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Evaluating the Effects of Colonialism on Deforestation in Madagascar:
A Social and Environmental History

Claudia Randrup

Candidate for Honors in History
Michael Fisher, Thesis Advisor
Oberlin College
Spring 2010

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INTRODUCTION

The French colonial period in Madagascar (1896-1960) introduced deforestation of an unprecedented scale. Colonial rule exacerbated existing social, economic, and political inequalities, leading to a number of damaging environmental consequences. Malagasy communities suffered from loss of auxiliary forest resources as the colonial state appropriated forests and harvested timber, destroying habitats and making forests inaccessible in the process.¹ As a result, local communities' bonds with forests weakened, forcing many Malagasy to seek wage work on plantations and thereby distancing them from environmental stewardship. Ultimately, this has led to difficulty implementing conservation measures post-Independence, since the problematic association of conservation and colonialism in peoples' minds inhibits environmental measures from being truly effective.

Over time, forests played many roles in Malagasy communities and in French colonial agendas. As a result, many diverse groups fought over Madagascar's forests during the period of French colonial rule. These groups had numerous different, and often competing, ideas about forest use. For many Malagasy, forests provided resources for subsistence living, materials for construction, and opportunities for income. As unparalleled reservoirs of biodiversity, these forests held many resources that local Malagasy communities used. For forest dwellers, forests functioned as a location for diverse activities such as apiculture and charcoal production. Malagasy farmers also cleared forested land for agriculture when no other arable land could be found. Outside of local communities, some Malagasy who were engaged in resistance movements against the colonial state sought arboreal shelter from the French military, prompting

¹ The native people of Madagascar are collectively referred to as the *Malagasy* people. The language of Madagascar is also referred to as *Malagasy* language.

the military to thus target forests as harboring Malagasy rebels, especially in the early years of colonial rule. Valuable to all these competing groups as the forests were, much deforestation nonetheless occurred as a result of colonialism, whether directly (e.g., logging for timber exports) or indirectly (e.g., arson by from Malagasy resistance).

French colonial economic practices followed the course of many other colonial regimes in Africa. Fueled by an attitude that the colony's natural resources should serve the industrialization and development of the metropole, the French pursued a program of resource appropriation in Madagascar that heavily restricted land use by Malagasy. Logging and agricultural concessions to the French turned natural resources directly into economic commodities. Colonial logging concessions resulted in many felled forests. Concessionaires exported precious hardwoods for profit, while the colonial administration employed less valuable timber for public works projects such as railroad construction and other improvements to Madagascar's infrastructure. Agricultural production on French and some Malagasy plantations focused on export cash crops like coffee and vanilla from which French companies could profit handsomely with little regard to the food shortages suffered by displaced Malagasy. These activities led to significant forest loss in the first thirty years of colonial rule.

Both Malagasy communities and the land suffered environmental consequences. The colonial presence altered the relationships of Malagasy people to the forests. Displacement by logging and agriculture caused many Malagasy to flee to any remaining forests to escape the reach of the colonists, thereby reinforcing the Malagasy's ties to the land. Alternatively, the expanding colonial presence (manifested through forest appropriation and imposed taxes to raise colonial revenue, and exacerbated by food shortages due to an export-based economy) intentionally drove other landless Malagasy toward plantation work, seeking wages to pay new

colonial taxes and correspondingly weakening their ties to the land. Thus, while from one perspective, forests became a haven from colonial influence for rural Malagasy, from another perspective, the colonial government appropriated forests to pursue economic aims. As forests disappeared and communities endured forced relocations, the traditional relationship between rural Malagasy and the forests inevitably shifted. Introduced land pressures (such as the appropriation of fertile land by colonists and concessionaries) increasingly drove Malagasy to cut down forests for subsistence agriculture, which only compounded forest loss and environmental degradation.

Matters became more complicated with the creation of the first *reserves naturelles* in 1927. The French colonial administration established ten reserves in an attempt to address the deforestation issue (brought into the public forum by French naturalists Henri Humbert and Henri Perrier de la Bâthie) and to appease sections of the colonial administration like the Forest Service that expressed mounting concern with respect to forest resource management. This legislation completely excluded Malagasy communities from the forests in the name of conservation. Furthermore, it allowed the French to champion their own conservation efforts—effectively masking the serious deforestation the colonial government had caused—and simultaneously demonize Malagasy forest use, accusing them of overexploiting the forests when they did not heed French legislation.

