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Taking Emigration and Remittances into Account in Watershed Management

Carylanna Taylor

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Abstract

Conservation and development policies tend to ignore the impacts that emigrants have on the ways in which their households and communities of origin manage natural resources. This paper draws on research among hillside farmers in Honduras to show that transnational flows of workers – and the funds and ideas they remit – affect household and community practices related to farming and natural resource use. Practices include use of agrochemicals, erosion control, length of fallow periods, and installation of community potable water systems. The Honduran national water service and conservation organizations, such as the NGO which manages the buffer zone of Cerro Azul Meámbar National Park where this project is located, call upon village water councils to protect the watersheds surrounding community water sources. This paper explores the policy implications for organizations following a community natural resource management (CNRM) model of taking into account transnational labor migration and accompanying economic and social remittances.

Keywords: natural resource management; remittances; migration; Honduras; rural development

Contact information:

Carylanna Taylor, M.S.
PhD candidate, Anthropology
University of South Florida
carylanna.taylor@yahoo.com

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OVERVIEW

This paper explores the nexus between transnational labor migration and watershed conservation approaches among residents and managers of a Honduran national park. I argue that, although they are largely absent from national, park, and village-community efforts, the presence of those who have left the region in search of work abroad is palpable. Though physically absent, they impact use and management of watershed resources through the funds they send back to their households of origin (remittances). The impact is felt through direct investment in farming and cattle ranching, contributions to community infrastructure projects, and the more chemical-intensive farming practices that their households of origin adopt to compensate for lost labor. While I focus on research conducted among residents and emigrants (out-migrants) to Florida and New York from a single village, the dynamics reflect similar junctures of emigration and conservation efforts elsewhere in Honduras as the provision and conservation of water has been placed in the hands of rural communities throughout the country. This case is also an example of a trend towards decentralization of conservation that is occurring worldwide.

In order to better tease out the presence of transnational labor migrants in the use and management of water, soil, and forest resources in their communities and households of origin, in this paper I highlight an instance of park/community collaboration aimed at better conserving the forest surrounding the community's water source which is located within the confines of the national park. At this intersection of migration and conservation lie issues of land management, limited availability of labor, sending and expenditure of remittances, and, especially, community initiatives to provide potable water, and park and community efforts to conserve watersheds.

The broader project looks at how emigration and remittances affect "watershed impacting practices" (WIP) which include applying agricultural inputs, pasturing cattle, cutting trees, burning brush, harvesting firewood, soil conservation measures, and installing a potable water system. Here, special consideration is given to how dynamics stemming from transnational labor migration are related to the decentralization of conservation. The final section of the paper discusses how such policies and strategies can better take transnational labor migration into account.

METHODS

This paper draws on ongoing dissertation research with residents of and emigrants from a village located in the buffer zone of Cerro Azul Meámbar National Park, Honduras (PANACAM by its Spanish acronym) where the author conducted masters and predissertation research in 2001 and 2007.ⁱⁱ The 370 household village, Santa Rosa (pseudonym), was chosen at the recommendation of the park managing NGO for its relatively large size, variety of emigration experiences and productive activities, and residents' interest in the project

Research began with four participatory group interviews (February-March 2009) in order to develop a village-wide survey designed to 1) determine migration patterns and histories 2) identify uses of monetary remittances and content of social remittances, 3) record participation in household and community watershed impacting practices (WIP), and 4) understand in general terms the distribution of economic, social and symbolic capital within the community. Each group interview (two with men, two with women) lasted approximately two hours and included 4-8 residents responding to personal invitations and a flyer posted around the community. Between March and July 2009, the resulting survey was administered to 31 households (14 with emigrants), with follow up surveys administered to the 18 families engaged in agricultural activities (8 with emigrants). (In order to better discuss differences between households, another 19 households were interviewed during Phase IV (February-May 2010) using an abbreviated version of the survey. These are not included in the present analysis, which was written in November 2009.)

Four survey households receiving economic remittances from abroad were chosen to reflect varying combinations of economic capital, social capital, and emigration experiences. Ethnographic interviews, site visits, and participant observation with members of the four case study families in Santa Rosa were carried out between April and July 2009 and continued between February and May 2010. Heads of household were asked to keep "remittance diaries" to record the receipt and expenditure of migradollars as well as to track migration and environment related phone conversations with emigrant family members.

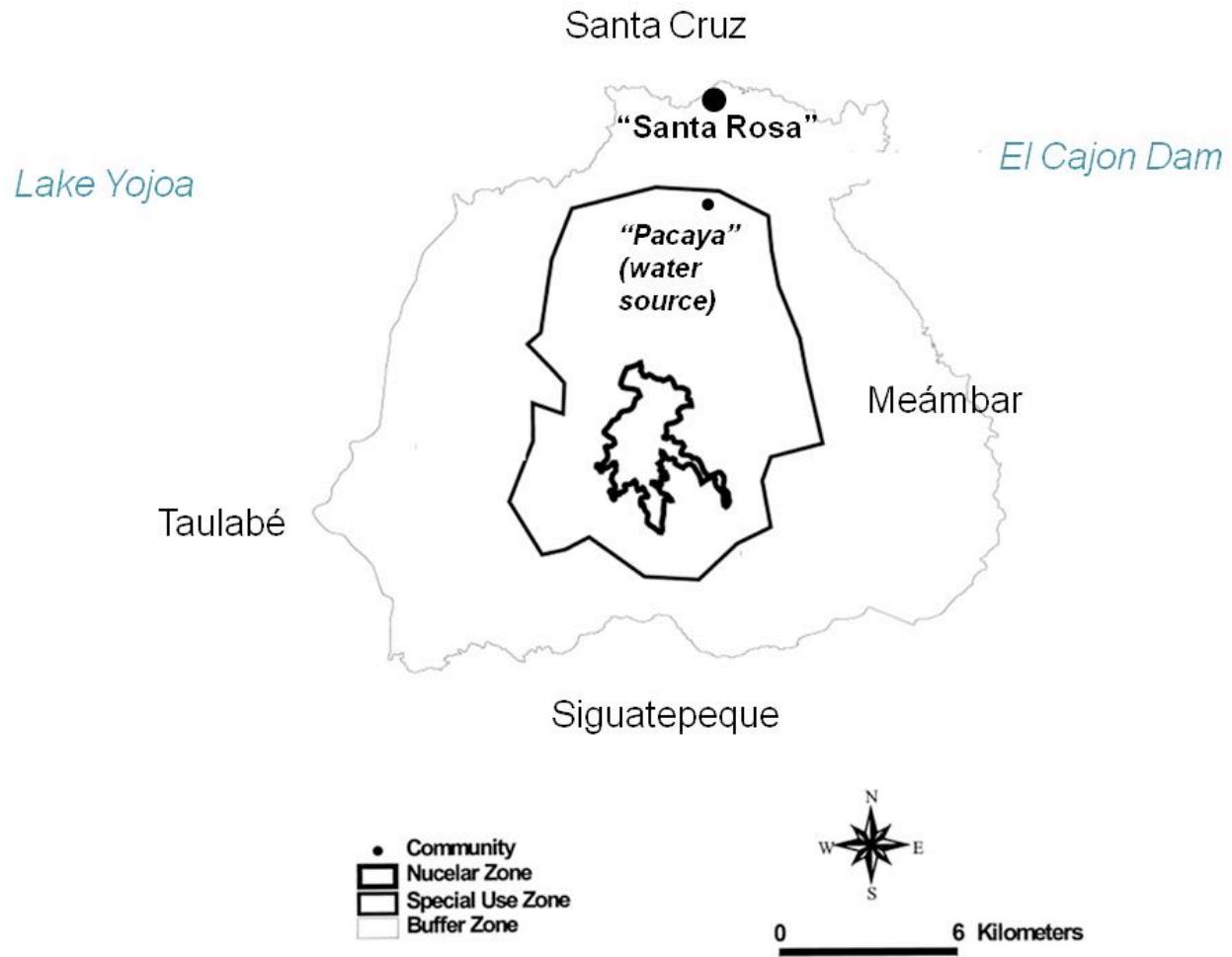
August through November 2009 was spent interviewing and observing transnational family members and exploring networks of Santa Rosa-area emigrants in the United States. (One family has 2 adult children in south Florida. The other three families have a total of 7 emigrant members dispersed across several towns on Long Island, New York.)ⁱⁱⁱ In two to three sitting recorded interviews, transnational emigrant family members (8) were asked about remittance transfer and expenditure (including purchase of land, cattle, and agrochemicals), their involvement in the water project, their plans to invest in or return to Honduras, current and past farming and animal husbandry practices, land purchases, and their thoughts on the environmental challenges facing Santa Rosa. I asked an abbreviated question set of their spouses, siblings, and housemates (6 from Santa Rosa, 6 from elsewhere in Honduras, and 1 from the United States.) These formal interviews were supplemented by ethnographic interviews with them and other members of their transnational family networks, visits to emigrants' places of works, and participation in routine household and family activities.

