

## Can ecotourism deliver real economic, social, and environmental benefits? A study of the Osa Peninsula, Costa Rica

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Doubt persists about ecotourism's ability to make tangible contributions to conservation and deliver benefits for host communities. This work in Costa Rica's Osa Peninsula tests the hypothesis that ecotourism in this region is more effective at improving well-being for local residents, at enhancing their access to key resources and information, and at supporting biodiversity conservation than other locally available economic sectors. Data from 128 semi-structured interviews with local workers, both in ecotourism and in other occupations, together with associated research, indicate that ecotourism offers the best currently available employment opportunities, double the earnings of other livelihoods, and other linked benefits. Locally, ecotourism is viewed as the activity contributing most to improvements in residents' quality of life in the Osa Peninsula and to increased levels of financial and attitudinal support for parks and environmental conservation. Ecotourism ownership by local people is substantial, and many local ecotourism workers plan to launch their own businesses. The data offer a convincing rebuttal to arguments that ecotourism does little to address poverty or disparities in access to resources and equally rebuts claims that ecotourism is simply a part of the "neoliberal conservation toolkit" that cannot help but exacerbate the very inequalities it purports to address.

**Keywords:** ecotourism; community development; conservation; tourism impacts; Costa Rica; Osa Peninsula

### Introduction

Debate persists about the impact of tourism on local environments and local livelihoods near protected areas (Bookbinder, Dinerstein, Rijal, Cauley, & Rajouria, 1998; Higham, 2007; Higham & Luck, 2007; Kiss, 2004). Key issues are tourism's contributions to local livelihoods, income creation, and protected areas (see Mayer, 2014; Whitelaw, King, & Tolkach, 2014). This paper looks at those issues and the rapid growth of ecotourism as a specific form of leisure travel to natural areas (Boo, 1989; Ceballos-Lascurain, 1996; Honey, 2008; Ziffer, 1989). There has been considerable scholarship on this topic (reviewed by Agrawal & Redford, 2006; Fennell & Weaver, 2005; Stronza, 2001; Weaver & Lawton, 2007), and Costa Rica has emerged as arguably the world's most iconic ecotourism destination (Honey, 2008). Ecotourism in Costa Rica began to take off in 1987 when the Central American Peace Plan officially ended the region's various civil wars

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and its architect, Costa Rican President Oscar Arias, won the Nobel Peace Prize. By the early 1990s, ecotourism had propelled foreign visits to become the country's leading export and Costa Rica remains today a major ecotourism destination (Honey, 2008).

While elsewhere in Costa Rica, other models of tourism (such as all-inclusive resorts and vacation homes) compete with ecotourism (Almeyda, Broadbent, & Durham, 2010a, 2010b; Broadbent et al., 2012; Honey, Vargas, & Durham, 2010; van Noorloos, 2011), in Costa Rica's Osa Peninsula, the local economy is driven by small-scale nature-based tourism, much of it embodying the definition of ecotourism espoused by the International Ecotourism Society as "responsible travel to natural areas that conserves the environment and improves the welfare of local people" (The International Ecotourism Society [TIES], <https://www.ecotourism.org/what-is-ecotourism>). The promotional materials of the Costa Rican Institute for Tourism (ICT) prominently promote the Osa Peninsula as a place where "ecotourism features as the main product" (<http://www.visitcostarica.com>).

The Osa Peninsula region, therefore, offers an excellent context in which to ground test the economic, social, and environmental impacts of ecotourism. In addition, university researchers, NGO personnel, and concerned citizens are alarmed that new, governmental expansion plans have been made without a solid understanding of the Osa Peninsula's ecotourism-based economy or the likely impacts of large-scale conventional tourism developments (such as those to the north in Guanacaste & Manuel Antonio along Costa Rica's Pacific Coast) on both local livelihoods and biodiversity conservation on the Peninsula (Arroyo Mora et al., 2012). The present study of the key impacts of ecotourism in the Osa region is designed to fill a critical gap in knowledge and to help to stimulate an informed debate about the proposed development of a large-scale hydroelectric dam (Umaña, 2013), a new international airport (Murillo, 2012), and the resultant tourism trajectories for the Osa region.

More specifically, this paper assesses ecotourism in the Osa Peninsula by asking: How well does small-scale ecotourism provide income and employment opportunities for area residents? Does it lead to increased support for protected areas among local residents in comparison with other local livelihoods? Does it offer a higher quality of life than existing livelihood alternatives? In short, how beneficial is ecotourism in the region – economically, socially, and environmentally?

To explore these questions, the authors trained and led a team of field researchers to work in Osa in August 2010. The overarching hypothesis we test here, using data from that fieldwork, is that ecotourism in the region represents a different and better livelihood for those employed in the sector than the opportunities offered to those local residents employed in the existing local livelihood alternatives (e.g. construction, transportation, artisanal gold mining, retail, small-scale and plantation agriculture including African oil palm and cattle). Our analysis focuses on data gathered through semi-structured interviews from 70 ecotourism employees and 58 local residents working in other sectors, and is supported with corroborative qualitative and secondary data from other sources. We now review the ecotourism scholarship that frames this analysis.

### **Ecotourism, conservation, and development**

When Budowski (1976) suggested a symbiotic relationship between tourism and conservation, he helped open discussion of whether tourism will generally contribute to favorable development outcomes or not (deKadt, 1979; Smith, 1977). Spurred on in the 1980s by the Brundtland Report's seminal definition of sustainable development (World Commission on Environment and Development [WCED], 1987) and a growing focus on

integrated conservation and development projects (Brandon & Wells, 1992), policy-makers, researchers, conservationists, and community activists became interested in the new concept of ecotourism as a specific, more beneficial form of tourism (Honey, 2008; Smith & Eadington, 1992).

