Real and Imagined Landscapes: Land Use and Conservation in the Menabe

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Abstract: *Despite conservation efforts, the remaining dry deciduous forests in the Menabe region of western Madagascar are severely threatened by deforestation. In order to examine the economic and socio-cultural factors underlying this problem, this paper uses a landscape approach. The local definitions for types of land, as well as different modes of land use, ownership and economic participation inherent in these definitions are examined. The traditional uses associated with each of these categories highlight important aspects of Sakalava culture, and economic and social structures of rural Menabe. The traditional and modern conceptions of the landscape contrast so starkly, that the local people and those tasked with promoting conservation are functioning as in two different realities. This disjunction has serious ramifications for conservation. Diverse local groups with different ideas about the landscape, and modern influences that run counter to conservation, further complicate the picture of deforestation. In order to be effective, conservation organisations should study the landscapes with their inherent complexities of local culture and economics.*

Keywords: Madagascar, Menabe, environment, human-induced change, identity, conflicts

INTRODUCTION[1]

THE MOST DISTINCTIVE FEATURES of the landscape in the very flat Menabe region of western Madagascar are the immense baobab trees. These otherworldly trees are tall and smooth-trunked, with a crown of thick,

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crooked, leafless branches at the very top. They tower over lush, green rice fields and line the oft-photographed 'Avenue of Baobabs'. People say this kind of baobab, unlike those found in continental Africa, only grow in the forest.[2] This indicates that the open space and cultivated land dotted with baobabs reaching to the horizon had, incredibly, once been a forest. When one sees recently deforested land—charred, broken hardwood trunks still standing as silent witnesses—at practically every side road in the area, even in the protected forests and nature reserves, the immense scale of the forest loss as indicated by the lone baobabs becomes a reality.

Madagascar's environment is known among conservationists worldwide as being one of the most important in terms of biodiversity and also as one of the most threatened. At one time it was believed that practically the entire surface of the island was forested (cf. Burney 1997). The World Wide Fund for Nature estimates that only about 11 per cent of the 'original' forests remain, based on 1996 data (Loh 1999: 28). In their synthesis of recent findings, Ganzhorn et al. (2001) indicate that while most conservation efforts have focussed on the eastern rainforests, the extent and rate of deforestation and fragmentation in the dry deciduous forests is in the least as severe.

The grave state of deforestation in Madagascar raises questions such as why would people do such damage to their land, who is to blame, and why conservation measures are not more effective. To reduce this complex interplay between culture and environment to the implication that 'man destroys nature' would most likely be an oversimplification. To even begin to answer these questions, it is necessary to go beyond the well-known immediate causes of deforestation (e.g., farmland, firewood, logging) and examine the underlying conditions or exacerbating factors that cause deforestation to be practised at an unsustainable level, and ask whether conservation efforts address these issues. Examining the human–environment interaction from a cultural point of view is imperative towards this aim, and one method that might prove useful is the landscape approach. This essay attempts to explore one part of this complex topic of environmental destruction in Madagascar by examining local concepts of the landscape in the village of Andranomena in the Menabe region. I examine how the landscape is defined by the people who live in it, how land use and economics are related to their conceptions of the land, and how traditional and modern definitions of the same physical landscape differ.

This approach provides a deeper understanding of culture, economics and deforestation in the Menabe, which can in turn inform conservation efforts. As I will demonstrate, different groups within the local population have different effects on the landscape, and many outside factors have also contributed to the problem of deforestation. In addition, local people and rule makers do not comprehend the land in the same way, and are therefore effectively functioning within different realities. When conservation policies are at odds with traditional practices, they inevitably prove ineffective.

THE SETTING

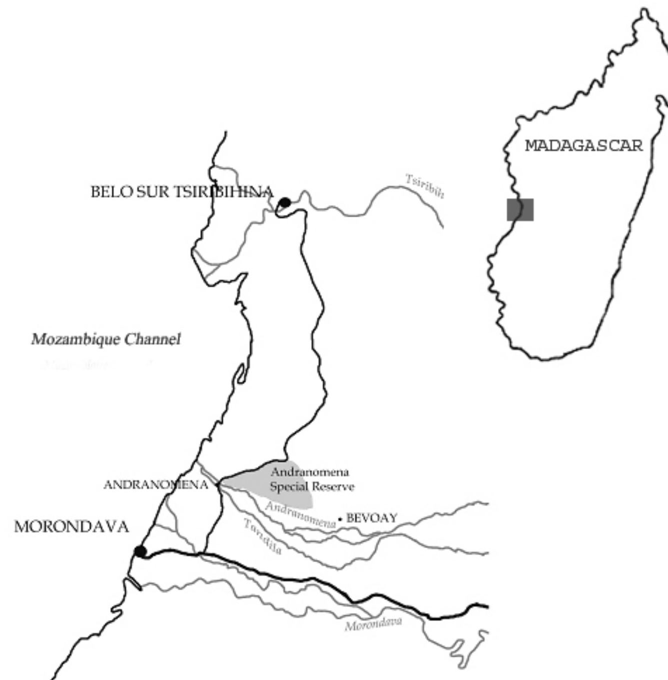
The Menabe Environment

The central west coastal area of Madagascar known as the Menabe is dry, with a distinct rainy season. The natural vegetation is predominantly dry deciduous forest. There is a great deal of runoff from the wetter highlands and it is not uncommon for roads to be completely inundated and impassable with runoff even when no rain has fallen locally. Some rivers provide year-round irrigation, while others are intermittent. Water is the main limiting factor for rice farming (Le Bourdiec 1980). The soil is poor, as on most of the island, and the tree species native to the region tend to be very slow growing (Réau 2002).

