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An Analysis of Biodiversity, Sustainability, and Ecotourism in the VO.I.M.MA Community Managed Forest, Andasibe, Madagascar

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**An Analysis of Biodiversity, Sustainability, and
Ecotourism in the VO.I.M.MA Community Managed
Forest, Andasibe, Madagascar**



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SIT Zanzibar/Madagascar Fall 2015

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Abstract

The concept of eco-tourism as a culturally sensitive, ecologically beneficial alternative to traditional vacations is a fairly new idea. While on the surface it seems positive for everyone involved, there are complexities in the relationships between all parties. This study explores the ties between the community forest, the tourists, and biodiversity (specifically endemic lemur populations) in the VO.I.M.MA Community Managed Forest. This study found that the community forest model is sustainable, based on the criteria of protecting biodiversity and satisfying customers. To truly promote a sustainable business model in the future (ecologically as well as economically), the center could improve publicity and education opportunities for local families as well as tourists.

Introduction

The idea of African countries as perpetually backwards and in need of Western salvation is prevalent in the post-colonial psyche (Adams & McShane, 1996). This dichotomy plays out repeatedly in terms of conservation biology, particularly in well publicized East African countries such as Madagascar. The cycle is self-perpetuating, with Westerners providing not only the funding, but also the manpower for research about African ecosystems. Too often, this results in a formally educated Western scientist taking on the responsibility for improving Africa's biodiversity without possessing a thorough knowledge of the indigenous people and their cultures. This creates a significant gap between the data gathered and the application of the findings for good. This is why it is important to look into areas such as community-managed forests to see how effective the local people can be at conservation without direct Western influence.

Typically, conservation efforts focus on places "less fortunate" than the average Western country. Countries like Kenya and Tanzania, for example, have become postcards of Africa in terms of landscape and the Big Five, while neighboring countries go unrecognized. Documentaries and accounts of exploratory safaris permeate Western understanding of the Continent to form a very narrow viewpoint about a vast Continent.

The same can be said for Madagascar. As another widely known African country, the richness of biodiversity and endemic species puts Madagascar at the forefront of conservation interests. From a Western perspective, Madagascar (a vast island with dozens of languages, religions, and historical influences) equates to lemurs and the Pixar animated movie. The interests of the Malagasy people, both ecologically and culturally,

must be brought to the forefront of the conservation movement. This is why projects like the community forest are critical for the long-term conservation of the local environment.

In the contemporary world, globalization has rendered the problems of one society the problems of all. It has become virtually impossible to turn a blind eye to environmental degradation and the resulting socioeconomic disparities. Media exposure, NGOs, and overseas conservation groups funnel money and attention from Western donors to areas perceived as “disadvantaged.” This Western preoccupation with global conservation begs the question: what can each community do to protect the surrounding ecology, without outsourcing this attention to other countries?

In the context of growing interest in environmental conservation, eco-tourism is growing in popularity. It is defined as tourism that prioritizes local economy and ecology in balance with providing a satisfying tourist experience. In *The Evolution of Ecotourism*, author John Watkin states, “Ecotourism does not simply consist of environmentally sound ecolodges: it provides a means for rural people to benefit from the wildlife and environment of which they have traditionally been custodians. It also required a change from foreign owned mass tourism facilities to community-based ecotourism” (Watkin, 2003). Tourism through this lens is perhaps more complex than traditional tourism, but has a better chance of protecting both natural and human resources in the long run.

In the 1990s, the Malagasy government, with support from international conservation and development organizations, pushed for a new community-based natural resources management policy. This policy is applicable to forests, pastures, wildlife, and water. It aims to promote better resource management through local management, legislation, and enforcement, leading to better environment stewardship. The policy was

signed into law on September 10, 1996. In 1997, the law was incorporated into the new national forestry policy (Raik, 2007).

The purpose of this study is to understand the influence eco-tourism has on the community of Andasibe and on biodiversity in the community managed forest. Through interviews and guided walks through the forest, wildlife was observed and tourists' reactions were recorded. Authors McShane and Adams say, "Success lies in understanding that conservation and development, long at loggerheads, are two parts of a single process. Conservation cannot ignore the needs of human beings, while development that runs roughshod over the environment is doomed." (Adams and McShane, 1996) If the community forest model can work to promote global education, community well-being, and biodiversity, then it is a successful eco-touristic venture.

