INEC, 2015).

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Appendix 5

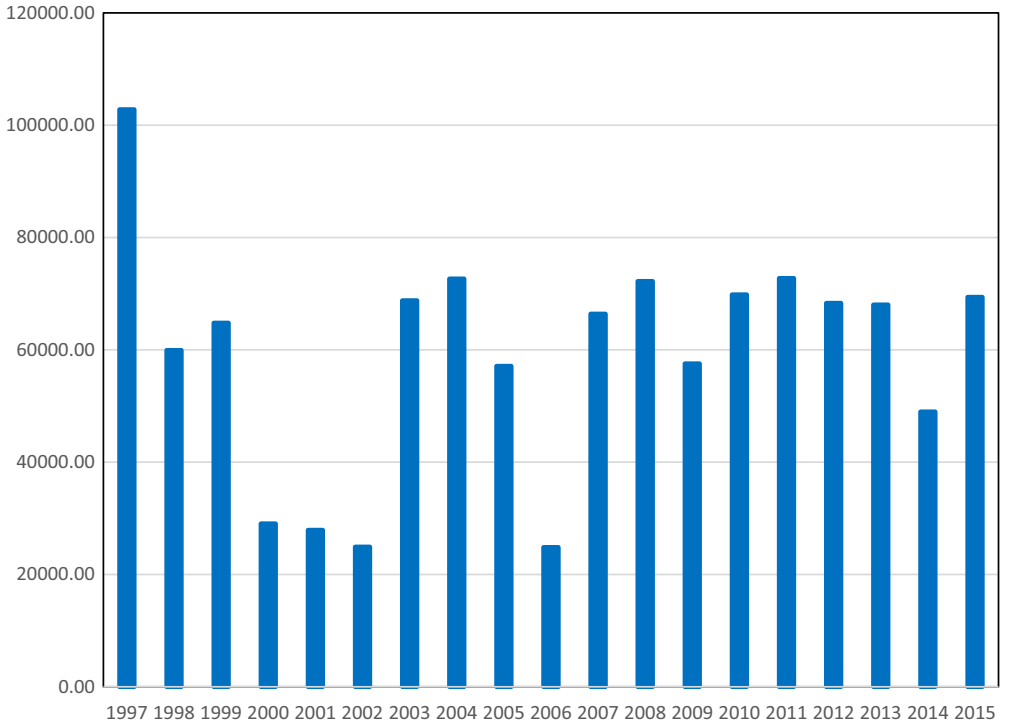

Figure 8. Evolution of the area covered by PES (1997–2015) (hectares).
Source: FONAFIFO, Statistics on Payment for Environmental Services Program (2017).

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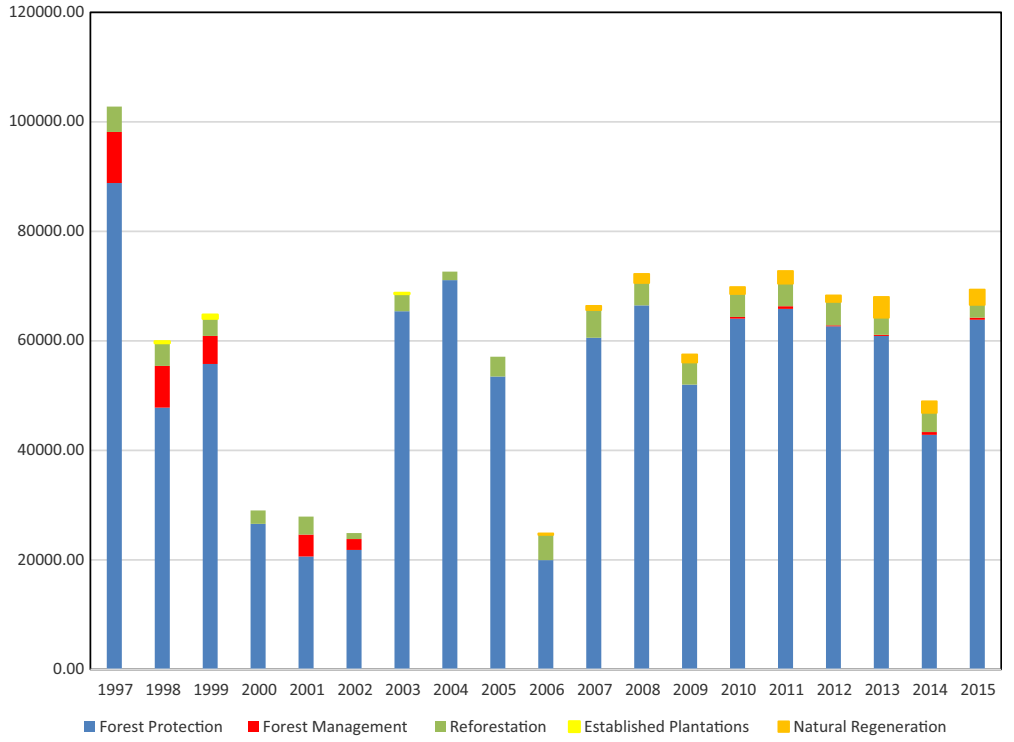

Figure 9. Evolution of the area covered by PES by protection category (1997–2015) (hectares).
Source: FONAFIFO, Statistics on Payment for Environmental Services Program (2017).

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