Andranomena is located approximately twenty miles north-east of Morondava (Figure 1). The main travel-and-trade artery from Morondava north, a rough road more or less paralleling the coast, runs through the village. Travel between Andranomena and the coast is inconvenient during the dry season, and difficult to impossible during the rainy season, and the people living in

Figure 1

Map showing locations mentioned in text



the village have little to do with the ocean. Two rivers, the Andranomena and the Tandila, supply abundant water to the area, providing well-irrigated rice farming land. Unlike land planted with dryland crops, irrigated rice fields do not lose their fertility and can be farmed for many years. Andranomena is adjacent to the Andranomena Special Reserve, a small nature reserve of 6420 ha that was established in 1958, administered by *l'Association Nationale pour la Gestion des Aires Protegées* (ANGAP, the National Association for the Management of Protected Areas). The village is also bordered by public forest land administered by the *Direction des Eaux et Forêts* (Ministry of Water and Forests).

Menabe Cultures

In Madagascar, landscapes and people are strongly linked. Places have 'masters', the descendants of the first settlers, who know the traditions and taboos of that place. People identify themselves with the places of their ancestors. At the same time, people move frequently through the landscape to establish new places, whether 'in search of money' (*mitady vola*, which could mean migrating to escape drought and famine in another part of the island, or actively searching out wealth)[3], or because death has tainted a place (Feeley-Harnik 1991: 156). The Menabe is home to the southern branch of the widely dispersed Sakalava ethnic group.[4] The Sakalava are cattle herders and rice farmers. There are also many immigrants to the region from all parts of the country, notably Antandroy from the south, Betsileo and Merina from the highlands, and Antesaka (locally known as Korao) from the east.[5] Andranomena is primarily Sakalava, but many villages in the region are majority non-Sakalava (Le Bourdiec 1980).

The rural economy is only nominally a cash economy. The majority of people live at a subsistence level on locally produced food. Rice is the most important staple crop for the Sakalava, as it is for the vast majority of Malagasy. Due to the dry climate, it is really only possible to grow rice on well-irrigated land along river courses and canals (Le Bourdiec 1980). There is a significant population of Antandroy in the area, whose traditional staple is maize, rather than rice. Diets are supplemented with locally cultivated or collected produce and legumes, fish and seafood, and raised animals or hunted small game. Animal protein of any kind is expensive and eaten rarely.

Deforestation

The main activities leading to deforestation in the Menabe are fire, clearing land for agriculture and illegal logging (Ganzhorn et al. 2001). Charcoal production is another significant activity. Slash-and-burn is the commonly preferred method for clearing any new agricultural land. Woodcutting has two different immediate causes. One is small-scale cutting for personal use, such

as house construction, fencing and firewood.[6] All village families participate in this practice to some extent. The other activity is logging for profit. This is still quite small-scale operation that escapes the notice of authorities, however, this logging tends to target much larger trees than trees that are cut for local use. Charcoal production is essentially a cash-generating activity. The charcoal is mostly sold in bulk to be resold in bigger towns. Only a handful of locals can afford to cook with charcoal; the other villagers use firewood that they collect themselves.[7] It takes a few days to make a batch, and so the activity is somewhat more of an investment than wage work like logging.

Conservation

Although, access for extraction of timber on Water and Forests land is regulated by a permit system; however, in actuality, a great deal of illicit deforestation occurs on these lands (Seddon et al. 2000). On Water and Forests land near Andranomena, the *rideau*, the curtain of thick trees lining the road that hides the rampant deforestation from passers-by, is a bitter joke among locals. To a lesser degree, the same problems plague the Andranomena Special Reserve. It is illegal to remove anything from the Reserve, and even to enter without an ANGAP official, although these things do occur. Numerous governmental and non-governmental Malagasy and international organisations work with populations living around protected areas to educate them about the importance of conservation and to develop alternative income-generating activities to alleviate the economic pressures to exploit the protected areas. Such efforts have proven to be notoriously ineffective in the Menabe region (Fauroux 1995, in Réau 2002).

ANGAP[8] was created in 1990 to manage the national network of parks and reserves in Madagascar. It was established alongside a fifteen-year national Environmental Action Plan, amid growing recognition of the grave state of Madagascar's natural environment and the importance of its biodiversity. During the first phase of the Environmental Action Plan (1992–1996), ANGAP privatised the operations of several protected areas by utilising national and international non-governmental organisations already doing work in these areas.

All protected areas[9] remain federal land, whether administered by ANGAP or other agents. Exploitation of forest products, hunting, agriculture, or any other action that could harm plant or animal species, is not allowed in protected areas. ANGAP's mission is to 'Establish, conserve and sustainably manage a national network of parks and reserves representing the biological diversity or natural heritage of Madagascar' (ANGAP ca. 2005). Its strategy for completing their mission consists of five components: preservation of ecosystems (that is, enforcement of rules prohibiting access and exploitation), research, environmental education, ecotourism, and development projects (ideally, which provide alternative sources of income to forest exploitation).

Half the money from entry fees at each park or reserve is dedicated to local development projects (ANGAP ca. 1997–2001).

History

There is a long history of outsiders imposing their values and regulations on the Menabe forest landscape, beginning with the Merina conquests in the Sakalava regions, followed by the French annexation of Madagascar. At one time, the Sakalava ruled the entire western part of Madagascar. This wide, sparsely populated geographic area was not ruled as an empire with centralised power, but rather by various kingdoms who claimed a common lineage (Feeley-Harnik 1991). This political unification brought with it the development of an economic and land use system based on pastoralism. Land ownership was accorded to the family group using the land. As the society grew, so did deforestation for secondary agriculture, although the population level was still so low until the twentieth century that impacts to the forest were limited (Réau 2002). By the twentieth century, the Sakalava were considered to be relatively stationary, while other groups were known for their migrations (Feeley-Harnik 1991).