Such actions not only criminalized traditional Malagasy forest use but also incensed some Malagasy to intentionally violate the conservation legislature. The French colonial forest service allowed no provisions for the Malagasy who relied on forests for access to its resources. A major deficiency in protective legislation was its insensitivity to local communities' traditional relationship to the land and associated natural resources, a relationship characterized by small-

scale resource harvesting from forests. The protective legislation therefore had the unintended consequence of aggravating tensions between the French colonial administration and the Malagasy, affecting Malagasy views toward conservation efforts even in the present day.

When political tensions erupted during the colonial regime, the Malagasy used forests to their advantage in fighting or fleeing the colonists, leading the French military to pursue deforestation as a coercive strategy. For example, during the *pacification* program in the first decade of colonial rule, the French colonial government pursued systematic deforestation in the south of Madagascar because the spiny forest made it difficult to control the Tandroy living there.² Alternatively, when Malagasy rebels fought for independence in 1947, forests in *réserves naturelles* provided a base for operations and sheltered the rebels against the French military. These incidents illustrate enduring relationships among rural Malagasy communities and forests.

This thesis examines the relationships between colonialism and deforestation. By exploring the relationship between the colonial regime, the allocation and appropriation of forest resources, and the effectiveness of forest protection legislation, this paper illuminates trends in Madagascar's conservation history that can be used to formulate the recommendation of appropriate policies for forest conservation and management in the future. I furthermore explore methods of resistance and the shaping of attitudes about conservation. I base recommendations for future conservation strategies on this environmental historical analysis of the intersection between colonialism and deforestation. The root causes of today's ineffective protected area management strategies lie in historical precedent; by drawing out and discussing the evolution of early conservation systems in Madagascar and how the Malagasy responded to them, one can reach instructive conclusions about contemporary approaches to conservation.

² In Madagascar, the name of a region (*Androy*) is the base for the name of the people of the region (*Tandroy*, or more formally, *Antandroy*).

Methods and Historiography

The information presented in this paper is a synthesis of information drawn from historical and scientific sources, with contributions from various other disciplines including geography and anthropology. Primary sources were collected from the Archives Nationales d'Outre-Mer (ANOM) in Aix-en-Provence, France, in August 2009 and January 2010, and the Academie Malgache in Antananarivo, Madagascar in November and December 2009.

Interviews conducted in the *comite* of Analafaly, near the commune of Faux Cap on the southern coast of Madagascar in the Androy region, during the fall of 2009 provided the information about Analafaly's sacred forest. A variety of secondary sources complement these documents; they afford a variety of perspectives on issues relating to colonialism, deforestation, and conservation in Madagascar.

The current scholarly debate over the extent and origin of deforestation, especially in the central highlands, illustrates divergent opinions about contributing factors to forest loss in Madagascar. Recent scholarship on deforestation in Madagascar can be roughly separated into two categories. The first group produced articles based on assumptions established by French naturalists Humbert and Perrier de la Bâthie, attributing historical deforestation to *tavy*.³ Daniel Gade is one example of this type of scholar. Scholars of the second group, grounded primarily in political ecology, examined the myriad of conditions surrounding resource use that contributed to forest loss, expanding their considerations of deforestation to include discussions of politics, society, economics, and culture. The works of Lucy Jarosz and Christian Kull exemplify this

³ *Tavy* is Malagasy for the form of swidden agriculture practiced on the island. The French *feu de brousse* is comparable. There are many forms of *tavy*, from brushfires to forest fires, as it is used for various ends.

scholarship. Furthermore, as technological advances facilitate detailed data collection, a wave of scientific studies introduced better quantitative estimates of historical deforestation. Among these studies was a landmark 1990 paper by Glen Green and Richard Sussman, who used satellite imagery to investigate the rate and extent of deforestation in Madagascar post-Independence.