By the time The International Ecotourism Society (TIES) was founded in 1990, there were scores of ecotourism experiments in destinations around the world. TIES' definition (quoted above) distinguishes ecotourism from traditional types of tourism because, for the first time, it describes not only the tourism activity – recreational travel to natural places – but also the intended impact of that travel – that it “conserves the environment and improves the welfare of local people”. Thus, with the advent of ecotourism, tourism for the first time embedded ethical values and positive outcomes into its definition. In contrast, nature tourism is defined simply as travel to enjoy and experience nature, with no reference to impact. Ecotourism was the earliest – and in many parts of the world remains the best known – of a new genre of tourism terminology. Recent years have seen the emergence of a range of similar terms describing impacts as well as activities, including pro-poor tourism, geotourism, and responsible tourism. While these terms differ slightly, they share the core proposition that these types of tourism, done well, will bring positive benefits to both conservation initiatives and host communities, and all form part of wider discussions and developments in tourism under the sustainable tourism umbrella.

The rise of ecotourism has also prompted a deeper debate, with critics arguing that ecotourism is simply a permutation within a neoliberal conservation agenda (Fletcher, 2014; Igoe & Brockington, 2007) that leads “biodiversity or nature to become commodities and natives to become labor” (West, Igoe, & Brockington, 2006, p. 257) in a global economic restructuring designed to facilitate the spread of free markets. Skeptics have taken on not only ecotourism specifically (e.g. Horton, 2009; Hunt, 2011; Kiss, 2004), but also more broadly integrated conservation and development projects (as in Terborgh, 1999; West & Carrier, 2004). Fletcher (2012), for instance, in his writing on the Osa Peninsula, argues that ecotourism is simply one more piece of the neoliberal conservation toolkit – what he calls the “Master’s Tools” – that cannot help but exacerbate the very inequalities it purports to address.

While these and other scholarly debates continue (for excellent reviews, see Higham, 2007; Higham & Luck, 2007; Weaver & Lawton, 2007), ecotourism has continued to gain traction in the Americas, “arguably the region with the greatest amount and diversity of ecotourism activity in the world” (Stronza, 2008, p. 8). Ecotourism development was strong in Costa Rica in particular (Boo, 1989; Hall, 2000; Ziffer, 1989). By the time former president Jose Maria Figueres Olsen announced in his 1996 essay, “Sustainable Development: A New Challenge for Costa Rica”, that the country would be “offering itself to the world as a ‘laboratory’ for this new [sustainable] development paradigm” (Figueres Olsen, 1996, p. 190), Costa Rica was already a test bed for ecotourism in practice (Ceballos-Lascurain, 1996; Honey, 2008).

Two years later, the Costa Rican Tourism Institute (ICT) launched one of the world’s first and most stringent certification programs to measure the environmental, social, and economic impacts of accommodations and to award one to five “green leaves” depending on how a business scored. The voluntary CST program, which was created by a team of government officials, academics, tourism business leaders, and NGOs, has grown by fits and starts but has at last gained real traction, with many hotels lining up to be certified. At present, Costa Rica has 226 certified hotels, including 19 in the Osa Peninsula region. ICT has also launched sustainable certification programs for beaches, rental cars, tour operators, and tourism attractions. These initiatives have helped to put concrete

measurable criteria behind ecotourism labels and to differentiate between genuine ecotourism businesses and those that have simply appropriated the name for marketing purposes.

Today ICT marketing materials continue to state that “ecotourism features as the main product” in the Osa Peninsula. However, ecotourism is not a homogeneous product. Our research found that the 105 accommodation facilities we identified as operating in the region vary considerably in both the activities offered to visitors and the benefits provided to conservation and the local community. For some, performance is reflected in their eco-rating under the CST program; for others, measures of impact are more casual. Yet, individual lodges provide a range of ecotourism offerings, including intense overnight treks through Corcovado National Park for “hard” ecotourists and shorter local rainforest hikes coupled with spa- and wellness-oriented programs catering to “softer” ecotourists (Weaver, 2005). Overall, visitors come to the Osa Peninsula primarily to pursue a range of nature-based ecotourism opportunities, with Corcovado National Park being the main attraction (Hunt & Durham, 2012).

This study builds on anthropological methods our group implemented previously (e.g. Almeyda et al., 2010a) to assess whether ecotourism in the Osa Peninsula is meeting its twin tenets of “conserving the environment” and “improving the welfare of local people”. We ask whether Osa residents working in ecotourism have better earnings, more opportunities for advancement, better quality of life, and more positive attitudes towards national parks than their peers working in other jobs, including local shops and businesses, wage labor, small-scale agriculture, African oil palm plantations or other local livelihood options. The overarching hypothesis tested here is that ecotourism in Osa is more effective at improving the well-being of local people, at giving them access to important resources and information, and at supporting biodiversity conservation than are existing alternative livelihoods. To be able to accept this assertion, empirical data must lead us to reject the following null hypotheses:

- (1) that the employment opportunities in ecotourism do not offer higher and more stable earnings than employment in other sectors;
- (2) that ecotourism does not contribute more to existing parks, protected areas or local environmental ethics than does other employment; and
- (3) that ecotourism does not reduce disparities in access to important resources, including education, jobs, job training, and conservation knowledge and information.

In the sections below, we empirically test these null hypotheses against the quantitative and qualitative data collected during fieldwork in the two primary gateway communities for tourism to the Osa Peninsula. Our approach provides a multiple case-control study of individuals working in the ecotourism industry with demographically similar individuals living in the same communities whose livelihoods are not derived directly from the tourism industry. Before proceeding to results, we first provide a description of the study region and our methodology.