MICROWATERSHED MANAGEMENT IN THE BUFFER ZONE OF A HONDURAN NATIONAL PARK

The 2700 person village is located in the buffer zone of Cerro Azul Meámbar National Park where 20,000 other residents are spread across 67 villages and hamlets. The buffer zone forms a protective ring around the park's nucleus: the water-generating cloud forest high up Cerro Azul Mountain. Established in 1987, PANACAM is considered vital to the nation's supply of hydroelectricity, as it is part of the watersheds of El Cajon Dam and Lake Yojoa, both with important hydroelectric plants. The national government has contracted Proyecto Aldea Global, a Honduran non-governmental agency to administer PANACAM. With varying degrees of responsibility and involvement, the park is co-managed by the national parks service (ICF, formerly COHDEFOR), two states (Comayagua and Cortes), and four municipalities (Siguatepeque, Meámbar, Taulabé, and Santa Cruz de Yojoa where this project is based). Efforts are made to include communities but they are not official co-managers. In the buffer zone, residents are allowed to live, raise cattle, and farm (primarily coffee, corn, beans, yucca), but these and other activities are regulated. Permits are required to cut trees in the buffer zone and are exceedingly difficult for small land owners to obtain.

Figure 1. Location of Cerro Azul Meámbar National Park, Honduras



Figure 2. Zoning map of Cerro Azul Meámbar National Park, Honduras

The spring that provides water to Santa Rosa is 2 kilometers away, within the park's more heavily regulated special use zone that lies between the core and buffer zones. While park managers have been quite successful in preserving the difficult to reach core, the boundary between the buffer and special use zones marks the agricultural frontier where incursions are common into the special use zone for hunting, gathering firewood, and using machetes, chainsaws, or fire to make way for crops or cows.

The scene described here occurs at the border of people-included and people-excluded park management areas. Above the border of special use and buffer zones, in the people-excluded part of the park, the focus of managers is on water, forest, and biodiversity. Below it, in the people-included buffer zone, the focus is more on land, soil, cows, crops, and residences. Park co-managers are most concerned where the agricultural frontier is advancing upward into the park threatening water, forest, or fauna or where trees are felled near a water source. Park managers' request for communities to take greater responsibility for protecting the people-excluded section of the park makes for a rich point of discussion.

With only two park guards and limited support from police, military, and the four municipalities which ostensibly co-manage the 20,000 hectare park, the non-governmental organization entrusted by the national government to administer the park has taken its philosophy of inclusionary management a step further to call upon buffer zone communities to more actively patrol their own microwatersheds: the areas of the special use zone that directly contribute to the well-being of their community's water supply. They are to discourage contamination of the water supply with agrochemicals and manure and report cutting and burning to local authorities.

I had been conducting interviews on migration and various watershed impacting practices in Santa Rosa for six months when I was invited to accompany the park ranger and community president on a trip to the tiny hamlet of Pacaya (pseudonym) at the edge of the special use zone to help define and mark the edge of the area for which Santa Rosa would take responsibility. While I had attended spirited meetings on the park's microwatershed boundary-defining work in neighboring communities, I had heard nothing of the project in Santa Rosa, aside from a meeting between the park ranger and two community leaders. Any water-related talk in the community was about interruptions in service or finishing work on the 2008-2009 potable water infrastructure project, which pipes in water by gravity from Pacaya.

While the lack of prior discussion reflects some ambivalence towards the park and issues in park management, for the purposes of the present paper, I am more concerned that it reflects an emphasis on water infrastructure at the expense of water(shed) conservation. In interviews, most current residents and emigrants demonstrate current knowledge of the water system. They also volunteer concern about water sources drying up and make the connection with cutting and burning. But when it comes to giving time or money, water provision takes precedence.

When we hiked up to Pacaya that June morning, there were no adult volunteers, just the park ranger from managing NGO (Aldea Global), the over-extended president of the Santa Rosa community council, three employees of Aldea Global's HIV-AIDS program, eight teen boys who are active in the HIV-AIDS awareness program, and me. Gathered by a "Now Entering Cerro Azul Meámbar National Park" sign in the middle of a large cornfield, we divided into teams to demarcate the microwatershed protection zone, taking GPS readings and blazing trees and fence posts along the way. We were aghast but not surprised to learn that the cans of bright orange paint and paintbrushes that the park guard had left with the residents of the adobe house on the park-side of the sign were nowhere to be found. Whether simply used for their own purposes or a deliberate protest against restrictions by one of the last (now illegal) occupants of the special use zone, their disappearance underscores the absence in the microwatershed conservation project by those living in the houses or working the fields dotting the park/buffer-zone boundary.^{iv} Also absent that morning include the water council members who were busy planting their own fields after days working on the potable water infrastructure project, women,^v representatives of park co-managers, and land owners, many of whom reside in San Pedro Sula or the United States.

Indeed, the presence of emigrants in this microwatershed is palpable. The property we stood upon is actually owned by two brothers living in NY and used in their stead by their uncle. The parcel was once part of their grandfather's much larger holding, some of which has been surrendered to the park. The rest was divided among sons and grandsons who have further divided the property through sale, renting, or lending. One of the brothers commented that he has little control over his uncle's agricultural practices. He knows that his uncle relies heavily on inorganic fertilizers and herbicide, even though his own preference would be for more sustainable methods. In other words, watershed impacting practices of renters or borrowers may be very different from those used by (or desired by) emigrant owners. The influence of emigration over WIP is also felt through the management decisions taken by households coping with the loss of emigrants' labor, spending remittances, or administering investments on behalf of emigrants.