Daniel Gade's background in cultural and historical geography informed his reading of the Malagasy landscape. Gade unequivocally attributed deforestation in Madagascar's central highlands to anthropogenic activity, primarily shifting agriculture. Gade cited a string of supporting research by French scientists, starting with the seminal works by Perrier de la Bâthie (1921) and Humbert (1927). Gade pointed to the recent scientific scholarship that builds off of Perrier de la Bâthie and Humbert's conclusions and drew supporting evidence from his own analysis of the highlands' ecology. He dated the destruction of the highland forest to long before colonialism. However, the French claimed forests for the state starting in 1900 and sold land concessions that led to exploitative forest use; Gade agreed that "more than 7 million ha of forest were destroyed in the first three decades of the colonial period."⁴ Even after 1930, by which date colonial forestry codes slowed this overexploitation and set aside land for natural reserves, Malagasy peasants continued to burn and use forests illegally for subsistence agricultural production. Gade's argument was rooted in the tradition which encourages outsiders to instruct the Malagasy in "proper" and "rational" land use methods, not fully appreciating the intrinsic value of the social and cultural significance of *tavy* and other traditional relationships to the forest. Moreover, Gade strongly contended that deforestation historically resulted primarily from peasant burning.

⁴ Daniel W. Gade, "Deforestation and Its Effects in Highland Madagascar," *Mountain Research and Development* 16:2 (May 1996), 106.

Glen Green and Robert Sussman also based their research off forest estimates from Humbert, but they used quantitative methods to expand these forestation measurements. Green had a strong background in quantitative methodologies and an interest in resource management and anthropogenic environmental change, and Sussman was a physical anthropologist with an interest in development and conservation. In their 1990 article, Green and Sussman pointed out that none of the earlier estimates of forest loss “were based on reliable ground or aerial surveys, and each consisted of extrapolations from earlier estimates.”⁵ Green and Sussman drew on maps (from a 1965 study by Humbert and Cours Darne) and satellite images (1972-73 and 1984-85) to estimate the area of eastern rain forest cover and the deforestation rate during the period 1950-85. This research was significant for a number of reasons. It represented a more quantitative approach to measuring deforestation than previous estimates. Although Green and Sussman measured the 1972-73 and 1984-85 data against Humbert’s estimates from 1950, they at least recognized the fallibility of previous estimates of forest cover. Green and Sussman found correlation between deforestation and human population densities. The authors also linked lower deforestation rates between 1973 and 1985 with “a diminishing pool of accessible forests on all but the steepest slopes.”⁶ Green and Sussman concluded that “establishment of reserves in itself does not guarantee protection,” showing rather “active deforestation fronts” penetrating reserve boundaries.⁷ They recommend that “sustainable agriculture and agroforestry to provide local inhabitants with needed food and fuel, accompanied by reduction of population growth” must occur before Madagascar’s rainforests can be effectively protected.⁸

⁵ Glen M. Green and Robert W. Sussman, “Deforestation History of the Eastern Rain Forests of Madagascar from Satellite Images,” *Science* 248:4952 (Apr. 13, 1990), 212.

⁶ *Ibid.*, 214.

⁷ *Ibid.*.

⁸ *Ibid.*, 215.

In contrast, Lucy Jarosz argued in 1993 that deforestation was a product of a multitude of factors, and that in Madagascar the specific pressures of colonialism on food production caused Malagasy farmers to turn to shifting cultivation. Jarosz, a geographer whose research interests extend to rural poverty, development, and agricultural issues in southern Africa, integrated concepts of political ecology with regional geography in her reading of deforestation in Madagascar. Jarosz's research drew on Marxist, feminist, and post-structural theories to explore how politics, economics, society, and the environment interconnect. In her work on deforestation in Madagascar, Jarosz looked at systems of land use, specifically the agricultural plantations created from colonial concessions, as root causes of deforestation, rather than strictly blaming shifting cultivators. She argued, "Considerations of the dialectical relation between land-based resources, human groups, and the global political economy leads to a more complex explanation of deforestation. The forces of colonial capitalism, mirrored in state actions and policies concerning natural resource extraction and export crop production, triggered changes in land use practices which dramatically affected tropical forest cover in Madagascar."⁹ Under colonial rule, pressures on Malagasy farmers mounted. Land pressure from cash crop plantations caused shortages of rice (the staple food of the Malagasy people) as families turned increasingly to wage labor on plantations in order to pay colonial taxes. Agricultural plantations fueled the colonial state, exporting products including coffee, rice, and beef, and led to "a pattern of uneven economic development and regional fragmentation."¹⁰ Jarosz contended that, "as the most fertile areas were devoted to export crop production, cultivators cleared forested slopes for

⁹ Lucy Jarosz, "Defining and Explaining Tropical Deforestation: Shifting Cultivation and Population Growth in Colonial Madagascar (1896-1940)," *Economic Geography* 69:4 (Oct., 1993), 367.