## Study methods

### *Study site – the Osa Peninsula*

The Osa Peninsula in the southern Pacific coast of Costa Rica is home to one of the country’s biodiversity gems – Corcovado National Park. However, the creation of the

park in 1978, and its management since then has been rife with conflicts (Cuello, Brandon, & Margoluis, 1998). Much of this conflict involved the 50-year presence and sudden withdrawal of the United Fruit Company (UFC) banana plantations in the early 1980s. Many former UFC workers turned to gold mining in the park and settled in bordering areas of the Golfo Dulce Forest Reserve. Additional multinational subsidiaries – including Ston Forestal (van den Hombergh, 2004) and currently PalmaTica (Beggs & Moore, 2013) – have had similar, if less intense, impact on the region. In recent decades, much external investment in this region has focused on exclusionary conservation efforts (Appendix A in Hunt, Durham, & Menke, 2013), conducted with its “back to the communities”. As a result, local residents enjoyed little change in quality of life resulting from strict protection and became embittered towards the national park (Nuñez, Borge, & Herrera, 2007). We document further details about the regional context and other development efforts underway in the Osa and Golfito region elsewhere (Hunt et al., 2013).

The Osa Peninsula’s geographic remoteness and seasonal wet weather have acted thus far as barriers to large-scale tourism development. However, these barriers could well change if and when a proposed new international airport in Palmar Norte is built. As the Liberia airport in Costa Rica’s northernmost Pacific province of Guanacaste demonstrates (Morales & Pratt, 2010), a commercially viable international airport requires a large number of arrivals, which in turn require large hotels and resorts. The completion of this state-supported project – along with the new bridges, coastal highway, and other roads throughout the region – opens the Osa for large-scale tourism-related development. The prospect of the above model moving into the Osa region is creating consternation among many local residents, researchers, and environmental NGOs (van Noorloos, 2011; Morales & Pratt, 2010).

If such an intensive style of development were to occur in Osa, the region’s tropical biodiversity could be quickly decimated as it has been in other Latin American regions (Terborgh, 1999; Vandermeer & Perfecto, 2005). If, as is probably more likely, the Osa falls prey to Manuel Antonio-style desarrollo hormiga [“ant-like development”] – chaotic and intense tourism development involving a mix of small, medium, and larger hotels, large numbers of vacation homes, and a correspondingly intense real estate speculation – the region’s biodiversity may be equally in jeopardy (Broadbent et al., 2012; Honey et al., 2010). Such circumstances make it timely to assess ecotourism’s impact in the Osa Peninsula and to consider the most appropriate trajectory of future regional development planning.

### **Research design**

To assess the impact of ecotourism on the Osa Peninsula, we gathered ethnographic data from ecotourism lodge owners and managers, ecotourism employees, neighboring local residents not directly involved in tourism, and visitors to the region. In addition to this original data, we also gathered archival data from earlier studies, ICT documentation, NGO reports, and popular press articles. These sources of data are summarized in Table 1. As noted in the table, the focus of our analysis here is on residents of the Osa Peninsula. In particular, we compare ecotourism employees to other local residents who do not work directly in the tourism industry yet who otherwise share many demographic similarities. We gathered data on these two groups from two communities in the Osa Peninsula. The research design can thus be characterized as a multiple case control study with criteria for selection being ecotourism as the primary livelihood.

Table 1. Overview of data collection.

Source	Type	Emphasis	#
Ecology operators	Structured interviews	Land acquisition, product acquisition, salaries, social and environmental practices, and certifications	11
Ecology employees*	Structured interviews	Demographics, household expenditures, household income, attitudes toward protected areas and conservation, perceived environmental threats, proposed airport, proposed hydroelectric project, and presence of foreigners	70
Local residents not employed in tourism*	Structured interviews		58
Tourists	Structured interviews	Trip characteristics, expenditures, Costa Rican itinerary, parks visited, importance of social and environmental responsibility, certification, carbon offsets, environmental attitudes, and demographics	73
Ecology Websites	Text	Content analysis of ownership information	91

\*Analysis here focuses on the subset of data from these two sources.

Our research efforts focused on the communities of Puerto Jimenez and Drake's Bay for two reasons. First, these are the primary gateway communities to the Osa Peninsula and to the region's showcase – Corcovado National Park. Ecotourism activities are far denser around these communities than anywhere else on the Osa Peninsula. Furthermore, Puerto Jimenez and Drake's Bay house the Peninsula's two regional airports, both receiving daily domestic flights operated by NatureAir and Sansa Airlines. As gateways to the Osa region, Puerto Jimenez and Drake's Bay are the most logical and efficient locations for an assessment of the impacts of ecotourism in the region.

Two field teams worked in the Osa Peninsula during August 2010; the first author led one research team and third author coordinated the other. The second author provided in-field supervision and the fourth author assisted with office interviews. The research teams also included eight Spanish-speaking research assistants recruited from Stanford University and two additional assistants enlisted from the Golfito branch of the Universidad de Costa Rica (one for each team). During research preparation and while in Costa Rica, all team members were instructed in field research methodology and proper research protocol, including Stanford's Internal Review Board guidelines for human subjects research.

To develop a sampling frame, we began with an exhaustive web-based survey of tourism businesses offering accommodation in the study region. We identified 105 unique lodges operating on the Osa Peninsula. Prior to arrival, we distilled this list to include only ecotourism lodges operating specifically in the two gateway towns. With advice from an NGO that works in the region (*Fundación Corcovado*), we selected a sample of 10 lodges representing a range of sizes and amenities, and these 10 consented to be part of the study. Four of the lodges in our sample provided temporary lodging at reduced rates for the research teams.

Each team conducted structured interviews with lodge owners and managers, lodge employees, tourists, local residents and business owners, NGOs, international and local realty offices, former lodge operators, and government departments. Analysis of the full data-set is beyond the scope of a single manuscript. We focus here on a control case comparison of households where the primary wage earner works in ecotourism with

neighboring households where the primary wage earner does not work directly in tourism of any kind. As indicated by an asterisk in [Table 1](#), the bulk of our analysis is derived from the data gathered through structured interviews with 128 local Costa Rican residents sampled from two sub-populations of Osa Peninsula residents: those residents ( $N = 70$ ) whose primary employment is in one of the 10 ecolodges that consented to participate and those residents ( $N = 58$ ) from the same communities not currently employed in tourism, interviewed in their homes and businesses.