During the Merina conquest of the island in the early nineteenth century, 'Independent Menabe' was the only Sakalava kingdom not to submit to Merina rule (Schlemmer 1983: 391). 'Independent Menabe' was a pocket on the west coast centred around the royal town of Belo-sur-Tsiribihina. Its southern extent may have ended somewhere near Andranomena; Morondava was occupied by the Merina (Raison-Jourde 1983). Observing the advanced destruction of the island's forests, even in the nineteenth century, Merina monarchs put the forests under state control to arrest the deforestation (Thompson and Adloff 1965).

'Independent Menabe' resisted the arrival of French colonial troops in the area in 1897 until 1904 (Schlemmer 1983), but the Sakalava monarchy finally fell under French rule. The colonial market economy brought by the French fostered economic, social and landscape changes in the Menabe. With the new emphasis on growing export crops, agriculture began to dominate over pastoralism, which fuelled deforestation. In addition, migrants began moving into the region to fill the demand for agricultural workers, and the population of previously uninhabited forest areas increased. In response to these pressures, and the increase in the value of agricultural land, the Sakalava began to withdraw land ownership rights formerly accorded to migrants (Réau 2002).

From the beginning, the French administration had a contradictory forest policy. They created a Forest Service to protect the already decimated forests,but at the same time gave massive logging concessions to colonial companies. Strict forest reserves were created in 1927, from which no timber or forest products were to be removed, but without staff to properly enforce the ban. The largest of these reserves (83,000 ha) was in the Menabe. In 1930, a

forestry code restricted the granting of concessions and fire permits. In the 1940s, there were so many violations that the government regrouped people living in forest areas into compact villages which would be collectively responsible for any fires occurring within the village limits. In the years that followed, attempts to create new protected areas was met with opposition from Malagasy farmers and herders who wanted to utilise the land, and from nationalists who viewed the French conservation efforts as an encroachment on Malagasy heritage (Thompson and Adloff 1965).

Local Concepts of Land Use

In order to study the deforestation occurring in the region within a cultural context, I will use the ways in which the local people define and divide the landscape as a starting point. Different modes of land use, ownership and economic participation inherent in these definitions will be explored. While I try to identify the 'traditional' categories of land and types of land use associated with them, there is no clear dividing line between traditional and modern people or practices. 'Traditional' and 'modern' practices exist side by side, and even traditional rural land use is constantly evolving.

In Andranomena, the following categories of land were used in everyday speech: *tana* (town), *tanimbary* (rice field), *baibo* (lowland garden), *ala* (forest), *hatsake* (slash-and-burn or swidden cultivation), and *monka* (fallow/spent land). From the perspective of the villagers in the region, all land surrounding the village falls into one of these categories. Each of these linguistic categories carries fixed assumptions about ownership and permitted use. These assumptions represent traditional land use and ownership patterns followed today in Andranomena, as in many other rural areas in the region, regardless of the legal status of the land.

Town

Tana, towns or villages, are settled places that form the conceptual basis for the organisation of the rural landscape. The traditional chief of the village (*tompon-tana*, master/owner of the town) is the person who first founded it, and who, as the first settler, has traditional rights to the village land. Most of the population is made up of members of his extended family, which makes them natives (*zanatany*, children of the land). A significant portion of the village population is made up of newcomers not related to the founding family. The newcomers are known as *vahiny*, which means strangers/guests.[10] The presence of strangers is a normal and totally expected part of village structures. Strangers could have been in the region for generations and are integrated socially into Sakalava villages. They are 'sakalavised' in a way, in order to be accepted (Le Bourdiec 1980: 139). Although the stranger/native distinction is real, people will sometimes call all the Malagasy people in the

village 'natives' to be polite, by including the strangers when talking about the village. Strangers are freely given village lands to build and cultivate on, excepting rice fields, but at the discretion of the village chief. The chief will not normally sell village land. Instead, the stranger's land is on a sort of permanent loan, which remains in effect until that family decides to move. Any investments the strangers put into the property, such as buildings, trees, and so forth, would be lost if they to move.

Legal ownership of land does exist, and there may be a trend towards utilising that system as more people become aware of it. However, most villagers still do not follow or have access to the procedures necessary to gain title to land. One family of newcomers to Andranomena, a relatively well-educated city couple, acquired the title to a central piece of village land on which they built a shop, with the consent of the master of the town. However, combining legal and traditional land ownership does not always work this smoothly, and disputes have arisen involving traditional village boundaries and farmers who want to get owenership of their farmland in the neighbouring village of Bevoay (Deeg 2000).

It is worth noting that in Andranomena the traditional leadership coincides with the municipal leadership, which is not always the case in rural Madagascar. That is, the elected president of the village complex[11] is the direct descendant of the (still living) village chief. Though the president is elected, it was clear that this man would be president for the foreseeable future, and no one could even presume to oppose him.

Houses are built within the village site, traditionally clustered by extended families, with a fair amount of space between the clusters. Even the wealthiest among the villagers live in simple, single storey houses because, according to one informant, no one can have a bigger house than Sakalava royalty. Houses are not passed on to future generations but left to disintegrate when the last inhabitant dies. Village sites usually have large shady trees at the centre, which function as formal public meeting places, informal hangouts, markets and bus stops. Investment in infrastructure for common areas (aside from a piece of iron hung from the branch of a tree as a bell) was rare in villages like Andranomena.