Study Area

The area of study is located in the community forest near Andasibe in the Eastern/Central region of Madagascar, 157km (98m) away from Madagascar's capital, Antananarivo (Figures 1 &2). Madagascar, the world's largest oceanic island, detached from mainland Africa approximately 165 million years ago. Fossil record shows the arrival of humans dates back 2,000 years, when trade routes between Asia and Africa included Madagascar. The majority of current species are found only on the island, showing a unique and isolated evolutionary path (Isolation and Biodiversity, web). This biodiversity includes 101 species of lemur. 22 species are critically endangered, 48 are endangered, and 20 are vulnerable, according to the International Union for Conservation of Nature (The Future of Madagascar's Lemurs, web). In Andasibe, the tree coverage is dense and provides effective protection. 11 species of lemur live in the community forest at Andasibe.

The community forest was established in 2009, starting with night hikes into the forest. The governing board is made up of villagers who make decisions on future planning and management of the park. To become a guide in the community forest there are no official requirements or training, apart from the ability to speak French and other foreign languages in addition to Malagasy. Knowledge is learned through instruction from veteran guides (S. Rajoelirivony, interview). The money made from entrance fees at the community forest goes towards the park itself, and money made from the gift shop merchandise goes back to the resident in the village who made the item.

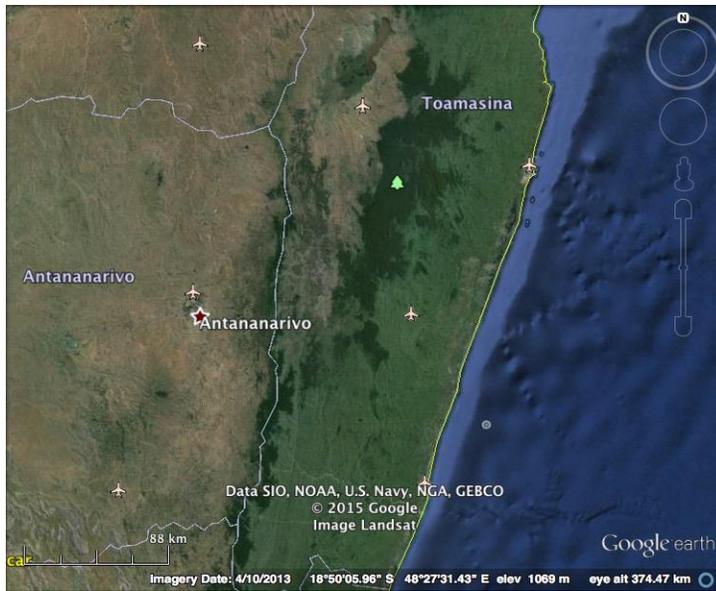


Figure 1: Andasibe National Park (Tree Symbol) in Relation to Antananarivo

Source: Google Earth

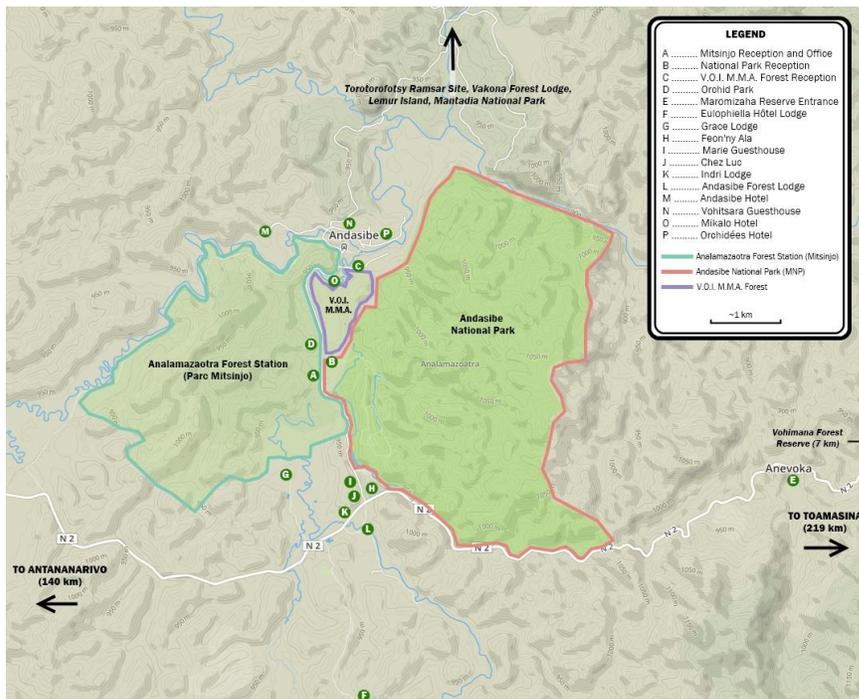


Figure 2: Community Forest in Relation to Neighboring National Parks

Source: Courtesy of Association Mitsinjo

Methods

This study consisted of opportunity-based interviews, in either English or French, with tourists visiting the center and employees of the center (see appendix for list of interview questions). The visitors were interviewed just after they had finished their hike and been to the gift shop, so the experience was still fresh. The same questions were asked in the same order during each interview. The aim of these interviews was to gauge perceptions about the center and its business aims, both in relation to local economy and outside tourism, from all perspectives.