For tourism employees, we interviewed all consenting employees of each of the 10 ecolodges, minus those who were away during the study period. For the sake of efficiency during fieldwork, interview data from non-tourism counterparts were collected with a convenience sample of heads of households during door-to-door visits to houses and shops in Drake Bay and Puerto Jimenez, along transects formed by the main commercial street in each town. Although limited by non-random selection, we demonstrate below that these sub-groups were nonetheless matched on many demographic characteristics and thus we believe they provide valid comparisons. In cases where interviewees from either group did not provide a complete response to each question, we indicate any such variation in overall  $n$ -values in the figures and tables.

An identical interview protocol was followed with both groups of interviewees and was designed to gather both quantitative and qualitative data. The protocol organized interview questions according to key themes including: (1) residents' demographic information; (2) employment, income, and expenditure information for all household members; (3) resident attitudes toward national parks and toward environmental conservation; (4) resident perceptions of the current issues facing the Osa (e.g. knowledge of the proposed international airport, attitudes toward the presence of foreigners, and attitudes toward tourism expansion); and (5) resident evaluations of their own quality of life and the factors most responsible for the current quality of life.

In addition to the focal data from residents working in tourism and counterparts not working in tourism, we also gathered information in separate structured interviews with hotel managers and owners ([Table 1](#)). These lengthy interviews yielded data on numerous themes not all of which are directly relevant to our analysis here but did help substantiate their environmental and social practices and therefore their "authenticity" as ecolodges (e.g. lodges' environmental policies, certifications, water management, energy consumption, waste treatment, chemical use, grounds keeping, tourist activities, monthly purchases, philanthropic activities in the community, and challenges to sustainability in the Osa). Here we draw upon select qualitative information from these manager and owner interviews when their comments provide additional insight into the impact of ecotourism in the region.

Finally, the field team gathered data from tourists who had concluded their stays and were waiting in the pre-boarding area of the Drake's Bay and Puerto Jimenez regional airports ([Table 1](#)). Those structured interviews assessed trip expenditures, information about other areas visited in Costa Rica, knowledge of ecotourism, and efforts to ensure social and environmental responsibility during the travel. These data do not specifically relate to the current analysis and are not assessed here. Aspects of their analysis have, however, been published elsewhere (Hunt & Durham, 2012).

Quantitative data gathered were analyzed using contingency tables,  $t$ -tests, Pearson correlation coefficients, and analysis of variance. Qualitative data were entered into an Excel database and coded by thematic content. Our analysis focuses on both quantitative measures of difference and the descriptive inferences derived from qualitative data that differentiate tourism employees and non-tourism employees. Where relevant, we also



include corroborating secondary data analyzed in our other research efforts in the region of the Osa Peninsula. The results of these combined quantitative and qualitative analyses are reported below.

## Results

Analysis of data from the fieldwork described above produced the following findings related to our hypotheses. First, we found that tourism workers were far more likely to have been born in the Osa region than non-tourism workers – 58% vs. 35% ( $p < 0.05$ ), a 1.7-fold difference. This result means that locals can and do find employment in the local tourism sector and that they see an economic advantage for doing so. We also found local workers in tourism to be on average younger than non-tourism workers (Table 2). The residents in our sample who primarily work in tourism were more often males, whereas those primarily not working in tourism were more likely to be females (a difference compounded by the fact that non-tourism workers were interviewed in their homes and businesses during daytime hours). Employment for those not working directly in tourism came from small-scale agriculture, African oil palm production, small businesses (e.g. general stores or *pulperias*; small eateries or *sodas*), taxi driving, construction, fishing, teaching, cooking, truck driving, hair styling, carpentry, and cashiering. Due in part to an average age difference, non-tourism workers were more likely to be married than tourism workers. Non-tourism household sizes also tended to be slightly larger than tourism workers' households, although the average for both groups was between three and four people per household. Female interviewees had reportedly lived in the area for less time on average than males, and non-tourism workers reported slightly longer average periods of residency in the area than tourism workers.

### *Tourism and non-tourism livelihoods in Osa Peninsula*

Tourism workers' monthly *individual* income is nearly twice as high as those of workers not in tourism – US\$709.70 vs. US\$357.12 (Table 3), a significant difference even with income's substantial variability across our samples. For ecotourism employees, incomes for the month prior to the survey ranged from a low of US\$366.59 for kitchen assistants and housekeeping staff to US\$4788.92 for a freelance guide. Among non-tourism

Table 2. Demographics of the sample of local residents (total  $N = 123$ ).

Demographic descriptors	Tourism	Non-tourism	$N$	$p$ -value
Married <sup>P</sup>	21 of 65	31 of 58	–	0.0178*
Male	44 of 65	25 of 58	–	0.0061**
Average household size <sup>δ</sup>	3.37	3.54	65	0.6164
Average interviewee age <sup>δ</sup>	29.61	35.02	71	0.0511
Female average years residency <sup>δ</sup>	13.93	14.98	39	0.8249
Male average years residency <sup>δ</sup>	19.83	28.08	58	0.0330*
Combined average years residency <sup>δ</sup>	18.3	20.46	97	0.4603

<sup>P</sup>Chi-square test used.

<sup>δ</sup> $t$ -test used.

\*Result significant at the 0.05 level.

\*\*Result significant at the 0.01 level.



Table 3. Monthly individual and household income in US\$, aggregate means ( $N = 116$ ).