Rice Fields

In the dry western part of Madagascar, rice field are a precious commodity, and as such is given a unique status. In contrast with village land, any land that is used for rice farming is inherited and is individually owned. It is generally the only type of land that is bought and sold, though it is rarely sold. Some families have planted fruit trees (a far longer-term investment than annual crops) on their rice field land, which they would not plant surrounding their houses in town.

While rice is the staple diet for all the villagers, and the majority grow their own rice, not all possess rice fields. Many villagers share crop, giving up one to two thirds of the harvest to local or absentee field owners. The phenomenon of absentee field owners can occur when some of the initial settlers of a town (who got the prime irrigated land) subsequently moved to another town but retained their rice fields.

Because of the competition for this limited resource, villagers who acquire enough capital to buy their own fields are often forced to buy fields far from their domicile. Reasons cited for not moving permanently to a village closer to the rice fields included lacking the resources to build a new house and commitments elsewhere (Andranomena's schoolteacher, for example, acquired rice fields near a town approximately six miles away). People in this situation travel frequently, by foot, ox-cart, or bush taxi, to tend their crops. Even rice fields considered 'in' Andranomena can be a mile or two away, and at certain times in the farming cycle, the family will sleep in temporary shelters by the fields.

Gardens

Some cultivation, especially that of banana and sugarcane, takes place on the land immediately surrounding the houses where runoff water from the village water source or household wastewater can be utilised with a minimum of effort. Most people, however, choose to locate their vegetable gardens by their rice fields, on *baibo*. *Baibo* are naturally fertile pieces of land that are well irrigated, or at least close to water.[12] Another advantage of locating gardens by rice fields is that they are out of reach of the goats, chickens, ducks, and other domestic animals that roam freely in the village. A garden in the village would necessitate fencing to protect it from these animals, a significant expense even when the fencing is made from natural materials.

Those who do keep gardens adjacent to their houses tend to be outsiders (for example, those stationed in the village to work at the Reserve). As newcomers, these people typically do not own rice fields in the vicinity on which to plant gardens, and they are typically salaried, thus having more cash in hand than the subsistence farmers who make up the rest of the village population. The fenced gardens or yards of newcomers accentuate their outsider status. Fences are viewed as signals of superiority both because of the added expense of the fence and the psychological barrier that is created by it. In a village where everyone is extended family (in practice, if not in actuality), people expect to move from doorstep to doorstep freely. Displaying more worldly goods than your neighbour is frowned upon and considered selfish (*tia tenga*, literally, loving oneself, always uttered with disapproval). The reason for locating gardens and fruit trees by the rice fields rather than in the village is thus twofold. It addresses both the practical concerns of fencing, proximity to water, and property rights, and the social concern of acting above others, since rice fields are more private and out of sight than homes.

Forest

Ala (forest) is essentially any non-cultivated and non-town land. The term is used to distinguish between civilisation (cleared land) and the wild; it does not necessarily mean a true forest. Accentuating this distinction, any open space in the village is kept 'clean', free of any ground vegetation. If weeds grow in the yard, it is 'dirty'. An older man who 'couldn't get along with anyone' lived 'in the forest'. Hence, those who are marginalised by the society literally live on the peripheries of the villages, approaching the edges of the forests.[13] Besides these figurative non-village forests, there are deep forests, and various *fady* (sacred/taboo) forests. Forests therefore are an integral part of village territories, although the boundaries are not depicted on paper.

Traditionally, all have free access to the forest, for hunting and for collection of food (e.g., wild tubers, mushrooms), honey (for both food and ceremonial uses), medicinal plants, firewood, and materials for construction, tools, and weaving. People from outside the village complex, however, must seek permission of the village leaders whose territory the forest is part of, for access to collect from the forest. Forests also provide forage for livestock and water sources. As the local economy is subsistence-level, with few consumer goods, it is essential for people to collect food and materials from the forest. All the villagers supplement their diets with forest products, and the poorest survive primarily on wild tubers during the months when their rice runs out. Selling food gathered in the forest is an important source of income for some others.

The deep forest is the realm of strange beasts and spirits, and those shunned by society, i.e. cattle thieves and other 'bad people'. Most people are afraid of the deep forest, and only enter it when they must and do not venture far. The forest is also where tombs are located, in a taboo section, and where excrement is relegated, in a different sort of taboo section. Trees are associated with spirits, which are said to inhabit specific trees or stands of trees, both in the forest and in the villages.[15]

Cleared Forest

Two terms distinguish two different states of cleared forest land: *hatsake* (slash-and-burn cultivation) and *monka* (fallow/spent land). Forest land that has been recently cleared for agriculture using a slash-and-burn method is called *hatsake*. The term *hatsake* is applicable from the time the area is still smouldering until its fertility begins to be exhausted (usually after a year or two of cultivation), at which point it becomes *monka*.[15] *Monka* is land that has previously been cleared of forest for cultivation, and can be actively cultivated or left fallow. *Hatsake* is very fertile due to the forest topsoil and burned vegetation. Maize is grown as a lucrative cash crop after deforestation, and again with diminished returns.[16] Beyond that, the soil fertility is not suffi-

cient for maize. At this point, other crops, which are less profitable but those that can still be grown on the depleted soil give better returns. *Monka* crops are typically manioc (both the greens and tubers of which are locally important crops) or peanuts (which are not traditionally eaten and are grown only as a cash crop).

The person who first clears the land retains the rights to it, whether or not he uses it. Parcels of cleared forest land are not sold. However, anyone has the right to collect and pasture animals on uncultivated cleared forest land, as on forest land. In addition, anyone is allowed to use cleared forest land to cultivate his own crops annually with the prior permission of the owner, but no permanent structures, perennial crops, or trees are allowed, in order to avoid potential ownership disputes (Deeg 2000).