The second part of the study was conducted using a mixture of observational fieldwork techniques. Hikes into the community forest with a guide, lasting on average 1.5 hours, allowed observations of various species (see Figure 2). Hikes were carried out each morning for nine days from the 9th to the 18th of November 2015. The hikes were carried out in the same area of the park every day, but different trails were taken depending on knowledge of where the indri family was located.

In particular, this study focused on the indri (*indri indri*), the largest lemur in the world. Indri live in matriarchal social groups of 2-6. They are characterized by their long limbs, short stubby tails, black and white patterned fur, and their distinctive communication calls (which can be heard up to 3 kilometers away). Indri live up to 50 years in the wild, but cannot be domesticated or kept in zoos due to their highly specialized dietary needs (Godfrey, web).

Indri factor highly into local history and folklore, perhaps because of their huge size and haunting cry. In Malagasy, they are called *babakoto*, or “father of the little boy, Koto.” Legends link indri to people in various folktales going back many years, so there

is significant cultural (as well as ecological) importance to protecting indri (Godfrey, web). During this study, a family of indri within the community forest was observed as they ate, groomed, and jumped in the treetops.

Results

Table 1: Overall Wildlife Sighted During Study

Common Name	Scientific Name	Number of Sightings
Common Brown Lemur	<i>eulemur fulvus</i>	6
Indri	<i>indri indri</i>	7
Leaf-tailed Gecko	<i>uroplatus henkeli</i>	2
Coua	<i>coua</i>	5
Sifaka	<i>propithecus diadema</i>	2
Parson's Chameleon	<i>calumma parsoni</i>	3
Bamboo Lemur	<i>haplemur</i>	1
Nasutu Chameleon		1
Calumeeae Chameleon		1
Buzzard		1

*Highlighted species were identified to common name by the guide, but correct spelling of the scientific name was undetermined.