¹⁰ *Ibid.*, 370.

subsistence.”¹¹ Even as the colonial state worked to conserve primary forest for “rational” management schemes, it was pushing Malagasy farmers to more marginal lands. The French banned *tavy*, but the ban was ineffective; the Malagasy people continued to practice *tavy* because of its immense cultural and economic significance. Furthermore, Jarosz examined the effect of colonial forest concessions on forest loss. Despite objections by the Forest Service, who complained of the exploitative nature of concessions, concessions expanded in the 1920s. Jarosz stated that “roughly 70 percent of the primary forest was destroyed in the 30 years between 1895 and 1925” even as population growth slowed, even dropping below the replacement level.¹² The colonial administration nevertheless attributed forest loss to anthropogenic activities including “burning and clearcutting, construction of the colonial infrastructure, and shifting cultivation.”¹³ Jarosz’s argument that Madagascar’s forests “were transformed into fields for cash crops” found support in records of colonial economic activities.

The works of geographer Christian Kull also explored the multifaceted causes and consequences of deforestation. Informing his interpretation and analysis of deforestation in Madagascar were Kull’s background in geography and environmental science and his stated research interests in political and cultural ecology, social aspects of environmental transformations, struggles over natural resources and character, and community-based resource management. His 2004 book, *Isle of Fire*, examined the relationship between Madagascar’s political, social, and economic structures, and *tavy* through the lens of political ecology.¹⁴ In this work, Kull situated deforestation as a result of interconnected factors beyond *tavy*, and his

¹¹ Ibid.

¹² Ibid., 375.

¹³ Ibid.

¹⁴ Christian A. Kull, *Isle of Fire: The Political Ecology of Landscape Burning in Madagascar* (Chicago: The University of Chicago Press, 2004).

scholarship on the history of conservation efforts and on the evolution of the ecology of highlands Madagascar both evidenced his consideration of complex issues like burning and forest loss. Earlier articles examined the history of conservation efforts in Madagascar by looking at shaping influences from the colonial period to the present and challenge dominant environmental narratives regarding deforestation, erosion, and the role of fire in landscape change.¹⁵

Two comprehensive accounts traced Madagascar's history from the first human settlement to the present. Mervyn Brown's *A History of Madagascar* was the first modern English-language historical account of Madagascar, first published in 1978 and updated to include recent history in 1995.¹⁶ Mervyn Brown formerly served as British ambassador to Madagascar, and his history was decidedly Anglo-centric, with much emphasis given to the Merina kingdom as well as to the role of Christianity in it.¹⁷ Solofo Randrianja and Stephen Ellis's *Madagascar: A Short History* presented a summary of two millennia by concentrating on three periods: settlement and early island transformations (up to 1600), the kingdoms of Madagascar (1600-1895), and the colonial and post-colonial periods (1895 to present).¹⁸ Randrianja was a Malagasy historian with a background in political history and ethnicity and Ellis was a historian who has additionally written on politics and religion in Africa. Mervyn

¹⁵ Christian Kull, "The Evolution of Conservation Efforts in Madagascar," *International Environmental Affairs* 8:1 (1996); Christian A. Kull, "Deforestation, erosion, and fire; degradation myths in the environmental history of Madagascar," *Environment and History* 6:4 (2000).

¹⁶ Mervyn Brown, *A History of Madagascar* (Princeton, NJ: Markus Wiener Publishers, 2006).

¹⁷ The Merina people are located in the central highlands. The Merina kingdom has dominated pre-colonial histories of Madagascar.

¹⁸ Solofo Randrianja and Stephen Ellis, *Madagascar: A Short History* (Chicago: The University of Chicago Press, 2009).

Brown was far more sympathetic to the colonial administration than Randrianja and Ellis, who offer a more balanced perspective on the colonial period.

Current scholarship offers much in the way of complementary academic opinion on environmental history elsewhere in Africa. Karen Brown, of the Wellcome Unit for the History of Medicine, Oxford, in an article published in *Area*, a journal of the Royal Geographical Society (with The Institute of British Geographers), examined the particular historiography of environmental history in Africa. Her paper investigated “some of the historiographical issues surrounding the important resource of trees and forests” in order to further explore themes relating to the role of colonialism in Africa’s environmental history.¹⁹ “The process and impact of European colonialism remains a dominant theme in the narrative,” she wrote.²⁰ Other topics discussed in this article related mainly to silviculture, or scientific forestry, and its cultural and scientific rationales and implications. Karen Brown had written previously on silviculture and agriculture in the Cape Colony in South Africa; this article developed those themes further, supplementing them with a broader consideration of colonialism and forestry.

