



The new rurality: Globalization, peasants and the paradoxes of landscapes

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ABSTRACT

Deforestation captures most of the headlines, but there are also processes of forest expansion that are widespread in Latin America. This paper explores why this process is so invisible. Globalization plays an increasingly important role in structuring rural economies. This paper analyses how global integration of many types, ranging from remittances, state transfers, skilling and markets produced forest recovery in peasant landscapes.

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1. Introduction: forests and the New World order

How does globalization affect forest trends? The answer is an important one since many people involved in environmental issues have worried that global integration would prove devastating to tropical forests, and indeed in many places it has (Curran et al., 2004; Hecht, 2005). But there are extensive processes of forest resurgence throughout the tropics and many rural areas reveal the expansion of numerous types of anthropogenic and successional forests. In Latin America, studies from Mexico (Klooster, 2003), El Salvador (Hecht et al., 2006a,b; Hecht and Saatchi, 2007), Honduras (Nagendra et al., 2003; Southworth and Tucker, 2001), Guatemala (Carr et al., 2005), Puerto Rico (Rudel et al., 2000; Grau et al., 2003, 2004), Costa Rica (Chazdon, 2003), Amazonia (Bebbington and Batterbury, 2001; Pinedo-Vasquez et al., 2001; Rudel et al., 2002; Perz and Skole, 2003; Summers et al., 2004) report trends of forest recovery in populated landscapes. Indeed, El Salvador, former poster child for Malthusian processes of environmental destruction has gained significant forest area (Hecht and Saatchi, 2007). The dynamics in these cases differ, the processes are variable and not much studied, but the widespread occurrence of woodland regeneration and expansion suggests that more attention to regional socio-economic changes is necessary for informing rural policy in the upcoming decades.

This paper explores: (1) the features that underpin invisibility of this heartening forest trend by analyzing ideas about the tropics

and forest conservation; (2) critiques of the theories of forest resurgence as understood through the Environmental Kuznets Curves (EKC) and Forest Transition Theory (FTT) models; and (3) case studies that illuminate the ways that global economies and peasant livelihoods interact and how this has led to woodland recovery and/or expansion. Our cases are not meant to be exhaustive, but merely to suggest larger theoretical and empirical questions to inform research and practice.

1.1. Forests, frontiers and analytic fault lines

Why should the question of woodland recovery be so invisible? It is after all an optimistic and scientifically interesting development in a planetary scenario of global change that is quite dismal. There are several reasons that woodland recovery remains unseen, involving conceptual frameworks and imagery about tropical lands and peoples, geographical contexts, the complexity of successional/agroforest woodland types, and problems in the data sources. Inhabited landscapes for a number of reasons are informationally “noisy”. That is, what these landscapes are in terms of the social forces that create them, and their biotic outcomes often seems stochastic and incoherent. This paper attempts to suggest ways that such landscapes can be deciphered.

First, the semantic problems and powerful imagery about tropical forests influence what people mean by “forest”, and what forests “count”. For the most part, high biomass humid tropical forests are the gold standard that is used to designate “high value forest”. These stands are largely the target of conservation and research efforts, and are a type of “sacred grove” in contrast to

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many other forests types, and have been institutionalized into an internationally universalized set of tenurial and policy frameworks.

A long history of depictions of the forests of the New World tropics has portrayed them as largely empty and wild, in spite of relatively high populations and complex forest and land use interventions in the past and in many forested areas today (Bray et al., 2003; Toledo and Salick, 2006; Christine Padoch et al., 1999; Rival, 2006). This idea of “the untrammelled” has fueled Malthusian assumptions that human intervention in tropical forests produces only ruin, and thus forests with denser populations are often considered degraded (Hecht, 2005). This may or not be the case, since areas with human intervention may produce the complexity so sought after by conservationists, and in some cases, diversity indices in human modified tropical landscapes may be higher than in old growth formations (Vandermeer et al., 2004; Perfecto and Vandermeer, 2002; Posey and Balée, 1989). A preference in tropical ecological studies for Old growth or “ancient” or “authentic” forests has largely diverted research emphasis away from the complexities of lower biomass and more open forest formations. Thus, biomes that have been affected by anthropogenic disturbance over millennia, such as the cerrado woodlands of Brazil or tropical deciduous forests, have conservation values that may be ignored or downgraded in spite of high levels of diversity and endemism (Schroth and Harvey, 2007; Bridgewater et al., 2004; Gavin, 2004; Gillespie et al., 2000; Maass et al., 2005; Abizaid and Coomes, 2004). This issue is compounded by the geographic and research emphasis on deforestation.