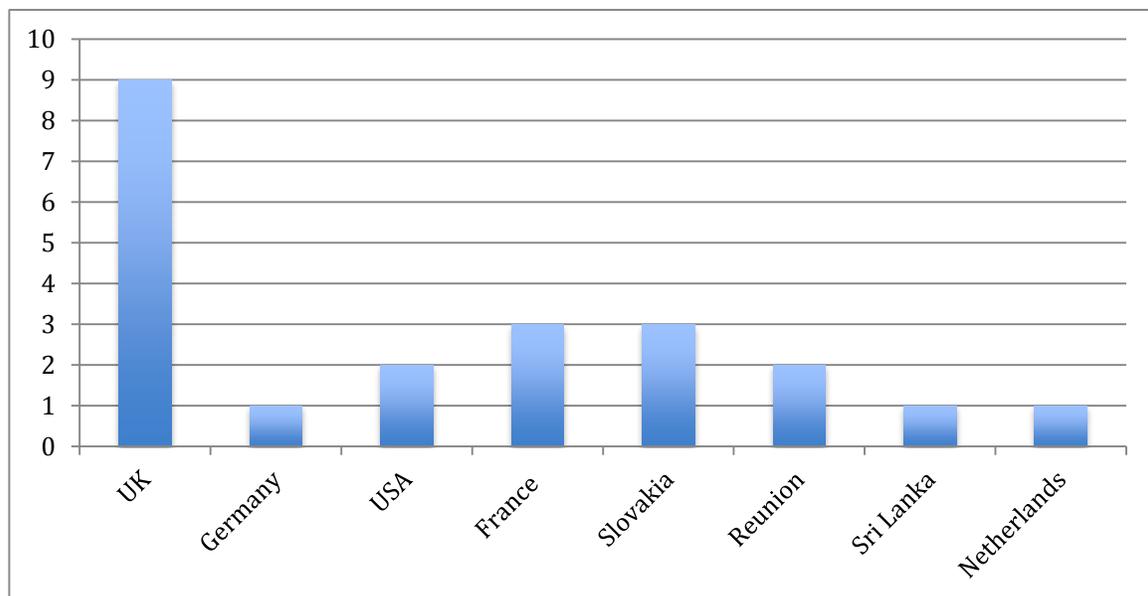


Figure 3: Geographical Distribution of Tourists Interviewed

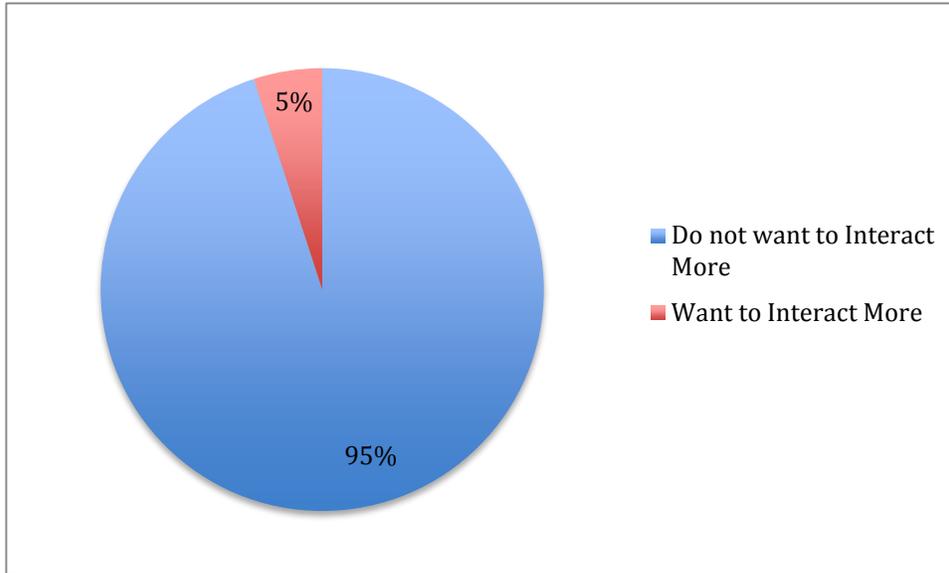


Figure 4: Willingness to Interact More with Lemurs

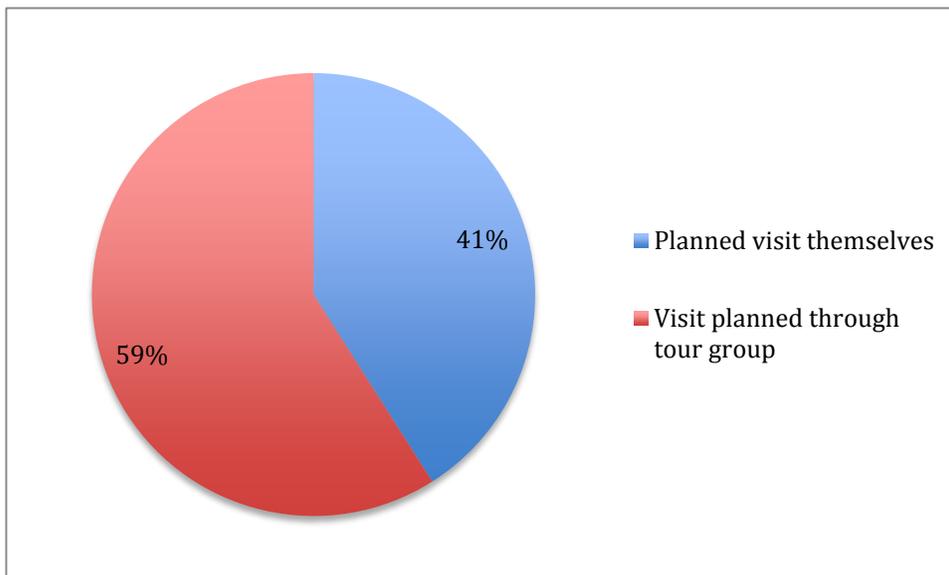


Figure 5: Method of Planning Visit to the Community Managed Forest

Discussion

Overall, tourists surveyed enjoyed the hike, were pleased to have seen the wildlife, and were satisfied with the quality of the guides. The feedback about the guides was entirely positive, with many people (all 22 surveyed) commenting on how knowledgeable they were. The only suggestion made was that a book or pamphlet to help identify plants and/or animals would be useful during the hike.

95% of tourists also felt they would rather see the lemurs in the wild (see Figure 4 in Results). The general feedback was that observing natural feeding and movement behaviors was preferable to seeing the lemurs in a more controlled environment, such as a zoo. Although most tourists reported they planned to go to the Lemur Island as well (where tourists physically interact with and feed fully habituated lemurs of multiple species), in general, tourists showed respect for the environment and the biodiversity of the community forest site.

59% of tourists interviewed had the visit to the community managed forest planned for them by a tour guide/company (Figure 5). 41% of the tourists planned the trip themselves and purposely chose to visit the community-managed forest because they wanted to benefit the community while also enjoying nature. A majority (59%) of tourists did not know much about the forest as a community forest, as opposed to the neighboring national park. Most mentioned that their guides scheduled the hike, or simply brought them to the community forest. Only two people interviewed had previously researched the area and were informed about the community forest. This lack of background information on the tourists' part may be holding the forest back from its true potential. More money could be made, more education implemented, and more outside interest

garnered if the mission of the forest was better publicized. While some tourists purchased merchandise from the gift shop, many did not. Those who did reported that they knew local villagers made the goods, which indicates that knowledge of the mission of the community project influences retail at the shop.