The European colonization of Africa in the modern period had a tremendous impact on the continent’s environment. Europe began its most recent push to colonize Africa in the late 18th century; by 1900, most of Africa was under European rule (only Ethiopia and Liberia retained their independence from Europe after the “scramble for Africa” articulated during the Berlin Conference of 1884). Colonialism indicated the domination and control of other people’s natural capital, a process aligned to capitalism. Colonialism instituted a reformatting of the colony’s economies, structuring the flow of goods to benefit the metropole at the cost of the

¹⁹ Karen Brown, “‘Trees, forests and communities’: some historiographical approaches to environmental history on Africa,” *Area* 35:4 (Dec., 2003), 344.

²⁰ *Ibid.*, 343.

colony. Domination led to an economic imbalance that facilitated the expansion of European capitalism into the far reaches of the globe.²¹ Political domination was therefore intimately connected to economic, and by extension, environmental, domination, as the colony's natural resources supplied raw materials for economic development. Speaking more broadly, colonialism also caused the exchange of land use practices: Europeans were exposed to indigenous land use practices, but ultimately the European colonials imposed their land use practices on the indigenous population. European land use practices were typically prioritized over indigenous land use practices, resulting in exacerbated tensions between the colonizer and the colonized.

This trend was not limited to Africa, but rather occurred in many European colonies all over the world. To establish a comparative context of this investigation, we turn to the works of Ramachandra Guha, who illustrated the environmental history of forestry and deforestation in India, and Richard Grove, whose research focused on global historical trends in environmentalism. Guha's 2001 article, "The Prehistory of Community Forestry in India" traced forest resource management and legislation.²² The British colonial Forest Department profited from Germanic principles of systematic "sustained-yield" forestry. The 1878 Forest Act articulated the restrictive regulations imposed on rural Indian communities by the colonial state and in later years attracted criticism from social justice advocates, as few understood the social implications for this type of wholesale resource appropriation. Guha showed that the British colonial state appropriated forests and forest resources to the detriment of the poor rural Indian population.

²¹ Ania Loomba, *Colonialism/Postcolonialism* (New York: Routledge, 2000), 2-4.

²² Ramachandra Guha, "The Prehistory of Community Forestry in India," *Environmental History* 6:2 (Apr., 2001).

Grove's environmental historical work on the intersections between colonialism and conservation provided insight into this complex subject. His 1993 article, "Conserving Eden: The (European) East India Companies and their Environmental Policies on St. Helena, Mauritius and in Western India, 1660-1854," drew connections between European colonial expansion (and their capitalist economic principles) and environmental destruction, specifically tropical deforestation.²³ Through an examination of St. Helena, Mauritius, and Western India, Grove showed that European environmental policies demonstrated an understanding of the ecological damage that economic development wrought, and furthermore tried to mitigate further environmental destruction. The introduction of *Conservation in Africa: Peoples, Policies and Practice*, edited by Grove and historian David Anderson, recognized the politicization of conservation efforts in Africa and furthermore set out to investigate why "most government conservation and rural economic development programmes in Africa have been applied without an awareness of the broader social implications they embody."²⁴ This included studying the historical exclusion of indigenous communities in conservation efforts and the misguided development strategies undertaken during both the colonial and post-colonial periods.²⁵

Any analysis of environmental history must avoid romanticizing the past. The works of social anthropologists James Fairhead and Melissa Leach investigated the false narratives relating to idealized past environments and fictional optimal past management of forest

²³ Richard Grove, "Conserving Eden: The (European) East India Companies and their Environmental Policies on St. Helena, Mauritius and in Western India, 1660-1854," *Comparative Studies in Society and History* 35:2 (Apr., 1993), 318-351.

²⁴ David Anderson and Richard Grove, eds., *Conservation in Africa: People, Policies and Practice* (New York: Cambridge University Press, 1987), 3, 6-7.