EFFECTS OF EMIGRATION & REMITTANCES ON WATERSHED IMPACTING PRACTICES

This research project was born in 2007 while I was conducting research on water management throughout PANACAM's buffer zone. An exasperated Peace Corps Volunteer, partnering with the park managing NGO, told me that when he asked farmers in the buffer zone village of "Aguas Blancas" why they attended conservation talks but chose not to implement of the sustainable agricultural techniques taught, they responded simply "there is not enough labor." Indeed, emigrants from Aguas Blancas estimate that most households in the 90-household village have at least one family member working in the United States, with over a hundred living in northern New Jersey alone.

If back-of-envelope calculations with study participants and Santa Rosa leaders are anywhere near accurate, well over 10% of the village currently resides in the United States. About 33% of the inhabited households currently have a family member living abroad. (Those figures do not account for workers and students living in Honduran cities, or the handful of emigrants in Spain, Italy, Mexico and other Central American countries.) Santa Rosa's US emigration rate echoes national trends. The Honduran National Institute of Statistics estimates that there are 750,000 Hondurans in the United States (Instituto Nacional de Estadística 2006).^{vi} With a national population of 7,500,000 this equates to 10% of the national population and 25% of the working age population (Instituto Nacional de Estadística 2006). Also reflecting national trends, the majority of emigrants in my study households are male (7 of 9 immediate family; 12 of 19 total interviewed) and in their 20s and 30s.

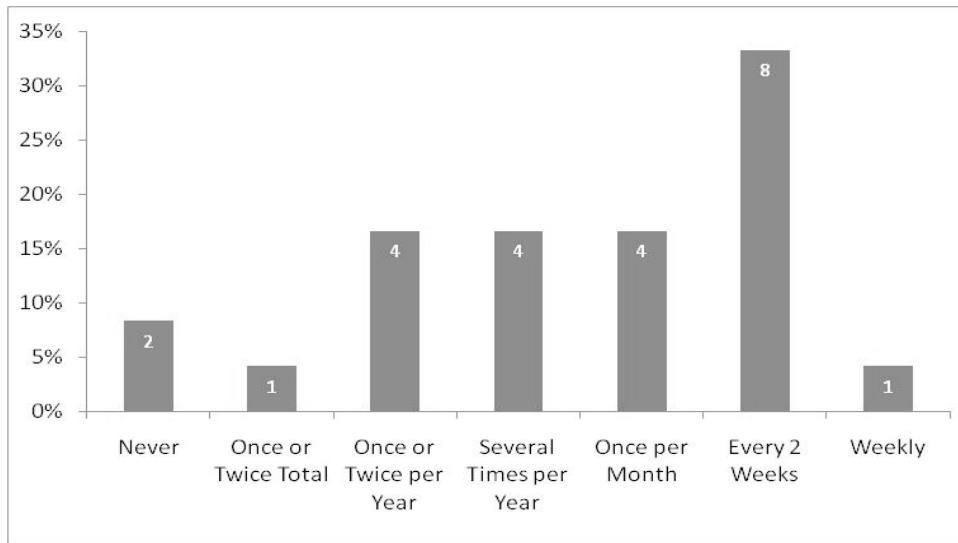
In the Freeport/Huntingdon area of Long Island alone there are 300-400 emigrants from Santa Rosa, some planning to stay only a couple of years to make enough money to build a house or business and others rooted in the United States through spouses, children, and the American dream who plan to voluntarily return only if visiting or retiring. No formal associations bind them, but Santa Rosa emigrants meet up through family occasions (holidays, birthdays, wakes), in Honduran delis and around town, and churches catering to Spanish-speaking immigrants. Ties are strongest among family members (siblings in the case of all four of my study families) and looser among emigrants from Santa Rosa and Honduras more generally. Connections are maintained through telephone conversations, visits, and, to a lesser degree, through posting photos and messages on the social networking websites, Facebook and Hi5.

Most emigrants from Santa Rosa work in construction or restaurants. "Construction" encompasses everything from prospering general contractors with a dozen employees to low-paid low-skilled construction assistants hired day-by-day at local "esquinas." ("Esquina," literally "the corner," refers to the point where job foremen stop and pick up workers out of a crowd of aspirants, largely on a first-come-first-serve basis.^{vii}) In my sample, restaurant jobs ranged from assistant branch manager of a California Pizza to head chef at a resort seafood restaurant to dishwasher. Other jobs included house cleaner, coat check attendant, and real estate agent. Most Honduran emigrants with whom I have spoken have been underemployed for at least part of the past year. Two participants are formally laid off and collecting unemployment, working occasionally under the table. Though many have talked about it, one participant voluntarily returned to Honduras at the end of November believing he would do better for himself harvesting his own coffee and taking care of his own cows than he would working two days a week through the esquina and sending money to a friend to manage his cattle and crops on his behalf.

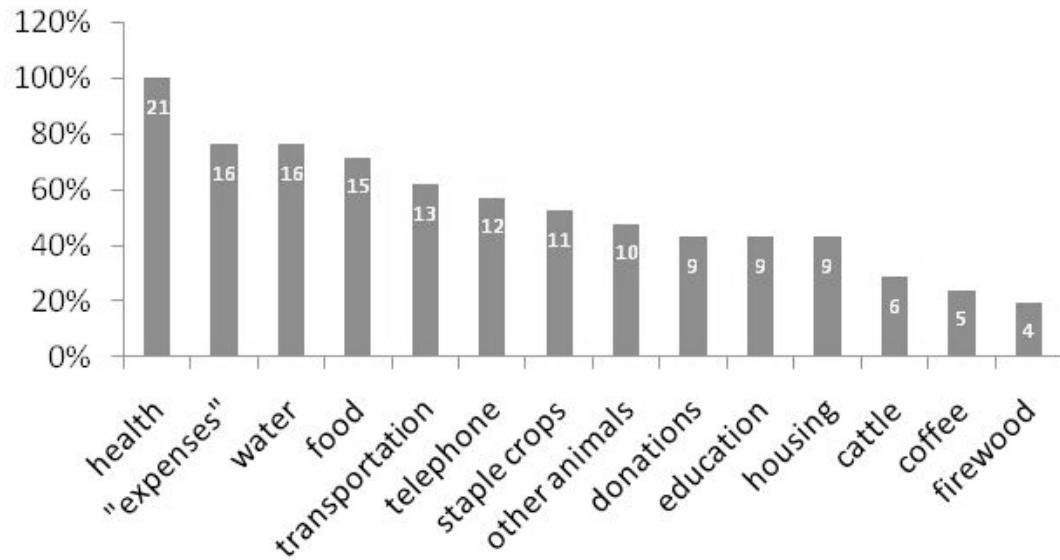
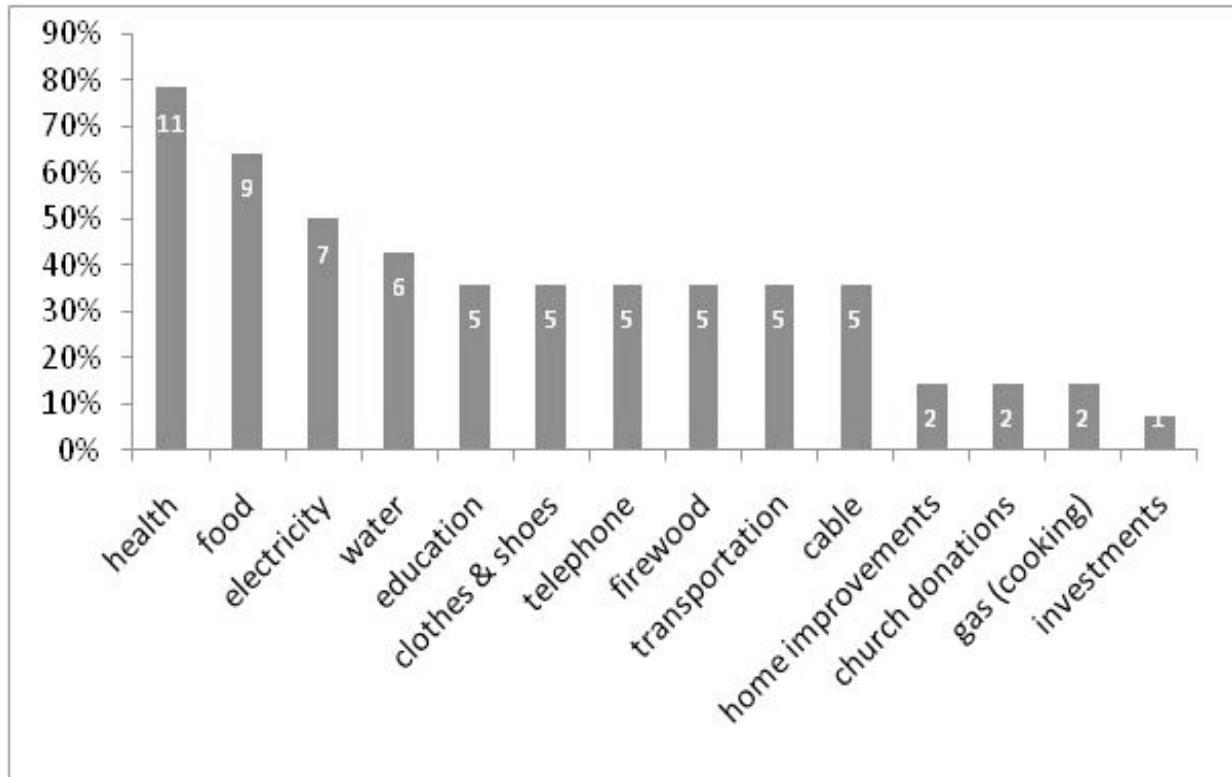
Among study participants, remitting patterns included yearly Christmas packages sent with friends or paid curriers, biweekly transfers of \$150-200 for routine expenses, and multiple large transfers to pay for surgeries, home construction, agricultural machinery, and farmland totaling several thousand dollars annually. Fourteen of the 31 households interviewed in Santa Rosa had