Most deforestation occurs on economic frontiers. These are areas of maximum clearing and there are good reasons to study such sites, but this emphasis on catastrophic processes has produced an undifferentiated version of tropical land uses for the broader public, most policy makers and planners. Conservation science has increasingly focused on forest fragmentation in frontier areas, used matrices such as pasture or water as controls, systems that differ profoundly in ecological infrastructure from the complex anthropogenic forest matrices in tropical working landscapes (Laurance et al., 2006). The complexity of the matrix has enormous implications for fragmentation (Vandermeer et al., 2004), a simplified matrix while convenient for experimental design, may obscure the more complex, less disastrous forest dynamics and reduces attention to the role anthropogenic forests might play as a complement to conservation set asides. While it may seem an obvious point, frontier zones are very different from tropical areas with long-term settlement. The overriding prevalence of frontier clearing in tropical development literatures has diverted attention from the recuperating and sustaining woodlands in areas that have been inhabited for longer periods of time.

Next, the successional pathways and ecological structures of secondary forests and anthropogenic woodlands are highly variable and include woodlands that range from virtual monocultures to formations that are more complex and diverse than old growth stands. Anthropogenic systems vary from ones that were simply abandoned to highly manipulated woodlands. The “nature” of these woodlands is still a large empirical question with very complex parameters (Chazdon, 2003). Since these sites also involve ethnographic and economic histories, the political ecologies of such areas further compound their analysis, and given this complexity. If representations and the complexity of processes that produce these systems were not daunting enough, the data used for analyzing forest change is often inaccurate. Studies of forest trend are often based on FAO data, and recent analyses of how well these data panels address changes in forest cover have shown that there are major problems with this widely used data base (Grainger, 2008). Beyond these questions of national level statistical analyses,

and even as local secondary successional monitoring is improving with remote sensing techniques, there still remains a tendency to over aggregate anthropogenic landscape types. Woodland recovery is invisible in part because a great deal of it occurs in small farmer or peasant landscapes at small scales, under the stewardship of a population that has been repeatedly identified as forest destroyers (Myers, 2000). Small scale forests are often reduced to categories of “landscapes affected by people” (in reality the whole world now) and thus often not counted as forest (Grainger, 2008; Perz, 2007). For example, the data sets used for resource analysis and mapping for the Meso-American biological corridor recognizes some 133 native vegetation types, but conflate all anthropic landscapes ranging from cane fields, agroforestry, to successional forest into one landscape classification, making the array of regenerating woodlands largely “invisible”, and actually an incoherent category (Hecht, 2004).

1.2. Peasants and the managed matrix

For a number of historical and economic reasons, the “peasant question” as issue of access to land and citizenship has lost resonance and political space in Latin American politics as tropical environmental movements have gained in strength (see for example (De Janvry, 1991)). Analyses of inhabited, “peasant” landscapes are especially urgent given their role in mediating social inequalities, the extensive areas they control, their location in many sensitive ecosystems and their potential environmental contributions. The preference of conservationists for “empty” landscapes, and the relative indifference of national states to non-indigenous, small scale farmer populations means that these farmers and the substantial environmental resources that they sustain are often given short shrift in policy debates about rural areas and denied the potentially powerful role in rural development and resource management that they could play.

The “deforestation” Environmental Kuznets Curve and forest transition both privilege endogenous processes and emphasize how national state policies, national structural change, and regional processes of urbanization transform land uses. In essence, these theories rely on national economic modernization and its rural to urban migration dynamics as the axis around which their analysis of forest dynamics revolves. These models depend implicitly on Malthusian frameworks for understanding human impacts on forests—and so see out migration and declining rural populations as key to forest recovery. The models are limited (or silent) about their conceptualizations of political economies or their integration into more global processes.

None of deforestation models explicitly examine globalization in processes of the forest transition. In contrast to the general “modernization” transition framework, current forest resurgence has been associated with sharp economic and political disjunctures, have quite unique historical characteristics that bear little relation to the reversion of forests in, for example, the northeastern United States in the 19th century, and have been driven less by internal than by largely international processes that are mediated by states and localities. Globalization has had enormous impacts on the rural tropics and significantly shaped land uses. Yet how these affect forests other than through global timber and coffee markets has hardly been explored (Aide et al., 1996; Bardhan, 2006; Nepstad et al., 2006; Hecht et al., 2006a,b; Rudel, 2002; Bebbington and Batterbury, 2001).