Community	Tourism		Non-tourism		$p$ -value <sup>A</sup>	
	Self-only	Household	Self-only	Household	Self	Household
Puerto Jimenez	620.36	638.46	367.30	519.10	0.4027	0.5283
Drake Bay	747.99	840.10	345.54	486.78	0.0285*	0.1562
Full sample	709.70	784.47	357.12	503.27	0.0292*	0.2125
Lowest month	467.16		310.05		0.0299*	

<sup>A</sup> $t$ -test used. Here,  $p$ -values were calculated comparing self-only incomes and household incomes separately between tourism and non-tourism.

\*Result significant at the 0.05 level.

respondents, one person employed as an artisan reported the lowest non-zero monthly income in the sample (US\$96.47). A farmer who had just sold his harvest reported the highest monthly income (US\$1929.42), but acknowledged that it was *only* during harvest time that his income would reach this level.

Differences in average *household* income between tourism employees and others were more pronounced in Drake Bay than in Puerto Jimenez, the latter being larger and more economically diverse. Tourism workers in Drake Bay reported household incomes 1.7 times that of their non-tourism counterparts, whereas Puerto Jimenez tourism employees reported household incomes 1.2 times those of their non-tourism neighbors. In contrast to the overall average incomes reported in Table 3, tourism workers reported income lows (that is, earnings of the lowest/worst income month of the year) of on average US\$467.16, while non-tourism workers reported income lows at an average level of US\$310.05, a 1.5-fold difference that is also statistically significant ( $p < 0.05$ ). Our data demonstrate that, for our sample, ecotourism provides higher income than other local employment opportunities. Qualitative information confirms this to be true during the “worst” months of the year when tourist arrivals are low.

Monthly household expenses are roughly the same for households with and without tourism workers (Table 4). Across categories of food, utilities, personal investments, and

Table 4. Average reported monthly expenses by category.

Expense	Tourism US\$ ( $N$ )	Non-tourism US\$ ( $N$ )	$p$ -value <sup>A</sup>
Food	\$184 (64)	\$204 (51)	0.5112
Housing	\$49 (63)	\$41 (51)	0.7115
Utilities	\$48 (62)	\$66 (52)	0.1429
Savings	\$54 (59)	\$42 (51)	0.7303
Transportation	\$18 (62)	\$51 (52)	0.1272
Recreation	\$30 (63)	\$39 (50)	0.6326
Education	\$13 (62)	\$34 (51)	0.0321*
Investment	\$26 (61)	\$24 (51)	0.8870
Medical costs	\$15 (62)	\$28 (51)	0.1265
Other	\$49 (57)	\$66 (46)	0.4143
Total	\$373 (64)	\$389 (50)	0.7903

<sup>A</sup> $t$ -test used.

\*Result significant at the 0.05 level.

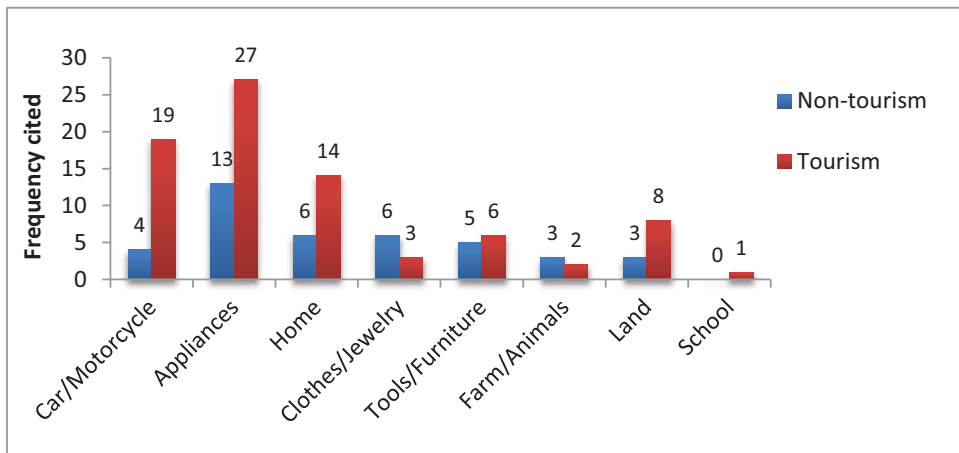


Figure 1. Disposable income allocation: Tourism vs. non-tourism.

recreation, household expenses for the two groups fell into broadly similar distributions. Food was the largest expense for both groups, with housing, utilities, and savings also falling into the top five for both groups. Data on lesser expenses exhibited few differences between tourism workers and non-tourism workers. Tourism workers did, however, report spending significantly less on education than their non-tourism counterparts. This difference may be explained by the age, sex, and family size differences between the groups we have noted above: that tourism workers tended to be younger, male, and have slightly smaller families, while non-tourism workers tended to be older, predominantly female, and have somewhat larger families. Until further work is done on the topic of education, the best we can say is that tourism workers wind up with more disposable income than non-tourism counterparts (US\$338 per month vs. US\$162). This difference, in turn, is reflected in higher spending on recreation among tourism workers.

Tourism workers were more likely than non-tourism workers to feel that their jobs had allowed them to progress financially. Tourism workers answered “yes” to this question at a rate of almost 2 to 1, with 63% feeling their work had improved their circumstances. By comparison, just under half of non-tourism workers (48%) answered “yes” to the same question. To gain greater insight into consumer behavior, from those who said “yes” we asked what specific things the extra money enabled them to buy. In free-listed responses, interviewees most frequently cited home appliances, home improvements (e.g. purchases of furniture, tools, etc.), and construction of a new house (Figure 1). Tourism workers gave more varied responses than non-tourism workers, including the only respondents who mentioned financing their own further education.