Locals claim that mainly non-Sakalava strangers use slash-and-burn farming to clear new plots in the forest because they have no ties to the land; whereas the Sakalava are less likely to destroy their 'own' forest. While those who first settled the area cleared virgin forest land in the same way, the fact that the majority of new clearing of agricultural land in the forest is for the cultivation of maize, supports the idea that strangers are the ones clearing the forest today. The reason for this is that the well-irrigated land that could support rice has largely already been cleared, and other commonly grown crops can be grown on previously cultivated land. People who grow maize are likely to be Antandroy (whose staple food is maize), and/or others who need a cash crop because they do not have rice fields (or productive enough rice fields). Non-Sakalava strangers are the least likely to own rice fields, and therefore the economic pressures on them are the most. Large-scale logging, another cause of drastic deforestation, was reportedly initiated by people from outside the village, who hire local men to help them. Wage work is also most likely to be taken by those who do not own rice fields. Réau's detailed analysis (2002) of Antandroy motivations for migrating to the Menabe to earn money further supports the common local perception that it is mainly the Antandroy who are carrying out these activities. However, while deforestation in the region has been, indeed, largely due to Antandroy activity, destitute groups of people, including other migrants and even some natives, have also more recently begun clearing the forest (Réau 2002).

Another important factor in the economic pressures affecting new clearing of forest land is the availability of water. Bevoay, a village upstream from Andranomena, had very productive rice fields until the Andranomena River shifted from a surface flow to an underground flow for a stretch, only to resurface beyond the village's rice fields. After the water supply diminished, cultivation on forest land increased dramatically, since the productivity of the rice fields decreased and many rice field owners found it difficult to survive (Deeg 2000). In other villages with limited water, forest destruction occurs at a much greater degree than around Andranomena. On a larger scale, drought is a common reason for migration from the south part of the island, which in-

evitably puts additional population pressures on the areas migrated to (Réau 2002).

Alongside economic constraints, people from other regions (for example, Atandroy) do not have the same restrictions, in the form of traditions and taboos, as the Sakalava, and therefore could exploit resources differently. For example, Antandroy do not value the forest for its own sake in the way the Sakalava do, only as a means to an end. Nor do they have the same fear of forest spirits as the Sakalava (Réau 2002).

Values Expressed in the Landscape

The examination of the landscape from the local point of view reveals several important aspects of culture and economics in the Menabe. First, the stranger/native distinction is important because of its role in the socio-economic structure of the village. Natives and strangers, though considered equals from a social point of view, are not on equal economic footing. Natives retain control over the most productive lands in the village. In addition, the rules for use of other lands limit strangers' ability to make long-term investments. Another important social distinction is that of locals vs. outsiders. The presence of outsiders in the village, such as people working in the Reserve, complicates the traditional dynamics of natives and strangers. The economic power of these outsiders conflicts with the traditional village power system.

Another aspect demonstrated by the way the Sakalava use the land is the high value they place on humility and community cohesion. The strong societal pressures to conform, not to act as if one is better than one's neighbours, and definitely not to act like royalty, are behind an ostensible reluctance to improve pieces of property in villages. People of other ethnic groups, and especially those with different economic background, do not share these values to the same extent as the Sakalava.

A third theme is the importance of customary verbal agreements for the use of land. Gaining permission from the landholder identifies the user as a guest, and ensures that taboo places that would be unknown to non-locals will be respected. The custom of asking and granting permissions rather than buying and selling land reinforces the native/stranger dichotomy as well as the power and responsibility the masters of the land hold. The more powerful people grant access to the less powerful as a demonstration of their power. They would not deny a person the right to make a living—that would be inhumane—but the asking is important. Taking without asking means that one is at least on equal terms with someone. Forest and former forest land, understood as public resources, are an important source of basic subsistence needs for all, and especially for the most economically disadvantaged members of the community. Ownership of land is not all-important because land does not in itself represent wealth; it is rather a means to earn livelihood and wealth. The idea of owning the land one uses challenges the traditional power structure, in which the asking and granting of favours is key.

A final aspect is the symbolic importance of the forest. The most sacred places in the Sakalava culture, the tombs and dwellings of ancestral spirits, are associated with forests and trees. Town and forest form an antagonistic pair. The forest is the location in the physical landscape for all that is hidden but necessary in society—the dark, the taboo, the painful, the fearful—allowing the village to be open and communal.

The underlying Sakalava attitude towards nature is that of a small outpost of civilisation in a great forest: nature is something to be used, inexhaustible, more powerful than humans, and something to be kept at bay lest it engulfs the settlement. This attitude, and the subsistence level economy of which forest products are a major component, can explain some of the levels of deforestation in the Menabe. Sakalava feelings toward the land appear ambivalent: they seem to value both a semi-nomadic way of life based on getting, clearing, and exploiting land, and a permanent and protective relationship with the land. In this way, there are traditionally some limits imposed by the local population on the extent of use of the forest, often taking the form of avoiding taboo areas. In the case of rampant deforestation, whether for crops or for logging, this traditional system of permissions seems to have been bypassed at least some of the time. While natives certainly contribute to the problem of deforestation, economics point to strangers within the local population having an even greater effect on the forest. Réau (2002) attributes forest cultivation to the quest for money, with the end goal only of increasing one's herd of cattle. While increasing one's cattle wealth was the long-term goal of most Antandroy and Sakalava, in actuality, food security was so tenuous that the short-term goal of survival took precedence for most. Forest cultivation seemed to occur primarily in order to obtain staple foods, whether maize was consumed or sold for money to buy rice.