Based on these brief results, the community forest is a sustainable eco-touristic venture. The tourists were satisfied with their experience, were impressed with the guides, and were inclined to keep a respectful distance from the wildlife. The ease with which indri, other lemurs, and other wildlife like chameleons were seen shows healthy population levels within the forest (Table 1). Ecologically, the park is striking a healthy balance between showing people the unique local biosphere and protecting the animals from excess human contact.

Financially, the park is not only supporting its own office costs, but is providing income and employment to locals in the village. Embroidered shirts, patches, postcards, and other wares are made in the village and sold in the shop. This money funnels directly back into the community in a way that helps people on a day-to-day basis. In this way, the forest is not only protecting long-term economic resources by protecting the land, but is also supporting the community members by adding supplementary income. Women make many of the wares, which is another important indicator of economic success, as it opens the possibility of employment to home-makers as well.

Conclusion

Overall, the community forest in Andasibe is beneficial to the ecosystem, the tourist industry, and the local community. Visitors enjoy the experience and take pleasure in seeing the wildlife in its natural habitat. The indri are habituated enough to tolerate human presence, but maintain natural eating and socializing behavior. Visitors can also get close to other species without disturbing their behavior.

With the balance between funds going directly back to the community and into the forest, financially the forest is sustainable. The office runs, salaries are paid, and the majority of funds raised go back to the community in one way or another. On a conservation level, the park is effective in protecting wildlife as well as giving the local people a say in what to do with the land. According to a local guide, the village people respect the community forest and do not harvest resources from the forest. This shows a genuine respect for the ecosystem and its connection to the local people.