²⁵ See also Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860* (Cambridge: Cambridge University Press, 1995).

resources. A 1995 article used the examples of Guinea, West Africa, to illustrate this claim.²⁶ Regarding Guinea's forest margin zone, the false claim addressed "the position that local community institutions were once better capable of controlling environmental resources than they are today, and thus of maintaining a forested environment and resisting pressure toward its degradation."²⁷ Giving forests a "moral past" created problematic links between "social and environmental conditions in a way that assists in relieving those subjected to their study of what little resource control they have."²⁸ Fairhead and Leach's further research, *Misreading the African landscape: Society and Ecology in a Forest-Savanna Mosaic* (1996), expanded on this subject and considered the romanticization of the West African landscape by French colonizers during the colonial period, claiming their assumption that savannah landscapes were once forested was false.²⁹

My research argues for three of the particular effects of French colonialism on deforestation in Madagascar. First, the colonizers promoted an economic system that required intensive forest resource exploitation. Second, they disregarded and interrupted traditional relationships between local Malagasy communities and forests. Third, they associated conservation efforts with a legacy of exclusion and appropriation. Thus, deforestation resulted from a larger set of contributing factors that extended beyond *tavy* into the realm of society, politics, and economics. This thesis will yield a richer analysis of the relationship between colonialism and deforestation by developing the work of political ecologists like Jarosz and Kull, showing that deforestation was not the consequence of solely Malagasy activities.

²⁶ James Fairhead and Melissa Leach, "False Forest History, Complicit Social Analysis: Rethinking Some West African Environmental Narratives," *World Development* 23:6 (1995).

²⁷ *Ibid.*, 1023.

²⁸ *Ibid.*, 1024.

²⁹ James Fairhead and Melissa Leach, *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic* (Cambridge, UK: Cambridge University Press, 1996).

Chapter 1 will present the geography of Madagascar and discuss the environmental impacts of deforestation. This provides a rough framework for the consideration of forests in Madagascar's history. Conservation and sustainable forest use are key subjects in the environmental history of Madagascar, and an understanding of the island's unique and fragile ecosystems facilitate a deeper analysis of the impact of colonialism on deforestation and the struggle for conservation that continues today.

Chapter 2 introduces the colonial state and important legislative developments that impacted Madagascar's forests. The French colonial administration inherited a particular legislative relationship between the state and forests. French control over the entire island, united for the first time under a single authority, mixed forest enforcement and colonial domination. Early colonial forestry followed a pattern of granting allowances for the colonists while restricting the use rights of the Malagasy.

I explore colonial systems of resource appropriation and exclusion in Chapter 3. The colonial budget mandated economic productivity, which came at the expense of Madagascar's forests and the rural Malagasy population that depended on them. Logging concessions directly caused significant deforestation, while agricultural plantations displaced Malagasy, leading to greater reliance on *tavy*. The establishment of protected areas in 1927 reflected a mounting concern with resource exploitation within sections of the colonial administration. While it was intended as a positive conservation effort, it completely excluded the Malagasy from the forests, undermining its effectiveness by inciting resistance and rebellion.

Chapter 4 demonstrates that the connection between politics and conservation remained strong even after the colonial regime. As Madagascar's colonial history continued to affect its politics post-independence, conservation efforts changed in correlation. This chapter examines

these parallel trajectories from the late colonial period, starting with the Malagasy Revolt of 1947 and continuing into the present.

Chapter 5 examines how the association of colonialism and conservation, forged in the middle of the colonial period, impacts environmental initiatives in the present. This chapter examines the problems with conservation being associated with colonialism. But it also discusses a case of cultural conservation by Malagasy that was successful despite the pressures and challenges of colonialism. By examining cases across a spectrum of Malagasy life, from *tavy* in the modern era to massive industrial mining projects, this chapter will make policy recommendations to make conservation strategies more effective.

This thesis addresses the nuanced relationship between colonialism and the forests from the colonial period up until the present day. Not only will this analysis yield a richer picture of Madagascar's environmental history, it will also show the social impact of environmental use and regulation on the Malagasy population. The environmental historical investigation of deforestation and colonialism has important implications for Madagascar's political and economic sectors as well as its conservation interests.