1.3. Globalization

Beginning in 1985, large scale transformations occurred in Latin American macro-economies that facilitated the processes of glob-

alization involving accelerations in international flows of labor, commodities, capital, ideas, ideologies and enhanced transportation, information and communication networks. Neoliberal policies sought to facilitate trade through free trade policies, elimination of tariffs and subsidies, and modifications of banking systems. Structural adjustment programs (SAPs) focused on transforming the influence of the state in the economy by emphasizing the centrality of uncontrolled markets in national development, privatization of public companies and fiscal austerity, and transformations of tenurial regimes. Fiscal reforms to stabilize currencies, and reduction in state employment were all part of SAPs. In addition, administrative decentralization and democratization were viewed as central to development and enhanced economic performance. In this context, elites often welcomed a less restrictive economic arena, while popular groups—after a generation of authoritarian regimes and war, embraced democratization and decentralization as elements of emergent civil societies.

Environmental analysts have not consistently taken on the significance of globalized forms of structural change, although there is an emerging literature (Mertens et al., 2000; Brosius et al., 2005; Hecht, 2005; Steininger et al., 2001; Kaimowitz et al., 1999; Ndoye and Kaimowitz, 2000; Wolford, 2005; Rudel, 2002; Bebbington, 2001; Aide and Grau, 2004). The impacts of globalization requires situating the larger scale processes within local arrangements, assets, “moral” (or immoral) economies and a wide array of ethnographic and household factors that shape resource use. Further, observed resource management, strategies of sustainability and household security can reflect not just a response to globalization “from above”—like the impacts of commodity markets, policies, etc., but also the dynamics of global transformations “from below”, including international and national migration, remittances, transnational economies, engagement in new markets, novel forms of “skilling” among other processes. Rural development and conservation debates must increasingly address how the interaction of large scale and local forces, agrarian and non-agrarian livelihoods, formal and informal economies, national and international processes interact to produce actions and politics that produce the observed forest trend.

2. Globalization and the new rurality

The globalization of labor, discourses, knowledge, capital and new emergent markets provide an optic for better understanding the paradoxes of landscape recovery that are not captured by current EKC or FTT theory. Inserting globalization into the analysis helps expand the analytic tool kit, and more accurately describes the socio-economic context that rural resources users confront. Globalization has shaped how rural areas are being conceptualized in both development and conservation.

During much of the last 150 years, tropical agrarian landscapes were largely viewed as production sites for domestic food crops and a few traditional export goods like coffee and cacao. Forest areas were largely viewed as “land banks” for agricultural expansion and for agrarian reform. Peasantries, whose revolutionary histories in Latin America did much to define the modern Latin American states, were understood in terms of class politics even though they often had formidable ethnic traditions (De Janvry, 1991; Petras and Veltmeyer, 2002; Barkin, 2002; Yashar, 2005). In many cases, the state itself was the interlocutor for small farmers in terms of policy development (such as Cuba, Mexico, Bolivia, Brazil among others). During the cold war/authoritarian period rural unrest was met not only with repression but also welfare and support policies to garner legitimacy for the various dictatorships and as part of a larger anticommunist strategy. Small farmers were a central element

of development policy as producers and political constituencies (Mellor, 1966).

This version of the rural and peasantries changed profoundly during the Neoliberal period with the end of the cold war, retraction of the idea of a redistributive state, decline in state services, the rise of markets as drivers of development, rising basic food imports, ascendance of global environmentalism and environmental justice movements, green markets, markets for environmental services, globalized skills in certain sectors, and an accelerated dynamic of global international migration and a remittance economies that now hovers near 300 billion dollars a year (Acosta et al., 2006, 2008). These changes were reflected in profound shifts from a discourse pertaining to peasants as a class and protagonists of development to an environmentalized ethnic politics, and emphasis on markets and efficiency. In this context, forests and rural landscapes became less linked to commodity production per se and much more identified with nature and cultural conservation, the provisioning of global and local environmental services and green goods. It was also the case that with the declining salience of peasants in national politics, the Malthusian analytics of much of the deforestation literature the regrowth question has largely been understood as a kind of depopulation rather than reviewed through the optic of structural change.

At the same time, biotechnology changes, expansion of global commodity markets and new production technologies made it possible for traditional temperate zone products to be double and triple cropped in the tropics (Jepson, 2006; Hecht, 2005). For most commodities produced by small farmers, price declines or hyper volatility was the norm made traditional grain commodities an increasingly questionable income strategy. Rural livelihoods took on far more complex forms and tactic that regularly included globalized elements ranging from technologies, discourses, finance, to markets.

At the risk of oversimplifying, and for heuristic reasons it can be argued that today there are four overarching types of tropical rural spaces in Latin America with various degrees of salience in the political arenas: the environmental, the “socio-environmental”,¹ the agro industrial, and peasant landscapes. These each has their own territorial and political evolution, economies (national and international) and discourses. They each have a different logics and political ecologies that underpin how they function.