Tourism workers invested much more often in vehicles (24% of tourism responses vs. 10% of non-tourism responses), which is not unexpected as many have a distance to commute between home and their work in ecolodges. Tourism employees were also more in favor of starting their own tourism-related business than their non-tourism counterparts (23% vs. 18% in the 5-year timeframe and 19% vs. 15% in 10 years) or their own non-tourism businesses (27% vs. 18% in 5 years and 33% vs. 29% in 10 years). Overall, tourism workers were more likely to indicate a desire to start their own business, whether in tourism or not (27% vs. 18% in 5 years and 33% vs. 29% in 10 years).

Table 5. Local attitudes toward protected areas and oil palm.

Topic	Tourism (N = 65)				Non-tourism (N = 58)				p-value <sup>A</sup>
	Positive	Negative	Mixed	NR	Positive	Negative	Mixed	NR	
Opinion on national parks	85% (55)	2% (1)	12% (8)	2% (1)	74% (43)	3% (2)	16% (9)	7% (4)	0.3513
Opinion on private reserves	37% (24)	11% (7)	5% (3)	48% (31)	31% (18)	5% (3)	7% (4)	57% (33)	0.5180
Opinion on oil palm plantations	31% (20)	20% (13)	18% (12)	31% (20)	47% (27)	21% (12)	10% (6)	22% (13)	0.2700

Note: NR = no response.

<sup>A</sup>Chi-square test used. Significance reported as p-value.

### Support for conservation

Two questions assessed attitudes toward national parks and private reserves (Table 5). When asked “How do you feel about the existence of national parks and protected areas?” respondents gave overwhelmingly positive responses (85% positive for tourism workers and 74% for non-tourism workers). Fewer respondents ventured an opinion on the same question regarding *private* reserves, with more than 52% of the sample declining to comment. Given the role of African oil palm as a driver of change in agricultural landscape mosaics in the region (Beggs & Moore, 2013), we gauged attitudes toward oil palm by asking “do you think the expansion of oil palm plantations in the region is good or bad for the community?” Opinions did not differ greatly between the two groups, with roughly equal numbers of individuals giving negative opinions (21% of non-tourism workers and 20% of tourism workers) and a larger number of individuals expressing positive opinions (47% of non-tourism workers and 31% of tourism workers).

Respondents were then asked to identify and evaluate threats to local biodiversity. Individuals from both tourism work and non-tourism work overwhelmingly agree that the worst threat to local species diversity is hunting, followed by deforestation (Table 6). To explore employment-related changes in environmental behavior, respondents were asked to comment on their extraction of forest products during the previous year, under conditions of anonymity. Among non-tourism workers, 37.5% said they had extracted items (such as wood, plants, and seeds) from the forest in the last year, compared to 17.5% – less than half as many – for tourism workers, a finding that just misses statistical significance ( $p = 0.051$ ).

Our interview data from the operators of nearby Danta Lodge and of Aguila de Osa in Drake’s Bay suggest that forest cover has largely regenerated since these two projects were initiated on former pasture land. This reinforces our earlier findings around the Lapa Ríos ecolodge (Almeyda et al., 2010a). Based on the reported occupancy rates, the reported rates of participation in hiking in the park, and the current park entrance fees, we conservatively estimate approximately US\$25,000 of support to Corcovado National Park from just these three lodges. This estimate does not include entrance fees to nearby Caño Island Reserve, the Terraba-Sierpe National Wetlands, Piedras Blancas National Park or any number of private reserves operating in the region.

### Community benefits and engagement

Many of the ecolodges in our sample provide funds to their local communities for conservation and development needs. Several lodges in Drake’s Bay, for example, contribute to

Table 6. Comparison of perceived threats to local species diversity ( $N = 123$ ).

Threat	Tourism		Non-tourism		Total
	Drake	Jimenez	Drake	Jimenez	
Hunting	21 (48%)	7 (19%)	6 (22%)	9 (29%)	43
Deforestation	7 (16%)	5 (24%)	1 (4%)	10 (32%)	23
Human presence	8 (18%)	2 (10%)	5 (19%)	4 (13%)	19
Pollution	7 (16%)	1 (5%)	3 (11%)	2 (6%)	13
Food scarcity	2 (5%)	0	2 (7%)	1 (3%)	5
Construction	0	1 (5%)	0	3 (10%)	4
Tourism	0	0	3 (11%)	0	3
Capture for pets	0	0	2 (7%)	0	2
Mining	0	1 (5%)	0	0	1
Global warming	0	1 (5%)	0	0	1
Airports	0	1 (5%)	0	0	1
No threats	3 (7%)	0	2 (7%)	0	5
No response given	5 (11%)	9 (43%)	9 (33%)	11 (39%)	34

Note:  $N = 65$  Tourism, 58 non-tourism. Multiple responses per subject were permitted.

the Fundación Corcovado, which provides annual contributions to local development funds, bolsters environmental education curriculum in local schools, promotes recycling in the community, and supports local sea turtle conservation efforts. One of the Fundación Corcovado's successful initiatives is an environmental education and art program in the local school that led to elementary school students, many of whom had never left the Peninsula, earning the chance to represent their community in San Jose.

On the critical issue of ownership, we took a closer look at the "universe" of ecolodges in the Osa region. Our web-based census of 105 lodges operating in the region revealed that 91 lodge websites (87%) provide information about ownership. Of these 91 lodges, 35 (38.5%) indicate being locally owned and operated by Costa Rican citizens. Although we were unable to secure information on the start date for all of these 91 lodges, given the dominance of foreign owned ecolodges in the early decades of tourism in the Osa (Cuello et al., 1998; Horton, 2009), the owners we spoke with claimed that most of the locally owned business growth has occurred in recent years. The ratio of local to foreign ownership of new projects in coming years is thus likely to increase and be paralleled in other tourism-related sectors including transportation, restaurants, and other services. Access to employment via both foreign and locally owned lodges and access to new business opportunities in tourism continue to be created in the Osa region.