emigrant nuclear family members, for a total of 24 emigrants. Of these 9 remitted at least once month on a regular basis, 8 remitted once to several times per year, and 3 had remitted once or not at all (see Figure 3). Typical transfers ranged from 50 to \$250. Emigrants wire funds through Money Gram, Western Union, and RIA Envios. In turn, their family members (usually mothers or wives) pick up the funds at a bank branch in the municipality of Santa Cruz, a half-hour drive from Santa Rosa.

Figure 3. Frequency of remittance receipt according to Santa Rosa residents (n=14 households reporting on a combined total of 24 emigrants)

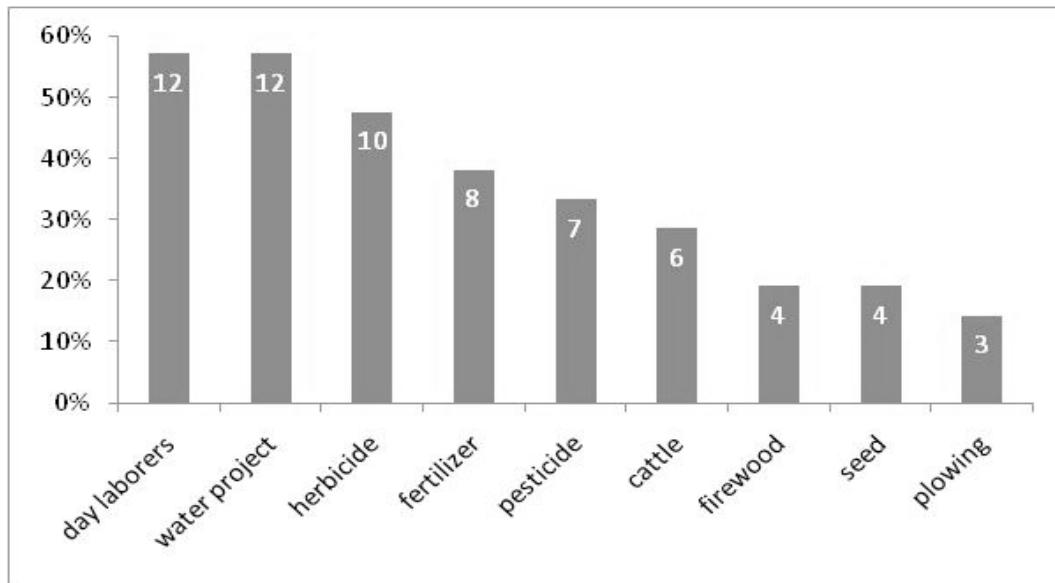


In Santa Cruz, recipients pay for utilities and mortgages and buy food, medicine, school supplies, and agricultural supplies. Back in Santa Rosa they may distribute funds among other relatives, pay workers, pay-down accounts with local general stores, or set aside money for general household expenses. Emigrants report that their families spend the remittances they receive primarily on health, general expenses, water (particularly the water project), and food (Figure 4). (Recipients report similar expenditures (Figure 5)).

Figure 4. Remittance expenditure according to senders (n=21 emigrants)**Figure 5. Expenditure of remittances according to recipients (n=14 households)**

Emigrants report that they believe their families spend remittances on watershed impacting activities, including hiring day laborers for farming and cattle ranching, contributing to the potable water project, purchasing agricultural inputs and services (herbicides, fertilizers, pesticides, seeds, plowing), and raising cattle (herding, renting or buying pasture, machinery, veterinary assistance, etc.) (see Figure 6). According to both residents and emigrants, Santa Rosa residents spend remittances on agriculture, and cattle, whether or not that was the expressed purpose of the transfer. Indirectly, remittances also free up funds that Santa Rosa residents would have otherwise had to spend on basic necessities. A portion of these freed-up funds are spent on purchases or services that affect the microwatershed, including agrochemicals, labor, land rental, and firewood.

Figure 6. WIP related remittance spending according to senders (n=21 emigrants)



By earmarking remittances for raising cattle, purchasing and maintaining land, and (prior to the economic slowdown) building homes, emigrants channel their earnings into investments that are useful to their households of origin and/or provide a place to stay and source of livelihood in the event of voluntary or mandatory return. This is particularly true for those emigrants who prefer not to maintain cash savings because they do not trust the stability of Honduran banks or because their legal status dissuades investing in the U.S. (One participant with no intentions to return beyond brief visits has purchased numerous parcels of land in Honduras and built a spacious two story home as a way to channel funds and have a place to stay if her temporary workers permit is not renewed. She would prefer to have spent the money on the down payment for a house in New York. Similarly, her brother has saved enough for the down payment for a home in the U.S., but is leery of investing in the U.S. because of fear of deportation.)

Heads of household without emigrants in my Santa Rosa survey reported land holdings ranging from 0 to 176 tareas, while those that include emigrants reported holding ranging from 0 to 1024 tareas (more if taking into account all members of the transnational household).^{viii} These figures only include parcels that are used by the household of origin. Including all holdings of each of the four transnational families would show even greater disparity, from a quarter acre to several hundred acres of crops and pasture. Land owners are largely absent, some living in Santa Rosa, but many are in the United States. The fields are lent or rented season by season to those with little or

no land to plant corn and beans. Slower growing, more profitable, crops like coffee, mandarins, pineapple, and yucca are grown only by landowners or their surrogates.