The immense conservation areas whose configurations require them to be largely devoid of human populations is perhaps the “rurality” most familiar to those in the temperate zone. Derived from US conservation models, elaborated and implemented through franchises of international NGOs, or local interlocutors, these organizations have been exceptionally important in shaping the way the impacts of human occupation in the Latin American tropics have been understood. The environmental discourses emphasizes set asides, and the urgency of large parks as the only possible means of salvaging landscapes in the face of population growth and frontier expansion, the huge economic transformations now unfolding throughout the tropics and global climate change.

The next large scale structuring of rural areas involves inhabited reserves, a cultural cum nature conservation space involving indigenous reserves or *ejidos*. Separate ethnicities, historical territories languages and in some cases (such as native reserves in Colombia, or the Zoque of Oaxaca), separate sovereignty are invoked to make large scale claims on landscapes. Rooted in earlier indigenous rights movements, the approach now involves

¹ This comes from the Latin American term “socioambiental” which basically integrates the social with the environmental. Its emphasis is on the cultural unlike sociobiology, where the emphasis is on the biological.

the international and national discourses and politics of human and territorial rights, specifically the additions to the ILO charter especially conventions 107, 169 which accord collective rights to cultural and ethnic minorities and require nation states to protect their indigenous communities. The external perceptions of such populations include essentialized ideas about their “special relations to nature” that are informed by religious systems and native knowledge which can indeed prevail to different degrees among members of these populations (de la Pena, 2005; Yashar, 2005). Locally, assessment of these populations may involve derogatory racial stereotypes and generalized anti-indigenous feeling (Perreault, 2001; Hemming, 2003).

The “reconfiguring” of national rural politics within an increasingly indigenous or ethnic register reflects the use of an international idiom of identity and rights for making territorial claims in lieu of the more traditional approaches inherent in agrarian reform. Thus some self-described “peasant” movements, such as the CONAIE (the national Indigenous Peoples Council of Ecuador) or Chiapas’ Zapatistas increasingly took on the mantle of the indigenous identity in their politics (Petras and Veltmeyer, 2002; Otero and Jugenitz, 2003; Reed, 2003; Yashar, 2005). These emphasize authenticity and focus on protection of traditional land claims, cultural and biodiversity rights, as well as other forms of local sovereignty and governance (Appelbaum et al., 2003; de la Pena, 2005; Giordani and Snipes, 1995; Gosner and Ouweneel, 1996; Laurie et al., 2005; Little, 2001; Montejo, 2005; Otero and Jugenitz, 2003; Perreault, 2001; Postero and Zamosc, 2004; Reed, 2003; Schwartz, 1999; Stocks, 2005; Varese and Chirif, 2006; Warren and Jackson, 2002; Yashar, 2005). The success of indigenous claims on territory, through history, culture and language have now been supplemented by other claimants, that in many contexts would have been described as peasants that use the native reserve idea to expand access to land.

“Traditional people’s rights” is actually a kind of “post modern” strategy that builds on the success of cultural identity in the recognition of territorial rights. These kinds of reserves include extractive reserves, quilombos (run away slave communities), fisher communities and Caboclo² reserves and peasant based on customary tenurial configurations associated with forest activities like rubber tapping, nut collecting, fishing, etc. The “reserve” model of land holding is now largely known under the rubric of “socio-environmental” (*socio-ambiental*) regimes (Schwartz, 1999; Warren and Jackson, 2002). Such groups are able to mark out a kind of ethnic/cultural terrain with legal recognition and often, alternative property regimes in an ideological and institutional framework of environmental and human rights. These interact strongly with national and international interlocutors about issues of rights, resources and territoriality invoking a history of place and practice (Adger et al., 2003; Brown and Rosendo, 2000). These populations often emphasize a more hybrid stance vis a vis development practice within the contexts of “landscapes of sustainability” or socio-ambiental forms of development. Increasingly such communities produce niche items for segmented green markets (Sunderlin et al., 2005; Dandy, 2005; Bray et al., 2004) and focus on their potential as players for payment for global environmental services (Santilli et al., 2005; Rosa et al., 2005). Recognition of these territories has in many cases removed large areas from external deforestation pressures. In Brazil, the Kilombola movement for territories that comprised former runaway slave areas as been

the subject of specific “Sustainable Development” laws, and at this juncture represents a significant extension of agrarian reform, potentially affecting thirty million hectares in Brazil (Treccani, 2007).

The prospects of the “environmental economies” seem buoyant as transfers for carbon trading regimes, certification programs, and other potentially large scale payments for environmental services to mitigate climate change and reduce biodiversity loss seem increasingly active (Santilli et al., 2005; Grieg-Gran et al., 2005). Indigenous and traditional people’s economies largely piggy back onto environmental and niche markets for socially and ecologically certified products in international commodity circuits. These “socio-environmental” economies are increasingly sites of rural investment for NGO projects for less capitalized small scale rural producers (Anderson, 1996; Fiabani, 2005; Silberling, 2003; Summers et al., 2004; Brown et al., 1992; Dandy, 2005; Goeschl and Iglori, 2006; Ruiz-Perez et al., 2005; Salafsky et al., 1993; Bray et al., 2004; Hostettler and Restall, 2001).