Beyond income, employees of these ecolodges acquire English language skills that are not otherwise available through work in other sectors. Interviewees at several lodges described English classes being offered as a no-cost part of employee training. Additionally, ecolodges generate capacity outside of the tourism sector. One locally owned business outside of Puerto Jimenez – Danta Corcovado Lodge – offers funding and facilities in support of women's groups who meet in the community. This lodge has also sponsored house painting and tree-planting campaigns, plus the building of an educational center, a recycling program, and a health clinic, thus establishing a link between ecotourism, community services, and health care access.

Table 7. Comparison of local attitudes and perceptions.

Topic	Tourism ( <i>N</i> = 65)				Non-tourism ( <i>N</i> = 58)				<i>p</i> -value <sup>A</sup>
	Positive	Negative	Mixed	NR	Positive	Negative	Mixed	NR	
Aware of new airport	87% (56)	13% (9)	–	–	57% (33)	43% (25)	–	–	0.0002**
Opinion on new airport	34% (22)	25% (16)	28% (17)	15% (10)	47% (27)	5% (3)	17% (10)	31% (18)	0.0043**
Opinion on cruise ships	48% (31)	12% (8)	13 (20%)	20% (13)	45% (26)	19% (11)	12% (7)	24% (14)	0.5104
Opinion on houses of foreigners	23% (15)	37% (24)	22% (14)	18% (12)	38% (22)	17% (10)	12% (7)	33% (19)	0.0138*
Opinion on foreigner presence	30% (19)	14% (9)	15% (10)	42% (27)	29% (17)	12% (7)	16% (9)	43% (25)	0.9764
Opinion on sale of land to foreigners	19% (12)	31% (20)	23% (15)	28% (18)	22% (13)	34% (20)	19% (11)	24% (14)	0.8844

Note: NR = no response.

<sup>A</sup>Chi-square test used. Significance reported as *p*-value.

\*Result significant at the 0.05 level; 95% confidence that observed difference is not the result of chance.

\*\*Result significant at the 0.01 level.

Another component of access – access to strategic information – was assessed quantitatively in our survey. When asked about governmental plans to build a new international airport in Palmar Sur, a majority of both tourism employees and those not working in tourism favored the airport, which they see as bringing development and increased employment opportunities. Those in ecotourism were statistically better informed, with 87% of tourism respondents citing awareness of the plan (Table 7). In contrast, just 57% of the non-tourism workers expressed awareness of the proposed airport. Ecotourism workers were also more likely than non-tourism workers to oppose the airport (25% vs. 5%). Those in favor of the airport gave responses like, “I suppose the airport is good because it will bring more tourists, so the community will develop and there will be more work”. Those opposed cited fears of crowding and overdevelopment. In the words of one interviewee, “I hope they do not build it. . . we’ll become Jacó!” referring to a heavily developed resort area farther north along the Pacific coast. While it is not clear how additional knowledge about the airport affects support or opposition to it, the indications are clear that with tourism comes increased access to information, and this information is an important resource for assessing the implications of different development scenarios including those involving this new international airport.

A majority of ecotourism workers and non-tourism workers indicated a desire for more tourists in the Osa (63% for tourism workers and 76% for non-tourism workers), though tourism workers gave a higher percentage of qualified answers (16% vs. only 2% from those not working in tourism). Examples of qualified answers include, “More tourism would be good, but I hope there is balance, and I hope there are real economic benefits for us” and “I hope there are more tourists, but it would depend on the type of tourism they bring”. Such responses highlight a desire to reap the benefits of increased economic activity from tourism, while avoiding its negative environmental and social impacts found along the Pacific coast north of the Osa Peninsula. Tourism workers have had more access to information about potential negative consequences of certain forms of tourism development (e.g. such as that seen in the northern province of Guanacaste resulting from the beginning of direct flights from the USA to the Liberia airport) and exhibit a more cautionary attitude toward tourism development as a result of their involvement in tourism.

## Discussion

### *Hypotheses revisited*

In the context of the Osa Peninsula, then, the data collected here call into question each of the three null hypotheses proposed earlier. They are:

- (1) that the employment opportunities in ecotourism do not offer higher and more stable earnings than employment in other sectors;
- (2) that ecotourism does not contribute more to existing parks, protected areas or local environmental ethics than does other employment; and
- (3) that ecotourism does not reduce disparities in access to important resources, including education, jobs, job training, and conservation knowledge and information.

Our data show that ecotourism offers local residents higher incomes – nearly double earnings per month – than other employment opportunities. The data also indicate that Osa residents view ecotourism as contributing more than other businesses to both improvements in quality of life and benefits for conservation of the region’s rainforest. Our findings offer an important, if localized, confirmation of the value of stay-over ecotourism for livelihoods and conservation – two key tenets of ecotourism – in the Osa Peninsula.

With respect to the second hypothesis, we found that all lodges provide economic benefits directly to Corcovado National Park, through both entrance fees paid by visitors and, in some cases, donations by the lodge owners. For instance, several lodges have contributed directly to both reforestation and natural regeneration of tropical forest adjacent to the national park, and this confirms an earlier dual remotely sensed and ethnographic analysis (Almeyda et al., 2010a). Furthermore, many ecotourism businesses contribute to tree-planting programs in the surrounding communities. The qualitative evidence also indicates an increased level of support for parks and environmental protection among tourists visiting the Osa Peninsula. Again, our data suggest that ecotourism delivers on its promise.

Finally, our data also offer a convincing rebuttal to arguments that ecotourism does little to address poverty or disparities in access to resources. As we found, the lodges of our sample offer higher paying employment opportunities for local residents, proactively promote the conservation of nature, and offer increased access to educational, health, and information-related resources. Compared to alternative development trajectories in the Osa, from bananas to palm oil plantations to cattle ranching and fishing, it is clear that ecotourism is providing greater benefits for biodiversity conservation and community development. Our interviewees noted that the higher incomes and training they have received through their work in ecotourism create access to new ecotourism-related opportunities, including new businesses – more than a third of which are now locally owned. As a result, foreign ownership is now far from universal in Osa. Although surely warranting confirmation in future longitudinal analyses, we found a trend toward increasing local ownership of businesses as a result of ecotourism in the region. In Osa, what Fletcher (2012) calls the “Master’s Tools” (instruments of neoliberal capitalism) thus appear to be helping with both poverty and local access to resources.