Soil conservation is vital to watershed health, but many techniques such as digging channels for rain fed irrigation and runoff, are very labor intensive. Similarly, clearing fields by machete instead of fire and weeding by hand instead of herbicide are time and labor intensive. Fertilizers to improve the fertility of degraded soil and herbicides become attractive alternatives when there are not enough workers at home and hired labor is 80-100 lempira/day for subsistence crops (corn, beans) that will yield little to no cash income. As the average income for hillside farmers nationally is only US\$1/day (Jansen et al 2003b), US\$4.25-5.25 for 6-8 hours of labor is a significant expenditure.^{ix} For hillside farming households with transnational emigrants, remittances can make the purchase of agrochemicals feasible. Remittances also go to labor, but are rationed for more urgent needs: clearing land, planting, fumigating and harvesting.

Temporary land users employ agricultural practices geared more to short term gain, applying more inorganic fertilizer, herbicide, and pesticides and using shorter fallow periods than would owners concerned with the long-term productivity of soil. This discrepancy is evident in interviews I have conducted with farmers renting land in Santa Rosa and with emigrant land owners in New York, as well as in studies of the region such as IFPRI's 2001-2002 extensive survey of hillside farming in Honduras (IFPRI 2006) (c.f. Jansen et al 2003a; Nygren 2005; Ravnborg 2002).

Even for those who are more actively involved in the management of their property, many decisions are taken by proxy, such as rotating pasture, planting grass for cattle, choosing which land to rent or buy, finding workers to harvest coffee. Among the families with whom I work in New York, emigrants give input to their proxies in Santa Rosa through frequent phone calls (daily or weekly). The handful with greater means (and visas that allow for multiple border crossings) take advantage of occasional visits "home" to conduct business and check in on how their lands and animals are being managed.

Proxies for the landowners in my sample include mothers, brothers, an uncle, a spouse, and friends/neighbors. Some are paid directly through remittances; others are compensated indirectly through sale or consumption of milk and male offspring. The sort of management-by-proxy relationships described below were not evidenced for other crops, apart from a small amount of coffee and a couple in Florida who have hired a former agricultural extension agent to care full-time for their extensive orchards. Female residents of Santa Rosa confessed to having tried to hire laborers with remittances sent by their spouses in order to raise corn, beans, or yucca (the main crops of the area) but they found it less expensive and less stressful to simply buy corn and beans for the family. (When asked about the impact of transnational labor migration on their households and community, many respondents in Santa Rosa and the U.S. pointed out the difficulty in finding productive and reliable workers.)

Three brothers entrust their lands to their mother for pasturing her 90 some cattle and look to her to make decisions about purchasing new pasture on their behalf and managing existing pasture (ex. rotating cattle among fields and hiring laborers to plant grass). They are financially supporting her purchase of a grass shredder to provide feed for the herd. Their sister sent money for a milk pasteurizer to support their mother's business, even though she does not herself have or profit from the cows. Similarly, her husband sends remittances to help his parents' production of cattle, milk, and cheese in a neighboring village. Apart from their cattle and land related remittances, all have sent smaller sums on a monthly or bi-monthly basis for household costs and healthcare.

The sons of the community president send money regularly to their two younger brothers in Santa Rosa for the care of their cattle (a heard of eleven, begun with the purchase of a single

pregnant cow the year they emigrated). Another emigrant to Long Island, who plans to retire to Santa Rosa when he turns 50, sends money to a friend (and former emigrant) that pastures and milks his cattle, giving the milk to the emigrant's mother to sell. Under a separate arrangement, the same Santa Rosa man cares for the emigrant's brother's cattle and coffee.

Even living in the same home in the U.S., the brothers send him their payments and make management decisions independent of one another. The other sets of siblings may loosely coordinate remittances for major expenditures, such as a parent's surgery, but tend to remit individually. The degree of independence is also reflected in funds sent for community project, as shown below with the potable water system.

As is evidenced by the heavy involvement of emigrants in cattle management, conservation policies and approaches in the region that take transnational emigrants into account need to pay close attention to cows. Cows impact water quality when manure seeps into the water source and into pipes broken by their hooves. Deforestation to make pasture for cows and increased erosion from the loss of ground cover and passage of the animals affect the health of the watershed and long term water supply. They tie up land that might otherwise be used for subsistence crops or forest and push the agricultural frontier deeper into the park. But cows are also a source of investment, employment, and a way for emigrants to provide long-term for members of the emigrant's household of origin. Effectively it is a way for emigrants to remit income to their households of origin without having to send cash. Remittances and cows directly affect (and reflect) the distribution of economic capital in the village: the wealthiest families in Santa Rosa are those with multiple children in the States and dozens of cows on their own and children's property in Santa Rosa.

Paralleling problems of community-level microwatershed management, absentee land owners face problems born of insufficient labor or funds for active vigilance, such as theft of animals and crops and unauthorized harvesting of firewood. Some emigrants choose to fence in their properties, hire property managers, or rent-out or loan land. Others say they have put their property in "God's hands" while they are abroad. In either case, looking for overlapping areas of public and private concern, such as more effective vigilance, is an important step for involving emigrants in management of the microwatershed.

EMIGRANT INVOLVEMENT IN THE COMMUNITY WATER PROJECT

Emigrants were directly involved in financing the 2009-inaugurated potable water system, through donations and through fees on their own and family's properties. Emigrants also send money to hire day laborers to take their place in mandatory labor. The project addresses regular shortages of potable water. Emigrants are well aware of the problem, reporting that their families "back home" told them about 8-12 day stretches without water relieved only by a slow trickle for one day.

In 2008, with technical and partial funding assistance from the National Water Service, the Municipality of Santa Cruz, and Aldea Global (the NGO which manages PANACAM), the Santa Rosa water council and community council ran a new pipeline from the water source 2 km away in PANACAM's special use zone. Santa Rosa contributed funds and labor. In addition to nominal yearly water fees, the council assessed a one-time fee for each tap, including those located in houses built by emigrants still residing abroad. Every male over 18 is expected to work on the project, regardless of current residence. The owner of the property where the boundary demarcation began told me that, even though he has lived on Long Island, NY since 2004, he was responsible for providing labor as the project managers assume each adult male will eventually establish his own residence in Santa Rosa. Those unable to labor themselves (emigrants, the infirm, those with jobs outside of the village), and those with enough cash, paid other Santa Rosa residents to take their place for the day.

Often these are less-successful returned migrants or subsistence farmers looking for cash to buy fertilizers, herbicides, urea and other inputs for their own crops. To pay fees and laborers to cover their own or relatives' responsibilities, emigrants continue to send money to their households of origin (wives and mothers in my sample), earmarking the extra funds through phone discussions leading up to the transfer via Western Union or Money Gram.

Emigrants have also made direct donations to the water project on at least two occasions. The first was several years ago. Long Island residents became understandably skittish of group donations when the person entrusted with transporting the funds failed to give them to the community council. For the 2008 project, Long Island residents responded to a letter from the current water and community councils requesting \$50/emigrant. Those who participated wired donations directly to the president of the community council or, more often the case, to their own relatives to contribute on their behalf.