In contrast to these forest Arcadias, the last 15 years has seen an explosion in mechanized landscapes, where powerful, technically sophisticated agroindustrial farming (mostly for soy, corn sunflower and other oil crops) oriented to global markets has transformed vast areas of production in Mexico, Argentina, Colombia and especially Brazil, where more than 60 million hectares of savanna and transition forests have been converted into soy and pasture (Hecht, 2005; Nepstad et al., 2006; Jepson, 2006). Linked to global markets, expanding dynamics of technical innovation, the extraordinary productivity and economic returns to this globally oriented form of agriculture has transformed the conceptualization of the “rural” in many areas from images of backwardness to the icons of the sleekest high tech modernism in national economies (Jepson, 2006; Nepstad et al., 2006; Hecht, 2005). Rooted in ideologies of productionism, focused on international commodities and global markets with international quality controls, using modern methods of capital generation, firm organizations and information flows, these systems dominate large regions in South America.

Large scale agribusiness and livestock enterprises receive most of the state credits, research subsidies and most benefit from transport infrastructure. Although their audience is largely national, these kinds of farmers articulate their role as essential to market led development, and are active promoters of many elements of neoliberal agendas. The role of agribusiness, in this context, is of an “engine” of national development given the new comparative advantage of the tropics in technologically advanced agriculture. Rather than a supplementary sector of an emergent industrial economy – the traditional role that agriculture was to play was to play in development – elaborated industrialized agroexports are now the backbone of many Latin American economies, such as Brazil, Chile, and Bolivia.

2.1. From historical protagonist to odd man out

The ascendance of new environmental and agroindustrial regimes reduced economic space for peasantries, and the exhaustion of a class and party based national politics profoundly affected the political role of peasants as a class and a constituency. These changes meant that the deeper issues inherent in the Agrarian Question, one that had mobilized Latin America for centuries has been superseded by “sustainability” and “poverty alleviation” projects in lieu of any overarching structural analysis or distributive programs. Between the wild, traditional and transnational models of occupation, peasantries emerged as weak players, relatively poorly organized and neither adequately green, “authentic” nor sufficiently modern for the new ideological or economic spaces in the modern landscapes of the tropics. Buf-

² Caboclos are the traditional backwood folk of the Amazon. Historically in Brazil, a caboclo was conceptually thought of as a hick. It also has a racial connotation: initially it meant natives, but later was seen more as a cross between northeasterners and natives.

feted by cheap imported grains, peasant returns for food crops collapsed by half to two thirds of their previous value over the last decades (Barkin, 2002). This decline coupled with a relatively low labor absorption in urban areas, and the general erosion of state welfare programs as part of adjustment austerity initiatives threw rural livelihoods into crisis and toward a wider portfolio of possible activities. Today's small farmers have difficulty competing on the terrains of environmentalism or authenticity or in scale economies in global commodity markets, but their emerging alternatives involve a complex mix of activities, that often either reduce pressure on forests or require management of them. As annual crop farming has become more problematic for small scale producers, new markets for woodland products or the creation of environmental services constitute among the more viable of peasant alternatives. Remittances, state transfers, emergent international and national markets for timber and non-timber products, all contribute to the complexity of the "New Rurality", landscapes less involved in the production of agricultural commodities than as a social refuge, producers of forest products for emerging markets and for territorial organizing to capture environmental services in complex portfolios. The next section reviews some case studies that show the forms the "new rurality" is taking, and how these increased woodlands through financial transfers from below (remittances) from above (welfare payments) through global skilling and through green markets.

3. Case studies: globalization and forests in settled landscapes

3.1. Resurgence and insurgence: the case of El Salvador

Salvadoran landscapes were largely deforested by the end of the 1970s with less than 6% of El Salvador's natural forest considered undisturbed. El Salvador's rampant clearing and political instability, driven largely by the expansion of large scale agro-industries, cattle, and small scale producers pushed ever higher into the mountains was often viewed as emblematic of the noxious interactions between people and ecologies (Landau, 1993; Lauria-Santiago and Binford, 2004). During the 1980s, like most of Central America, El Salvador was embroiled in civil conflict that lasted from 1980 to 1992. The war shaped a context that ultimately had several effects on the environment, on the political economy of the country, on policies that affected land uses. These produced an unusual dynamic of forest recovery in spite of rural population densities that are equal to those of the 1970s. The details of this complex story are described in more detail elsewhere (Hecht et al., 2006a,b; Hecht and Saatchi, 2007).