In *The Economy of Nature*, author William Ashworth says, “The health of a society’s economy depends to an overwhelming extent on its relationship to its environment” (Ashworth, 1995). The community-managed forest at Andasibe is making great strides towards achieving real sustainability through the protection of land, endemic plant and animal species, and the economic benefits of tourism. While there are improvements to be made, and time and language barriers limited this study, the overall conclusion is that the model is working well.

Recommendations

In terms of local impact, more education for the community would be the best way to invest in the long-term success of the project. The empty room in the office could be used as a classroom for students from the community where classes could be taught about the importance of biodiversity and the influence of the community forest. Field trips for children throughout primary and secondary school would familiarize students with the unique biodiversity of their locale, and would funnel a new generation of well-informed park guides, employees, and educators into the forest business.

A suggestion box at the visitor center could also be helpful to note tourists' reactions to their hikes, as well as a visitor book where tourists would sign in and record where they are from and the reason they visited the community forest. More information about how the forest helps the community while giving the tour would help tourists understand the positive influence they are having on the local community by visiting. While all the tourist feedback from this study was positive, there is always room for improvement to the business model.

More detailed information about the number and social structure of the indri (and other species of lemur) would be a great addition to this survey. Given the short time span of this study, reliable information about the indri within the community forest was unavailable. Long term study of population size and behavior, along with growth rates, would be integral to determining the sustainability of the project.

Future researchers could spend more time at the forest site, and conduct more in-depth interviews with employees and board members to fully understand the business model and long-range aims of the forest. This would add to the depth of understanding on

the subject, and could produce more realistic ideas for future improvement. A different format of study could be carried out to measure biodiversity more accurately, by following a single transect on multiple days to find the number of species visible in that certain area of the forest.

The biggest hindrance to this study was the time limitation. The data was collected over a period of only 9 days, so results are based on general observations and casual conversations rather than in-depth study and extensive interviewing. Further study should extend over a longer period of time for more reliable results.

Appendix**Interview questions: for Tourist**

What is your name?

Where are you from?

How did you hear about the community forest here?

Why did you visit the community forest?

Is there anything that you would change to improve your experience?

If given the opportunity, would you interact more with the lemurs?

Will you buy anything from the gift shop here?

Interview Questions: for Forest Guide

What is your name?

Where are you from?

How many species of animals are in the park?

How did you learn all the information?

How many tours a day do you give?

Where are the tourists from?

Do tourists usually return to the park?

How does the community forest effect wildlife?

Interview Questions: for Forest Employee

What is your name?

Where are you from?

How long have you worked at the community park?

Who makes the merchandise?

Where does the money go from selling the merchandise?

Do tourists usually buy things?

How does the village benefit from the park?

How does the community forest effect wildlife?

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ISP Review Sheet

Completed this review sheet and bind along with the original of your ISP paper as the final page. It is for the use of future SIT students interested in your topic and is intended to give them nuts and bolts information about the types of problems they can run up against in the field, as well as the suitability of both the topic and the ISP site. These reviews have proven to be very helpful, as you may have perhaps already learned, so be sure to include it.

1. Your topic - suitability, development, accessibility

Our topic was biodiversity, conservation, ecotourism, and the relationships between the three concepts in the community managed forest at Andasibe. It was very easy to arrange logistically, since Dr. Nat helped so much with the arrangements and the people working at the forest were very accommodating.

2. Location of field study - where you conducted your field study, who helped set it up (who was helpful and who was not; include names, addresses, and phone numbers if possible), strengths and weaknesses of the site

The field study was the forest nearby Andasibe-Mantandia National Park, which Dr. Nat and Patricia helped to set up. The president, Gervais, and our guide, Setra, were integral to the success of our field work and helped us a lot.

3. Nuts and bolts - where to get water & food, costs, where to stay, medical resources, other problems

The hotel was clean and simple, food was easy and affordable, and luckily no one got sick and needed a doctor because we didn't know where to find one.

4. Other noteworthy comments

Our project was very unorthodox, and is unfortunately unlikely to be very helpful to future SIT Zanzibar groups since the research was not conducted on Zanzibar.

List your secondary sources and contacts, where they were found, and which were most helpful here:-