Their collective efforts are reminiscent of, but much less organized than, the hometown associations that Smith (2006) describes among Mexican emigrants to New York. Instead, informal ties among Santa Rosa residents and emigrants suggest a loose transnational village (Kearney 1995; Levitt 2001b) that stretches between Santa Rosa and the new homes of those who have left in search of better labor opportunities: enclaves in Honduran cities (San Pedro Sula, Tegucigalpa), Florida (Fort Lauderdale, Miami), South Carolina, New Jersey, Pennsylvania, and, especially, New York.^x .

DECENTRALIZATION OF COMMUNITY NATURAL RESOURCE MANAGEMENT

Santa Rosa and PANACAM water conservation efforts are part of a global trend of decentralization of community natural resource management (CNRM). Over sixty developing countries have shifted responsibility for some aspect of natural resource or protected area management from central to local government authorities since the mid 1980s (Nygren 2005; Ribot & Larson 2005). The broad category of CNRM includes social and community forestry, community wildlife management, cooperative or co-management, buffer zone management, participatory multipurpose community projects, communal area management for indigenous resources, and others (Western & Wright 1994). Despite often important differences, all these expressions of CNRM share certain characteristics. Among these are the following, which are at the core of PANACAM's version of CNRM:

- A commitment to involve community members and local institutions in the management and conservation of natural resources.
- An interest in devolving power and authority from central and/or state government to more local and often indigenous institutions and peoples.
- A desire to link and reconcile the objectives of socioeconomic development and environmental conservation and protection. (Kellert et al 2000: 705-6)

The move to decentralize has been justified through efficiency, equity, and inclusion criteria for more sustainable development, macroeconomic stability, national unity, state building, and increased legitimacy of the central government (Ribot & Larson 2005; Ribot & Peluso 2003). Decentralization is usually referred to as the transfer of powers from central government to lower levels in a political-administrative and territorial hierarchy. When the central government maintains a strong stake in protected area management (in PANACAM, the conservation of watersheds for national energy and water provision) that may be ill-served by maintaining too weak a presence, "co-management" becomes more "co-administration" with local representatives (government or NGO)

implementing decisions made elsewhere (Ribot & Larson 2005).^{xi} Communities are often unable to offer effective protection to core natural resources due to insufficient resources and support or unequal distribution of costs and participation (Brockington 1991; Brosius et al 2006).^{xii}

DECENTRALIZATION, CNRM, & PANACAM

Community natural resource management is at the core of Honduran environmental policy and reflects an international trend towards the decentralization of development and conservation efforts from national services to local control. Even in the midst of economic and political crisis, policy makers call on village communities to manage their forest and water resources. 2009 presidential candidates pledged to work against “irrational forest exploitation” by working through communities who would be expected to oversee the sustainable management of forest resources, ostensibly in conjunction with authorities (El Heraldo 2009).

The national water service (Servicio Nacional de Agua or SANA) entrusts village and hamlet water councils with the management of potable water systems (República de Honduras 2006). Development projects such as USAID’s multi-million dollar MIRA project (Manejo Integral de Recursos Naturales or Integrated Natural Resource Management) focuses on community-led management of microwatersheds (USAID 2005). Microwatersheds are the catchment basins in which they and their water sources are located. Their management involves not just water but forests, soils, farmlands, pastures and residences. Conservation projects in Pico Bonito, Cerro Azul Meámbar, and other national parks similarly emphasize the role and responsibility of surrounding communities, particularly the elected water councils. With varying degrees of success, these institutions bolster, and sometimes go so far as establish, water councils as their partners or proxies.

In a paper for the 2007 American Anthropological Association meetings, I drew on examples from PANACAM and water councils to illustrate that the conceptualizations of community underlying CNRM of park microwatersheds obscures the following:

- Not all of those affecting or being affected by watershed management practices are represented by or beholden to community water councils. This includes hacienda owners and migrants.
- Treating water councils established to provide potable water as synonymous with community resource management neglects private, household decision making about land and water conservation and use. The tension between public and private use and benefits becomes important when asking residents and migrants to restrict actions on private lands for a public good.
- CNRM is embedded in a web of economic, social, and political relations and, as such, is not spatially constrained. Production, consumption, domestic and transnational migration, remittances, project discourse and financing, and regulatory environments all impact community and household water(shed) conservation and use.

While the attempt of microwatershed conservation discussed in this paper could be used to illustrate each of these points, the focus here is on the roles that emigration and remittances play in household and community watershed impacting practices.

The extensive migration of laborers to Honduran cities and the United States, who stay in touch with their households and communities through phone calls and money transfers, has essentially extended households and communities within and across national borders. Policies need to take a broader view of “community” to include not just village or watershed residents, but

emigrants who influence natural resource impacting activities through the funds and values/ideas they remit.

The model of community natural resource management being promoted by local, national, and international organizations faces a related challenge in the devolution of responsibility without real recourse to enforcement or protection from the violent reactions of those who have been denounced. Loss of potential volunteer labor and leadership due to transnational labor migration exasperates the tension.

From my observation of water council meetings and interviews of park managers and residents, promises of collaboration ring hollow to residents of the buffer zone of Cerro Azul Meámbar National Park where denouncing cutting to the authorities has led to the destruction of property and the taking of lives. “Authorities” are perceived as more apt to prosecute the felling of a tree without a permit than to go after wealthier foresters taking out truckloads of oaks and pines or to pursue those who take revenge on whistle blowers. For many potential participants in community conservation, the medium to long term pay-offs of a continued water supply less polluted by agrochemicals or cattle waste do not outweigh the risks. This amounts to decentralization of resource management without real empowerment (or funding) to enforce policies, particularly against those more powerful than them.

As discussed in the introduction, in 2009 the national NGO which manages Cerro Azul Meámbar National Park on behalf of the Honduran government national government (and with limited co-management of the four municipalities and two states across which it spans), worked with representatives of each community within the park’s buffer zone to define the area within their microwatershed for which they were willing to take responsibility, primarily by denouncing illegal cutting and burning and by encouraging sustainable farming and cattle ranching. In Santa Rosa, a community of over 5000 residents, only the community president and one member of the community council attended the management meeting. The actual delimitation was carried out by teenage volunteers carrying cans of orange paint to mark the trees along the edge of their self-defined protection limit.

Administration of PANACAM by an NGO is also part of the trend towards decentralization, and in turn leads to greater reliance on park communities. In decentralizing responsibility for management of the park and its watersheds to Aldea Global and its less active co-managers, the national government also transferred responsibility for finding funds for conservation and preservation programs. A relative funding boom in the mid-late 1990s allowed Aldea Global to establish the perimeter of the special use zone and use environmental education and sustainable development to make buffer-zone residents aware of the then-newly established park and their role in it.^{xiii} In the 2000s funding has all but dried up.^{xiv} Co-managing municipalities contribute only limited financial support to the park (and a bit more to community potable water infrastructure projects). Thinly spread human and financial resources make CNRM an attractive alternative for NGO and municipal co-managers. Taking emigrants into account would not only improve CNRM efforts, but could potentially bring in alternative source of funding for conservation.

TAKING EMIGRATION & REMITTANCES INTO ACCOUNT

Far from being “anti-participation,” this and other critiques of how participatory management models have been designed and carried out, contribute to finding ways to actively and equitably include local populations in natural resource management and conservation (Agrawal 2001; Agrawal & Gibson 1999; Nygren 2004). In the case of Cerro Azul Meámbar National Park, this means finding ways to engage transnational migrants in community and park water(shed) conservation efforts.