The civil wars of Central America were proxy battlegrounds of Cold war super powers that were grafted onto centuries of inequalities that became sharper and more conflictive with rural modernization programs of the 1950s and 1960s. The warfare included carpet bombing, land mining and massacres, processes that halted the agricultural frontier for large and small producers as rural areas became extremely dangerous. The forest itself was a strategic defense of the rebels, and mountain zones hid hospitals, command posts and supply caches. Violence and terror stimulated urban migration and a surge of international flight as Salvadorans sought refuge, largely in the US. About one sixth of the population left the country, mostly for the US. The violent frontier meant that pasture, agro-industrial and peasant cropping areas shifted into secondary successions. Food imports substituted for local grains, and international provisioning networks developed, further reduc-

ing subsistence pressures on the landscape and on the remaining forests (Hecht et al., 2006a,b).

Today, El Salvador's expanding woodland landscapes are an outcome of forest remnants uniting with complex regenerating and anthropogenic systems that supports high levels of floristic and avian diversity, and high degrees of endemism (Komar, 1998). Indeed the complexity of the ecological matrix in these regions is such that species declines are not occurring as predicted by theory (Gillespie, 2001). Similar findings were noted in Costa Rica and in Puerto Rico (Aide et al., 1996; Grau et al., 2003; Rudel et al., 2000).

War and out migration interacted with several other policies and political ecologies: El Salvador's Peace Accords (1992) altered the role of agriculture and natural resources in the national economy as neoliberal policies were implemented emphasizing market rather state led forms of development, trade liberalization for food imports and sharply limited credit to rural areas, all of which undermined the markets, economic support and returns for small farmers (Barkin, 2002; Lauria-Santiago and Binford, 2004). The real returns to agriculture by 2000 had contracted to 27% of its value in 1970, causing a strong disincentive to produce, and making the cost of production for most crops exceed the profits that could be gained from them. The area in production of field crops also contracted (Hecht et al., 2006a,b). If subsistence production was still key for household survival, there is no a priori reason that subsistence production would contract. There is however another factor that underpins the changes in forest cover, and that is the impact of remittances.

3.1.1. Remittances and forest recovery

The widespread transfer of monies from foreign workers to their home countries – the sending of remittances – is among the largest of global capital flows, and occurs throughout Africa, the Middle East, Asia as well as Latin America. More than any policy, remittances were most responsible for poverty reduction in Latin America (Acosta et al., 2006, 2008). The implications of migration and remittance economies is a central topic for scholars of immigration policy and transnational studies, but very little research has focused on the empirical relationship of these monies to environment. Global annual remittances now exceed 300 billion dollars per year, of which about 40 billion went to Latin America (Acosta et al., 2006, 2008). Transnational migration has been especially marked in Central America, where remittance flows are substantial, often eclipse direct foreign investment, exceed official transfers and go directly to households (Acosta et al., 2006; Kandel, 2002; Hecht and Saatchi, 2007). Remittances were a much larger source of "foreign" capital than foreign investment in many Central American countries, often by orders of magnitude, and are significant parts of the GDP. Indeed, in countries like Nicaragua, remittances comprise more than a third of the national income (Acosta, 2006).

In El Salvador, the exodus of a sixth of the population created the conditions for transfer of funds from working expatriates to their family members who remained in the country. International remittances accounted for 66% of foreign exchange revenues of El Salvador (about 2.6 billion dollars). These were received in 25% of all rural households (Kandel, 2002). These capital flows "from below" doubled incomes in migrants' families. Rural populations were still at the densities of the 1970s, but woodlands expanded.

Analysis of satellite imagery and populations statistics has allowed the testing of the relative impact of population and remittances on forest cover (Hecht and Saatchi, 2007). Malthusian theory suggests that areas of greater population density in rural areas would correlate with less or no forest recovery or more deforestation. Our comparison however showed no significant correlation of forest cover with the population density, and a statistically significant positive correlation of forest resurgence with remittances. For

every percentage point increase in remittances, there was a 0.25% increase in the percent of land with over 30% tree cover at Pearson correlation of $R=0.49$ ($p=0.02$). This correlation improved to 0.68 ($p=0.004$) in the 60% tree cover category. A similar correlation of forest change with remittances was obtained from the Landsat analysis.

Households with remittances also cleared less. The data suggested a negative correlation of $R=0.73$ ($p=0.002$) of forest clearing with increasing household remittances (Hecht and Saatchi, 2007). These findings have important implications for Central American development, environment, and rural poverty.