DISCUSSION

Real and Imagined Landscapes

When the categories of land discussed above are viewed alongside the modern system of land administration, it becomes clear how fundamentally different the local and modern conceptions of the landscape are. Land use in Madagascar in the broadest terms is officially dictated at a national level. In addition, local positions of power within the authorities controlling rural land use are not determined at a local level, but according to institutional politics. This sets up a parallel modern system of land administration alongside a traditional one, each hardly acknowledging the other.

From an outsider's point of view, the traditional system of land use seems to be non-existent or outmoded, since the local people are apparently destroying the forests indiscriminately, with no rule of law. For the local people, the government system is an imaginary one imposed on the land. The traditional

boundaries dividing territories, properties, types of land, and sacred/taboo places, are invisible but very real to the villagers. The labels of private property, public land, protected area and national forest, and the regulations that accompany them, do not match the traditional land use conventions. Rules seem arbitrary, and are followed only when the fear of punishment outweighs the profit to be made by breaking them, not because they make sense. The forest is understood as a resource to be used, not as something precious to be protected. Modern attempts to limit or control land use conflict with this attitude and the traditional power structure expressed in the native/stranger and permission based systems. At the same time, modern attempts at development and improving the economic situation for rural people tend to conflict with the high value placed on conformity and the symbolic value of the forest. Pressures to change traditional ways of understanding the land are both explicit (the creation of protected areas) and implicit (development projects which encourage different usages of land) in modern conservation measures.

Modern Forces Affecting the Landscape

The forces behind deforestation are, unsurprisingly, hunger and the quest for economic gain. The sustainability of traditional Malagasy land use practices, at least in an environment as sensitive as the western dry forest, is highly debatable. However, those involved in carrying out the deforestation are not acting in a vacuum. While the modern mindset espouses conservation, modern forces have also contributed to and even accelerated deforestation. By opening up foreign markets for valuable timber such as rosewood, encouraging large-scale deforestation by timber companies and, at the same time, creating forest reserves, colonialism fostered changes in forest use. The local people were faced with conflicting ideas put forth by the French that the forest should be, on the one hand, exploited for profit, and on the other hand, closed to all use. These seemingly opposed approaches are actually similar. In either case, the forest has boundaries placed on it, and is no longer open to the subsistence level use that rural people were accustomed to. Each one values enterprise, and state control over the local population. In the case of forest exploitation, the local population should settle down and make money for the colonists; in the case of blocking forest access, people should settle down and make money for themselves (with which to buy alternatives to what they were formerly simply acquiring from the forest). In the light of these demands, it is no wonder that locals tended to continue their burning and personal use of forest resources. Perhaps the more forward-thinking among them were attempting to get whatever they could out of the timber industry before the forest disappeared.

Petroleum explorations that took place in the early 1970s[17] contributed to the changing scenario of the forest landscape. American oil company prospectors constructed one-lane dirt roads in large grids all over the west of Mada-

gascar, to facilitate testing for petroleum at regular intervals. They were allowed to construct roads across protected as well as unprotected forest land. The project offered temporary employment for many Malagasy and the promise of more jobs if oil was found. However, not enough oil was detected to make extractions worthwhile.

The roads facilitated entry into the virgin forests for lumber extraction and access to well-hidden land to clear-cut for cultivation. The roads provided avenues for a more profitable (and less sustainable) rates of exploitation of forest products. It became possible to extract lumber from deep within the forest.[18] In addition, the pattern of exploitation along the gridlines of the roads made for fragmentation of the forest habitat (that would otherwise have not occurred with unidirectional encroachment from population centres into the forest).

The roads also provided a more abstract (but no less significant) psychological gateway into the forest. After noticing that the foreigners returned unharmed from the unknown depths of the forest, the enterprising Malagasy decided to exploit the forest adjacent to these roads. While industrialists scoff at the quaint superstitions and encourage people to overcome their fears of the unknown in the name of progress, these resistances may tacitly point to the important cultural functions served by the deep dark forest.

Modern influences do not solely promote conservation. Directly or indirectly, modern forces have an effect on the economic and social structures of villages. The modern influences behind a shift toward a cash-oriented economy and promoting large-scale exploitation of resources for profit have had significant negative effects on the environment.

Repercussions for Conservation

The rural populations of the Menabe understand the importance of the forest, and the danger of losing it altogether. That is, the forest is important both as a reservoir of physical resources to be used, as well as a place imbued with symbolic and cultural meaning. They are not entirely convinced, however, that the Reserve, with its closed access (except to paying tourists) and 'No Trespassing' signs posted around the perimeter, serves their purposes. Meanwhile, the forest continues to be destroyed at an alarming rate. A complex set of traditional, historic and current influences are behind this paradox.

Modern pressures to conserve the forests may, ironically, be at odds with traditional pressures to conserve, due to the gap in understanding between the two realities they represent and the power dynamics between their proponents. Because of historical precedents, the local population is sceptical about the motives of conservationists. Conflict between traditional pressures to exploit the forest and modern pressures to conserve, is to the locals a conflict between the traditional pressure to consume conservatively (at the level of need) and the modern pressure to consume immoderately (at a level of profit).

By taking, delineating, buying, or selling the land they have never worked, the colonists and Malagasy government agencies alike incur resentment among the elders who follow the old system of first-come, first-served and asking permission of the landholder. Charging an entrance fee for the Reserve (though it is very small for locals) disenfranchises the natives by taking the authority of granting permission out of their hands and giving it to the strangers. It places the forest into the realm of those who have cash, not those who know the land, and who, as 'children of the land', are entrusted with upholding tradition.