Taking migration into account in community based resource management also requires looking at the tension between provision and conservation of water. In part this is a tension between public goods and private actions. The National Water Service and the law governing water councils call on village-communities to implement and manage potable water infrastructure and to protect the forest and land around their water source. PAG is concerned with protecting the forest and land as part of Cerro Azul Meámbar National Park. Santa Rosa residents and emigrants know the connection between conserving forests and water, but are more focused on the immediate goal of having regular tap water. Emigrants from Santa Rosa are called upon to support the infrastructure project, but are left out of conservation efforts.

These priorities are evident in emigrants' a) strong knowledge of the water system, b) awareness of issues with water supply and quality – including whether their households of origin resort to drinking bottled water and times when the system is being repaired and relatives go without water, c) commonly expressed concern for drying water sources brought about by deforestation, d) less frequently expressed concern for agrochemicals and manure in the water supply, and e) relative unawareness of the park. (Only half of the Santa Rosa emigrants interviewed had visited PANACAM or had basic knowledge of it.)

Taking transnational labor migration into account in conservation policy and approaches necessitates recognition of the nexus of public and private interests. In particular, decision-making about everyday use and management of watershed resources (water, soil, forest) happens less in water council meetings than in private households, including transnational households in which emigrants influence decisions through conversations and remittances. Current CNRM efforts in PANACAM does not account for the impacts of absentee land ownership and lost labor on household farming and cattle ranching choices.

In terms of availability of labor for community conservation activities, current approaches do not take into account the resulting smaller pool of community leaders or leader and volunteer burnout from being overtaxed by the water provision project). The relative paucity of adult male workers is tied to community buy-in to labor intensive projects. If there is not enough volunteer labor to blaze trees to mark the border of the new microwatershed conservation zone – or to attend a meeting about it—than there is likely not enough for the more dangerous and time intensive patrolling, reporting, and educating. Willing volunteers are already tapped for the potable water project and leaders are stretched thin between the project and needing to care for their own crops, animals, and households. (Fortunately local geography is such that harvests are staggered, allowing underemployed farmers to work in the nascent market for substitute water project laborers.) Though the logic is self-perpetuating, it is difficult to have buy-in at a community level when residents believe there are relatively few willing and able people to do the work.

Current approaches to conservation and development in Honduras also fail to consider the rights and responsibilities of emigrants in water conservation (not just provision). For example, no attention is given to the potential for conservation suggested by emigrants' willingness to buyout of water project labor responsibilities and the informal labor market which has developed around it.

The willingness of residents and emigrants to support park-initiated community based conservation efforts are predicated at least in part on their attitudes toward the park and/or village. I have already mentioned that the sense of connectedness to PANACAM (and of water(shed) conservation to safe and steady water supply) varies greatly among residents and emigrants. For emigrants, this sense of connectedness to Santa Rosa's and PANACAM's natural environment are affected by plans to return, concern for current residents, visions of their children's future, nostalgia for the more abundant forests, streams, and rivers of their own childhood, U.S. instilled conservation values born of concern for keeping water and energy bills manageable, mandatory recycling

programs, and appreciation of litter-free streets. Willingness to donate to infrastructure projects springs from recognition of the immediate benefits for households of origin and/or the homes they are building for their own return. Telephone conversations frequently touch on the availability of water (especially before the project), the progress of the project, and the need for funds to pay for fees or buy out of mandatory labor hours.^{xv}

In effect, microwatershed conservation is of concern to emigrants, but it is not necessarily expressed in those terms. When asked about environmental problems facing Santa Rosa, emigrants mentioned trash/litter, deforestation, streams drying up, need for environmental education, agrochemicals in the water supply, “tired soil” (declining soil quality due to overuse and too many chemicals), and air quality from burning of household trash. When asked what kinds of projects they might consider supporting the most common response was infrastructure, education, and pick up services for disposing of and recycling household wastes. (Those who had recently visited Santa Rosa were disturbed by litter and a nonchalant attitude towards littering.) Emigrants brought up infrastructure projects, in addition to potable water, particularly road improvements and installation of a sewage system. No one expressed an unprompted interest in supporting projects related to agriculture, cattle, forest conservation, energy, or firewood. The discrepancy lies in part in perceived differences between public and private domains (in this case shared infrastructure vs. household productive activities). However, that emigrants repeatedly volunteered concern for streams and rivers drying up because of deforestation suggests that the divide can be bridged and watershed conservation activities might be given serious consideration.

Even though remitting levels have declined with the economic crisis (and the circle to which they remit tightened), emigrants recognize that “\$20 isn’t much here but it goes a long way there” (Santa Rosa resident in Freeport, 11/11/2009) Almost all of the Santa Rosa emigrants who I have interviewed have expressed willingness to consider supporting well-thought out projects that appear likely to be well managed.

Similarly, there seems to be little ill-will at the labor requirement for the water project, or for one-time and yearly fees. Emigrants pay the fees and surrogate laborers because local government requires it, but many also donated money when requested. The need and benefits are tangible and easily communicated through transnational family and community networks (by phone and by in-person visits among emigrants in the U.S.). Feelings about the park itself, however, are mixed. For some, the appreciation of water and forest conservation is dimmed by resentment from their or their parents having been pushed off land they had once farmed. Certainly, emigrants are more informed about the water project than any other community-wide activities. They discuss it with greater frequency than farming or cattle (including in households where they are important activities). This suggests that ensuring continued supply of quality potable water is a good focal point for policy aimed at incorporating emigrants into watershed conservation. That it be part of the park is secondary for most of those I interviewed.

Policy makers trying to bring in a greater role for conservation would do well to emphasize the long-term benefits by playing on their nostalgia and their dreams for self and children. They also need to underscore the fragility of current water benefits, as most emigrants do not have an intimate knowledge of how immediate a threat their water source faces.

Formal hometown associations seem unlikely among members of the Santa Rosa transnational village – leadership is too diffuse. Even in Long Island where there is a concentration of emigrants from Santa Rosa, emigrants are dispersed throughout the area, coming together at family events, neighborhood delis, soccer games, and church services attended by migrants from throughout Central America and the Caribbean. They are aware of but not necessarily in contact with emigrants outside of their own extended families. Interviewees are most comfortable sending

donations to those to whom they regularly remit, partly because of past issues with group remittances, distrust of banks, and costs of remittance transfer.

A more likely scenario for transnational cooperation on conservation would be to access and collect fees through the much stronger family networks. A handful of towns in Honduras have had success with an environmental services tax for microwatershed conservation. In the town of Otoro community members pay those working near the water source to use more environmentally benign farming techniques (ex. fewer chemicals, burning, and soil erosion and more labor intensive clearing, weeding, terracing etc.). In order to incorporate water conservation more fully into water provision in Santa Rosa it might be possible to levy such a tax on water system users. A mandatory labor component and buy-out option, such as that in place with the potable water project, could be added.^{xvi} Such an initiative should also consider some kind of system for sharing the responsibility and risk of patrolling the microwatershed.

To more fully take transnational migrants into account, park and community leaders working towards the conservation of Santa Rosa's microwatershed need to assess the responsibility of emigrant community members. They will also need to consider the responsibility of microwatershed managers to emigrants. In particular: do community, park, or municipal governments have any obligation to emigrant landowners to help limit cutting and thefts of crop and animals on the lands of absentee owners? Answering questions such as these will improve buy-in and open up options for funding and staffing conservation efforts. Taking outmigration and remittances into account will better align the conceptualization of community in decentralized conservation efforts with the challenges of households and communities that have extended transnationally through labor migration.