If there are viable investments in farming, then remittances may flow to them and either increase clearing—as can happen where cattle become investment options, or intensify production. But when agricultural prices are low as they have been for grains, or volatile as they are in coffee, or high risk in non-traditional sectors like berries and vegetables, remittances are often used for welfare investments in health, housing, food, education, small scale commerce. Remittances and collapsing prices are significant factors for explaining forest resurgence, a process seen more widely in sites of international migrations (cf. Klooster, 2003).

3.1.2. Transfers from above

Forest resurgence in El Salvador reflects the dynamics of warfare, commodity prices and, small scale remittances in woodland recovery. The larger impacts of globalization and remittances is clearly worthy of more detailed studies, but external transfers of cash also seem to have been key in forest recovery in Puerto Rico.

The Puerto Rico case is among the best studied cases of forest resurgence and the ecology of expanding forests because of the location of the Luquillo experimental forest, its long history of landscape ecology and tropical forest analysis (Aide et al., 1996; Grau et al., 2004; Rudel et al., 2000). Here, forest recuperation also reflected out migration both to the US and highly subsidized maquila operations, and the impact of US government transfers in the form of social security and other payments to Puerto Rican citizens. The international commodity prices and volatility undermined agriculture, but cash transfers reduced pressure on natural resources as well. Rural areas functioned in these cases as refuges and security as far flung migrants supported rural households by almost doubling their incomes. Within this context, locals increasingly are organizing for environmental services, green marketing for specialized markets, and tourism.

The El Salvador and Puerto Rican cases suggest that transfer payments can have positive effects on forest cover, a reality that has suggestive implications for the debates that currently inform payment for environmental services (Grieg-Gran et al., 2005; Sunderlin et al., 2005; Wunder, 2001; Rosa et al., 2005; Norgaard and Jin, 2008). These two cases show globalizing dynamics that undermined peasant economies led to successional landscapes in densely inhabited landscapes. The next section focuses on how other forms of globalization enhanced production forests.

3.2. After the deluge: timber booms, successional management, and Artisanal forestry in Amapá

The Amazon export timber economy is concentrated on six main species that supply global markets.³ The conventional wisdom, one that is empirically verified in many of Amazonia's frontier settings, is that as timber operators come in, they cut the valuable species into local extinction, leaving a depauperate forest system, and one

where logging roads will soon trigger in-migration and broad scale deforestation. While certainly this pattern is historically true and part of Amazonia's current frontier history, these impoverishing processes are not the only ones in the region, especially in its more consolidated peasant economies where skills learned in the globalized sector can be applied into development and enhancement of local systems, shifting the dynamic from a predatory, to productive process. This case study focuses on Amapá and the estuarine ecosystems of the Amazon, and is based on the results of the Amazon research team largely associated with Colombia University and the New York Botanical Garden (Sears et al., 2007).

Until the 1980s, seven large export timber operations averaged a daily output of 22,000 m³ of high value tropical timbers, and was a significant source of local employment for sawmill and logging management. Once the export quality timbers were cut, all commercial operators closed and moved elsewhere, a pattern typical of Amazonia's predatory high end timber economy. So far this appears like the usual story of a ravaging global economy leaving pillage in its wake. But this tale has unusual features that evolved from information transfers from waged workers in this global timber industry.

Some of the laborers who had worked in the sector left with the timber operations, but others remained, and built family run sawmills, of which there are now seven. These mills focused on locally grown, smaller timber, mostly faster growing successional species that form part of a complex of natural forest, successional fallow enrichment, and home garden management involving at least 36 species that now contribute to regional markets for poles, building supplies and cabinetry. Historically the timber management was strongly associated with successional systems after cropping but the agricultural component has increasingly dropped out of the mix with the collapse in crop prices, secondary forests are now the sites of intensive management.

Information from the globalized industrial sector fed into local analysis of the commercial features of trees, management strategies for better quality timber, and the technical elements of wood processing and mill management for timbers for local markets. These then were linked to small scale industrial timber systems that permitted the insertion of households into a reconfigured timber industry, but one based on international industrial standards (Sears et al., 2007). This adaptation of local knowledge of forest species, their qualities, and ecological features to larger industrial processes was also coupled with local social networks for marketing.

This complex has produced a regionally integrated production and processing system that seems resilient and flexible, is highly diversified and is based on an array of local demands for timber, and non-timber forest products. This dynamic was produced through the participation in a global export timber market that introduced the rural inhabitants to the technologies, knowledges and strategies inherent in such markets, or "skilling" as it is called in industrial systems. This engagement of technically sophisticated processing, traditional social relations for marketing, and modified resource management systems expresses the dynamism of the rural sectors, but also reveals the influence of the transformations in commodity prices, as farmers crop less and manage wood more, and develop long term forest based ecological and economic strategies for local and regional markets.