Worse, some local people feel that with the establishment of protected areas, the traditional system of regulation is being supplanted by a corrupt system under which traditional leaders have no control over who comes and goes. Stories of corrupt officials profiting from forest exploitation are common.[19] Whether or not these are true, they illustrate the very real atmosphere of mutual mistrust and general lawlessness in which deforestation is taking place. Local people view the system as inequitable when large-scale violations continue to take place, whereas the locals are not technically allowed access even for the collection of food, in the case of the Reserve.

Furthermore, the history of outsiders imposing upon the Sakalava and their land is very much alive in the memories of the residents. Even today, locals view those in the federal government as strangers, almost as a foreign power. In all facets of life, the village complexes govern themselves whenever possible and stay away from the regional and national governments, which they see as having very little to do for them. Réau (2002) finds that in both the Menabe and the homeland of the Antandroy, '...the state is perceived as something other, on the outside, with no interest at all in the rural populations'. In everyday speech, the villagers do not distinguish among colonial masters, the Ministry of Water and Forests, ANGAP and any other organisations in control of the forests, but refer to them all as the *lehiben'ny ala* (forest boss). The gap between the administration and the village level organisation is accentuated by the fact that forest officials are never from the village, and many not even from the region. To ANGAP's credit, they are making an effort to involve populations that live around protected areas in the management of those areas. However, since local people do not make a great distinction between the various incarnations of the 'forest bosses' they have seen over the years, they remain extremely wary of the organisation.

As part of ANGAP's conservation strategy, money generated from tourism is supposed to go back to the community. However, for local people to believe that will happen, and to conceive of ways to use that sort of money, would entail a major shift in outlook. While the benefit of individual gathering from the forest is immediately apparent, the benefit of investing money in the community is not, and there is no natural system in place for creating community infrastructure. This may be because a clan leadership structure does not lend itself to developing infrastructure for the common good, be-

cause the tendency is to work in family groups while keeping the public space neutral. Some members of the community do see value in developing the village, but it would take significant changes before this attitude became dominant.

To be effective, conservation and land management policies must take local culture and economics into consideration. Understanding traditional ways of seeing the landscape is one important component of this effort, and can help explain discrepancies between policy and practice. Rules and regulations placed on the land will not be followed if they conflict with what people consider the 'real' rules, or if the benefits of breaking them outweigh the risks. The effects of local socio-economics on conservation and development projects should be investigated, as well as the long-term economic and social effects of those projects on the various groups within the local population. These effects need to be analysed at a local level, while national economic trends affecting population movements are also key. The incorporation of the insights gained in this type of approach into conservation efforts has the potential to make them more culturally appropriate, relevant, and effective.

With no change in practices, sooner or later, either there will be no more forest left, or the only forest left will be held with strict limitations on access. In this situation, not only must agricultural practices change, serious infrastructure and cultural transformations also need to be undertaken. It will be necessary to adopt technological solutions and appropriate farming practices that allow cleared land to be indefinitely productive. Techniques for cultivating forest products would need to be developed, or reforestation would have to be undertaken. Many of these techniques already exist, and many organisations have been promoting them for years, but they have yet to be adopted by the general population. These solutions involve much greater investments of time and effort than do current habits. Not only that, they would involve changing a whole economic system that has a cultural basis. The current system is not necessarily the most productive but, as we have seen, it serves important cultural functions.

Physical or societal limitations on migration would also have a deep cultural impact, for the Malagasy understanding of the land is bound up in the idea of finding new places to go while strengthening ties to one's homeland. Réau (2002) finds projects encouraging the Antandroy to remain on their cleared land and adopt a sedentary lifestyle to be of dubious long-term viability.

CONCLUSION

Culture and environment are inextricably linked. Not only are cultures shaped by their environments, but humans unavoidably affect their surroundings, no matter how simple or complex their technology. A landscape approach is a useful tool in the analysis of deforestation in Madagascar, because it affords a

unique perspective on culture and economics in relation to the physical environment. This type of broad approach can better identify trends through time and across wide areas, and can lead to a more nuanced understanding of all the factors at play, than would a more focussed investigation of specific issues. Through an examination of the ways in which the people who live in Andranomena define and use their land, it is possible to gain a better understanding of the social and economic dynamics of the area. In view of these dynamics, the vast level of deforestation in the Menabe begins to make more sense. The underlying causes for deforestation are economic pressures and traditional farming techniques, and the process has been speeded up by outside social pressures and physical changes to the landscape. Various socioeconomic groups within the village have different effects on the landscape. Non-compliance with rules regarding protected areas has many possible reasons, including a disregard for the authority of the forest officials, corruption within the system, and genuine need. These insights may serve to explain why some conservation efforts are unsuccessful and suggest ways to improve them.

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Notes

1. The analysis in this essay is based on information gathered during 1999–2001, when I lived in the village of Andranomena as a Peace Corps Volunteer, with visits to neighbouring communities. My assignment was to assist *l'Association Nationale pour la Gestion des Aires Protegées* (ANGAP, the National Association for the Management of Protected Areas) in their goals of increasing ecotourism at the nearby Andranomena Special Reserve, local development, and environmental education. I was also expected to work with other organisations in the area and directly with local people. Despite my intended objectivity here, I want to acknowledge that my presence in Andranomena was not a neutral one, as the Malagasy people I lived with recognised. The observations and opinions contained herein reflect my independent research and views. They do not in any way represent opinions of, or work done for, the Peace Corps, ANGAP, or any other organisation. The Malagasy points of view I summarise here are compiled from conversations and interviews with individuals, which are documented in my field notes. My orthography of Malagasy words reflects the Sakalava Menabe dialect. The scope of this essay is limited, as research was not my primary function in Andranomena, and because I have limited library access since I am not currently affiliated with a university. It should, nonetheless, provide some useful information, and suggest topics for future study.