ENDNOTES

ⁱ The paper was initially presented at the 2009 American Anthropological Association meetings as part of a panel on transnational labor migration and policy organized by Marietta Baba. Funding for this study was provided by the University of South Florida (USF) Institute for the Study of Latin America and the Caribbean, the USF Department of Anthropology, and the National Science Foundation: Doctoral Dissertation Improvement Grant.

ⁱⁱ This methodology expands on existing multi-sited ethnographies (Burawoy 2000 ; Kearney 1995; (Burawoy 2000; Gupta & Ferguson 1992; Kearney 1995; Marcus 1995) and on the use of kinship for studies of transnational migration (Olwig 2007; Schmalzbauer 2004).

ⁱⁱⁱ Transnational families are those “families that live some or most of the time separated from each other, yet hold together and create something that can be seen as a feeling of collective welfare and unity, namely ‘familyhood,’ even across national borders” (Bryceson & Vuorela 2002:3). The term “network” is contentious in the literatures on transnationalism and global ethnography, because past studies have focused on the spaces in between the places that make up networks with insufficient attention to their mutual constitution, the role of power, or the particularities of history (Fawcett 1989; Gille & Ó Riain 2002; Krissman 2005). Nonetheless, the metaphor of network is the best I have found to describe the interlaced spaces, places and relationships between individuals that compose transnational families.

^{iv} Interviews with residents of Santa Rosa and other communities show that most residents see “The Park” or “Cerro Azul Meámbar” as beginning at this border, not at the buffer zone boundary that places their homes, fields, and community in the park’s sphere of influence.

^v Women are largely absent from the water project and microwatershed conservation efforts. They help collect water fees but are not on the water council and rarely make the trip to the water source. Unlike males over 18, women are not required to contribute labor to the project. They are very much a part of watershed impacting practices. Female emigrants in the United States remit to their households of origin, directly and indirectly contributing to water(shed) impacting expenditures. They manage their own, spouse’s, and children’s homes and land. They manage laborers to sub for emigrant men in the water project and in farming, cattle ranching, and construction. They select, purchase, use, and manage property for their emigrant children. They own substantial cattle herds and make decisions about renting, purchasing, and using pasture, planting or purchasing grass, and selling milk, cheese, pigs, and cows.

Women are more likely to gather firewood than men, forced to travel greater distances and trespass onto private and park lands to find firewood, often putting themselves at considerable risk of assault. Wealthier women can avoid this by harvesting wood on their family’s land or by purchasing it. Purchased firewood in Santa Rosa comes from smaller communities nearer to the park’s special use zone, and some from inside the park itself, including Pacaya where the watershed boundary marking project described in this paper is located.

^{vi} Figures on the number of Hondurans residing in the United States vary widely. The 2000 U.S. Census gives a comparatively low estimate of 217,569. Articles reporting on the 2009 elections suggest closer to 1,000,000 (ex. http://www.porlademocracia.org/not_25nov09_002.html).

^{vii} In Freeport, Hempstead, and Huntingdon NY the *esquina* signifies the parking lot by the Home Depot or the Dunkin’Donut. Study participants’ use of the *esquinas* varied widely. One Santa Rosa-born contractor has six regular employees and goes to the *esquina* when he has bigger jobs, paying US\$90/day with lunch, U\$100 without. The contractor takes home about \$1000/week. Another Santa Rosa born study participant, said that in the current economy, he might spend six days waiting from 7-11am and feel fortunate to secure 2 or 3 days of work. The contractor is debating buying a home here, while the day-laborer returned to Honduras in late November, calculating that he would be better off taking care of his cows, coffee fields, and house in Santa Rosa.

^{viii} A *tarea* is approximately 0.155 acres. Typical holdings in my study group are 25-85 *tareas*.

^{ix} The going rate for labor jumped from 80 lempira/day in 2008 to 100 lempira/day in 2009, partially because of the national increase in minimum wage. In the informal labor market among Santa Rosa residents, farmers are hiring family members and friends, often continuing to pay the reduced rate with the understanding that they will return the favor when it comes time to clear, fumigate, or harvest their crops.

^x Levitt (2001a) describes three types of transnational communities: a transnational social group linking two cities, one formed by shared geographic ties turning into common identity and values, and another which emerges “when large numbers of people from a small, bounded sending community enact their lives across borders.” She terms the later “transnational villages.” An ethnography of the social networks, remittances (especially social), and transnationally supported community development activities of one Dominican community is at the center of her *Transnational Villagers* (2001b). Although not termed as such, Smith’s *Mexican New York* (2006) depicts a transnational village in which migrant

home community associations and home town leaders are bound in an enduring dance of remittance expenditures, community development, and power. Goldring (1998) also focuses on home-town and home-state associations and their affiliations with community development.

^{xii} The fundamentally pro-active role of NGOs in the assertion of political mechanisms of control and surveillance are evident in, for example, the mapping of park boundaries or education programs (Bryant 2002:286). NGOs do more than navigate the space between “local” and “national” actors, between less and more powerful actors. They embody international discourses of conservation and development and channel international concerns through funding. They act, intentionally or not, as processes with the potential to channel state power, fostering the internalization of state control through the push for self regulation. When the development industry (e.g. World Bank, bilateral donors) treats NGOs as “efficient new instruments of development,” they largely ignore this potentially political role (Fisher 1997:445-6).g

^{xiii} CNRM projects tend to assume that conservation, use restriction, and local economic development are compatible (Neumann 1997). Managers and participants/recipients can see a project very differently: development for conservation vs. conservation for development (West 2006).

^{xiv} The internalization of conservation goals, views, and regulations brought about by these mechanisms—by this governmentality of conservation (Foucault 1991)—are a perquisite for decentralization.

^{xv} After taking over the park in 1992, Aldea Global secured significant funding from international agencies such as WWF, USAID, and IAF. Environmental education and sustainable agriculture programs reinforced efforts to define and shore up the park’s boundaries. (Today there is only a fledgling program to plant fruit and fuel trees in the buffer zone as an economic incentive for conserving the forest.) At the height, in the late 90s, there were twelve full-time park rangers on staff, compared to two in 2009. The director of Aldea Global blames difficulty in obtaining funds to a shift in international priorities from conservation and development to, especially HIV-AIDs. Park administration is becoming self-sustaining through two tourist centers (including a restaurant and butterfly gardens on the Pan-American Highway and cabins and conference/research center in the special use zone). But these efforts are not enough to hire more guards for patrol and outreach. With the exception of a few site visits by coffee associations, residents of and emigrants from Santa Rosa report that the last time they received a visit from a park ranger or agricultural extension agent or were invited to participate in a conservation or sustainable agriculture related talk was from Aldea Global twelve years ago.

^{xvi} At least one emigrant has also invested in water management on a direct household level – paying a community member to construct a system to reusing and filtering grey waters through the soil, instead of allowing them to run off onto neighbor’s properties.

^{xvii} Another alternative would be to assess the tax on resident and emigrant landowners, but this would delink it from the water project. If the ability of residents to contribute is of concern, the tax can be prorated by income or land holdings as has been done with the transnationally funded construction of an electricity system in a neighboring community.

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