As in our previous examples, the impact of declining commodity prices, participation in waged markets, and the integration into global circuits rather than producing the expected story of simple resource depletion has, instead, generated a more complex tale of hybrid "transnational" structures that actually promote rather than undermine forests, in the most vexed of all tropical sectors, the timber economy.

³ These include mahogany, etc.

4. Gastronomy, fashionable foods and agroforestry: elite markets, and forest expansion around Belem

Our last case also comes from Amazon estuary, a place of millennial habitation by rural populations. Almost anyone who has been to a major grocery or healthfood store cannot have helped but notice the ubiquity of Açaí juice (*Euterpe oleraceae*). Extremely high in antioxidants, this Amazon palm fruit has made rapid inroads into American markets during the last 5 years. That global demand should push land use into intensified production systems is not in itself surprising, since most of the history of global commodities repeats this history. What is significant about this case is that it involves tighter integration, and intensification of production within an agroforestry framework of what is often considered a “wild” or “semi wild” tree species in an difficult Amazon flood plain environmental setting,⁴ and its producers are mostly small farmers.

One of the nostrums about non-timber forest product economies is that increased demand, especially global pressures can thrust systems into unsustainable intensive extraction. This has been the case with many of Amazonia’s colonial extractive products such as turtles, cacho, rosewood, and most recently, mahogany (Salafsky et al., 1993). Rather than a catastrophic over-harvest, this situation, “natural” and successional forests have been integrated into other floodplain and upland agroforestry systems in complex ways to increase the production of Açaí through the application of local knowledge systems. The expansion of Açaí forests and agroforests has been explosive (Zarin et al., 2001; Brondizio, 2008).

The volatility of a global market is buffered by the enormous local urban demand in the city of Belem for Açaí, and indeed the international market, for good or for ill is placing upward pressure on local prices enhancing the efforts on longer term management of “domesticated” stands rather than unique dependence on predatory harvesting at greater distances elsewhere in the delta. Indeed the excellent market for the palmberry has consolidated and extended traditional and private claims on Açaí territories (Raffles, 2002), which increased the area of its production—more than 125% throughout the 1990s even when its market was still largely local (Zarin et al., 2001; Fudemma and Brondizio, 2003). Regional markets for livestock and manioc or rice (products from cleared land) exhibited none of the economic dynamism of the palm (Brondizio, 1999), which, with its employment characteristics, harvesting patterns and strong demand drives increasingly replaces manioc fields and pasture.

This system occurs in a region of traditional “Caboclo” populations, areas with a significant repertoire of successional woodland management techniques. Marketing structures and a complex economic portfolio including urban labor and remittances that assures both flexibility and resilience in the Amazon estuary environment (Fudemma and Brondizio, 2003; Hiraoka, 1995; MunizMiret et al., 1996). These two Amazonian cases reveal how local knowledge and production systems were influenced by globalization of markets in quite different ways but where successional forest management was the result rather than deforestation was the result.

5. Conclusions

5.1. Woodlands, wages, markets and tropical peasantries

Peasants are a residual political category in modern rural politics as environmental and agroindustrial models increasingly shape

rural economies. Debates over peasant viability persistently point to their relative decline, even as their numbers, in absolute terms remain high in Latin America’s hinterlands. Campesino economies generally now depend less on annual crop sales and more on wages and woodlands in the construction of incomes and landscapes. The conservation attention to environmental, indigenous and traditional lands is certainly important, but the dynamism may well be unfolding in its “invisible forests” of the new Rurality may well be underappreciated. This suggests that much closer attention to the outcomes of globalization can illuminate a great deal about land cover change in peasant landscapes.

Contemporary patterns of forest resurgence in Latin reflect a complex history that is in many ways highly divergent from those of the Northern European and North American worlds, because many Latin American rural landscapes remain densely inhabited. At the macro and structural levels woodland recovery or expansion is not an outcome of rural depopulation and emergent urban industrialization—the model that underpins the Euro/American transition. Nor are the transitions of small farmer economies proceeding into traditional ideas of a “uniform” modernity, but rather into a set of complex of systems where traditional forms accommodate and transform contemporary conditions of globalization as they restructured rural landscapes. These dynamics help explain the widespread occurrence of woodland recovery in many divergent small farmer contexts. This changeover from the classic agrarian peasant to the forest based holding has occurred in a policy vacuum and with very little support.

Unlike the static boundaries of parks and reserves, small farmer forested landscapes can expand. These rural inhabitants and tropical environments might well benefit from an approach that abandons the habits of thought that sees peasant producers as uniquely drivers of deforestation but understands them as allies: the protagonists of political ecologies of forest transitions embedded in inhabited landscapes.

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⁴ Reader unfamiliar with Amazonia may not appreciate that the estuary, through which about one sixth of the world’s freshwater passes, is subject to significant tidal as well as flood fluctuations.

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