### *Ecotourism, conservation, and development revisited*

Analysis of the interview data about the impacts of ecotourism in and around the communities of Drake Bay and Puerto Jimenez contributes to several ongoing discussions about ecotourism and its benefits to conservation and the host community. First, our finding of a

1.7-fold overall difference in household incomes between those with members working in tourism and those whose members are employed elsewhere makes it clear that ecotourism offers higher incomes for local residents. This finding stands in contrast to many other tourism destinations, including resorts along Costa Rica's north and central Pacific coast, that typically employ outside labor for construction and then employ non-locals in higher paying office positions (Honey, 2008; Honey et al., 2010; Hunt & Stronza, 2011). Ecotourism provides higher income jobs and opportunities for self-improvement and advancement which can help to slow the outflow of youth from the Osa Peninsula, thereby breaking the vicious cycles of impoverishment, resource degradation, and migration outlined by Durham (1995, 2008) and explored empirically in a nearby tourist destination by Hunt (2011).

However, by the same token, the line between ecotourism and non-tourism sectors was less distinct than we expected: those interviewed stated that virtually everything in the Osa Peninsula is dependent upon ecotourism. The direct and indirect economic activity generated by ecotourism is critical, for instance, for local shop owners, farmers, fishers, and road workers. As one interviewee put it, "without tourism, no one would have money to spend in my store". Ecotourism plays a pivotal or "keystone" role in the economic network of the Peninsula: even those residents who do not derive their primary income from the payroll of a hotel, airline or other tourism-related business still consider themselves to be sustained by the tourism industry. Indeed, those surveyed and interviewed credit ecotourism with overall positive changes in local educational opportunity, job training, and value given to nature, as reflected in the decline in hunting and deforestation in the region. Other ecotourism destinations in Central and South America have shown similar positive results (Hunt & Stronza, 2011; Stronza, 2010; Wunder, 2000).

Our findings also corroborate other writings indicating that local employment influences such things as commitment to community, sense of place, and attitudes towards conservation (Almeyda et al., 2010a; Honey et al., 2010; Horton, 2009; Stronza & Durham, 2008). In addition, it indicates that ecotourism provides the increased income and employment opportunities that are necessary for ensuring favorable conservation-related outcomes of ecotourism (Alexander, 2000; Belsky, 1999; Campbell, 1999; Hunt & Stronza, 2011; Stronza 2010; Vasconcellos Pegas & Stronza, 2009)

Such outcomes are critical given this region's history of conflicts between people and parks. It appears that ecotourism's contributions to local livelihoods and conservation have helped to shift attitudes among Osa residents (as reported also in Almeyda et al., 2010a). Much like Horton (2009) and Cuello et al. (1998) have shown, our findings suggest that ecotourism – with its commitment to benefiting both local livelihoods and the environment – has improved local attitudes toward national parks and conservation. While more research is needed to understand the reasons behind these differences, they are consistent with the findings of others (Buckley, 2010; Hunt & Stronza, 2011; Saarinen, Becker, Manwa, & Wilson, 2009; Stronza & Durham, 2008) who report that ecotourism has sensitized employees to environmental issues and contributes to increased support for protected areas and conservation.

Our data are only a first look at a relatively small sample, and they cover only a short-time horizon. However, they do suggest that, in the Osa region, ecotourism reduces disparities by *increasing* the access of local and poor people to strategic resources. With increased access to information, higher paying jobs, and educational and training possibilities comes increased social capital, which has been identified as a key factor in improved development and livelihood outcomes (Bebbington, 1999; Jones, 2005), including that of the Osa region (Hunt et al., 2013).



## Conclusion

The Osa Peninsula is the last remaining section of Costa Rica's Pacific coast where ecotourism is the dominant type of tourism and a significant sector of the local economy. It, therefore, offers an appropriate setting to ground test some of the indicators of the economic, social, and environmental impacts of ecotourism compared with other employment alternatives. As described here, a field team conducted 128 interviews with local residents of the Osa in and around Drake Bay and Puerto Jimenez, including 70 interviews with ecolodge employees and 58 with residents not working in tourism, in order to test a key hypothesis that ecotourism in the Osa represents a different, and better, form of economic activity than the existing extractive alternatives – such as timber, gold mining, plantation agriculture, cattle, etc.

Overall, the findings from this multiple case control study demonstrate that ecotourism is a high-value economic activity in the Osa Peninsula. It is perceived as providing stable, better paying jobs, and more opportunity for advancement than other economic endeavors. Further, it is credited with helping to shift local attitudes toward positive perceptions of Corcovado National Park and the other protected areas. Although not evenly spread throughout the Peninsula, ecotourism's economic reach is wide, with most other types of businesses tying their well-being directly or indirectly to the health of the tourism sector.

Further research is needed to anticipate the effects of several pending large-scale developments in the Osa region – including, but not limited to, the proposed international airport and the Diquis Hydroelectric project. Both projects have the potential to rapidly increase land speculation and larger scale tourism and vacation home developments, thereby undermining the model of small-scale, nature-based ecotourism that today is dominant in the Osa Peninsula. Concern remains that these proposed infrastructural projects stand to tip the Osa Peninsula in favor of a more mass tourist model characteristic of the north and central Pacific coast, and to undermine the sustainable income, employment, and more equitable access to key resources afforded by ecotourism. In addition to its value to other researchers and other ecotourism areas elsewhere in the world, the research presented here may be of particular value to those shaping future development decisions and policies in the Osa region.

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