2. Baum (1995: 447–449) describes *Adansonia grandidieri*'s distribution and uses, and states that 'most mature *Adansonia grandidieri* now grow in open, agricultural land or degraded scrub rather than in forests. There is a noticeable lack of young trees in these disturbed ecosystems, suggesting that recruitment is low.' The Malagasy name, *reniala* (mother of the forest), points to its original habitat. Réau (2002) cites data indicating that none of the dry western forest will regenerate after clearing.
3. Réau (2002) explores the prominent Antandroy (or Tandroy) example of this phenomenon. His article examines many of the same themes as this essay, from the point of view of this immigrant population. His study area was the region south of Morondava, an area with many cultural and geographical similarities to the Andranomena area.
4. As noted by Astuti (1995), Bloch (2001:296-298), Marikandia (2001), Yount et al. (2001:287) and others, the traditional definitions of 'ethnic group', 'tribe', etc. are not completely applicable to Malagasy cultural identities, which are flexible and not always descent based.
5. Le Bourdiec (1980) discusses the influence of immigrants (Merina, Betsileo and Antesaka, in particular) on the development of Sakalava rice farming.
6. This type of use can actually add up to a great deal. House and fence construction in Andranomena, similar to what Seddon et al. (2000) describe for the Mikea, required numerous saplings and small trees. Baobabs, however, were never felled for any reason. Baobab bark was used for roofing by a few immigrants to the area, but can be peeled off in great sheets without harming the tree (Baum 1995).
7. Similarly, the majority of charcoal production in the Mikea Forest, in the south-west of Madagascar, is destined for non-local use (Seddon et al. 2000), and is an important component of the local economy.
8. ANGAP is an unusual institution, having characteristics of a both a private organisation and a government agency. It is an association of non-governmental organisations, universities, government ministries, and individuals.
9. Protected areas fall into three general categories: National Parks, Special Reserves, and Strict Nature Reserves (Réserves Naturelles Intégrales). National Parks are open to the public, with an entrance fee. Special Reserves are set aside to protect specific ecosystems or threatened species, and public access varies (some, such as Andranomena, encourage tourism). Strict Nature Reserves are closed to the public.
10. For regional variations on these terms, see Marikandia (2001), and Feeley-Harnik (1991). The Ndembu of what is now Zambia have similar structures (Turner 1967). The Kaguru people of East Africa have categories of arable land similar to the Sakalava's, and their concept of land 'ownership' is also linked to ancestors, 'a mystical rather than a simple legal tie caused by the first settlement' (Beidelman 1971). See Réau (2002) for a discussion of the evolution of relations between established residents (*Tompontany*) and Tandroy immigrants in the Menabe, and the consequences for land use.
11. Rural villages are grouped into *fokontany* (village complexes). The Andranomena village complex is made up of four villages, with the seat in Andranomena.
12. According to Thompson and Adloff (1965: 483), *baibo(ho)* is 'fertile land made up of alluvial deposits left by river floods'. In some villages, the term *baibo* was used to describe vegetable and fruit tree plots not technically on river banks. In Bevoay, they were close to the village, for security, instead of by rice fields. The gardens were still comprised of distinct family plots (Deeg 2000).
13. Beidelman describes the roles of the forest/town contrast in terms of dangerous and powerful wilderness versus ordered society for the Kaguru. The boys' initiation takes place in the wilderness, and their symbolic return to society as men is reflected in their physical return from the bush. The bush is associated with contact with powerful supernatural forces as well as with polluting elements of society, such as witches, polluting diseases, defecation and trash (Beidelman 1986). Turner explores the concept of liminal states of people undergoing rites

of passage in *The Forest of Symbols: Aspects of Ndembu Ritual*. People in a liminal state (such a boy being initiated) are not defined by society (he is neither a boy nor a man) and are often interpreted as 'polluting'. As such, they must be secluded from society until they have completed the transition. The bush is the physical location in the landscape where this seclusion must take place (Turner 1967). For the Kaguru, wilderness is characterised as feminine and chaotic, and the village as masculine and orderly, whereas these concepts do not seem to be loaded with gender symbolism for the Sakalava (Beidelman 1971).

14. The views of, and uses for, the forest observed in Andranomena echo those described by Réau (2002).
15. Réau (2002), after Ottino, puts the transition from *hatsake* to *monka* at the fourth year (at least) of cultivation. Whether this difference is due to a local variation in terminology, or if the land in the Andranomena area is more rapidly depleted than other land in the region, is a question for future research. His term for first-year cleared land, *hatsabao,* was used in Andranomena to describe newly burned land, but I use the term *hatsake* here, since it was employed as a general term which included *hatsabao*.
16. Seddon et al. (2000) and Réau (2002) discuss maize as a commodity in detail.
17. Seddon et al. (2000) note the existence of 'petroleum research roads established early in the 1960s' in the Mikea forest. It seems the first roads near Andranomena were put in during the 1970s, at the earliest, and others were added during the following decades, although I have been unable to pin down more precise dates.
18. In their analysis of deforestation in the Mikea forests in the south-west of Madagascar, Seddon et al. (2000) find that charcoal production and commercial timber extraction are usually limited to areas with adequate road infrastructure.
19. Seddon et al. (2000) reported stories of Water and Forests officials actively taking part in charcoal production in the Mikea forest.

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