CHAPTER 1

Deforestation as an Environmental Issue

In order to better understand the significance of colonialism in the history of deforestation in Madagascar, it is helpful to address the island's physical environment and its vulnerabilities. In this chapter, I will first present the geography of Madagascar and the island's early human settlement and its impact. Then I will discuss the broad environmental impacts of deforestation and show why threats to Madagascar's environment are especially serious. This section will locate deforestation in an environmental context and explain the ecological significance of forest loss in Madagascar on local and global levels. Locally, forest loss deprived Malagasy communities of resources they depended on for their livelihood and subsistence. However, deforestation also threatened a global resource, as Madagascar's forests are reservoirs of biodiversity with high levels of endemism that, among other important uses, are potential sources of medicine.

This chapter will also address the early historiography of deforestation in Madagascar. Agents of the French state framed deforestation as primarily a consequence of traditional Malagasy agricultural techniques. It is evidenced by a historiography rooted strongly in the studies that French naturalists conducted during the early colonial period. In the past two decades, a scholarly opinion has emerged that questions this dominant narrative, suggesting instead a broader consideration of the effects of colonialism on deforestation. Early studies of deforestation ignored important root causes and contributing factors, and provided a basis for racially-charged discrimination that contributed to resurfacing tensions between the French colonial government and their Malagasy subjects.

The Geography of Madagascar

Madagascar illustrates an evolutionary path independent from other continents. The island's unique environment resulted from geologic and ecological conditions that provided the island's flora and fauna millions of years with isolated and specialized evolution. A continental island, Madagascar's separation from Africa began an estimated 165 million years ago and ended 121 million years ago, occurring at approximately the same time as the breakup of Gondwanaland.³⁰ Madagascar separated from India during the late Cretaceous Period (80-90 million years ago).³¹ This created the conditions for relatively isolated biological evolution and high biodiversity. The biota of Madagascar evolved from the species on the island when it separated from other landmasses as well as species introduced via oceanic dispersal.

The island has a variety of ecosystems in its 587,000 square kilometers. Madagascar's southwest region receives very little precipitation and therefore features flora and fauna that have adapted to desert-like conditions. The southern tip of the island boasts extraordinary regional endemism, as the spiny forest ecosystem evolved in response to the hot, dry climate. The west coast consists primarily of sedimentary rock and therefore its soil fertility is below average. From the west coast, the island rises gradually to the highland plateau in the central region, reaching 2,500-4,500 feet above sea level, with the highest mountain on the island attaining a height of just under 10,000 feet. These central highlands receive approximately 50 inches of precipitation annually and feature a colder and more seasonally variable climate than the coastal

³⁰ Philip D. Rabinowitz, Millard F. Coffin, and David Falvey, "The Separation of Madagascar and Africa," *Science*, New Series 220:4592 (April 1, 1983), 69.

³¹ I. O. Norton and J. G. Sclater, "A Model for the Evolution of the Indian Ocean and the Breakup of Gondwanaland," *Journal of Geophysical Research* 84:B12 (Nov. 10, 1979), 6819-20, 6827.

regions. Past the central highlands, the eastern rain forest is a narrow band running the length of the island and is home to numerous rare species, including various lemurs and chameleons. It receives an average of nearly 150 inches of precipitation annually. The varied vegetal and climatic zones found in Madagascar facilitated an extreme biological diversity on the island and an astounding rate of endemism.³² These features render forest loss even more devastating, both locally and globally.

Early Human Settlement

The island of Madagascar remained unknown to humans until fewer than 2,000 years ago, and therefore the anthropogenic impact on Madagascar's natural environment was more contained than most other places on Earth. Some of the first humans to reach Madagascar, likely Indian Ocean traders, stayed briefly in the northern region to gather materials from the forests and then continued their maritime journeys; settlement of this type has been dated as early as 230-530 CE.³³ Other early settlers included Africans and Austronesians. Randrianja and Ellis theorized that "one particular wave of settlement eclipsed all others," as evidenced by the Malagasy language, which falls in the Austronesian language group (although it shows traces of African influence, for instance in the prevalence of Bantu words).³⁴ Permanent settlement certainly occurred before 1000 CE, spreading from original occupancy sites along the northern shores; charcoal particle evidence showed that deforestation occurred in the lowland rainforests

³² Robert W. Sussman, Glen M. Green, and Linda K. Sussman, "The Use of Satellite Imagery and Anthropology to Assess the Causes of Deforestation in Madagascar," in Leslie E. Sponsel, Thomas N. Headland, and Robert C. Bailey, eds., *Tropical Deforestation: The Human Dimension* (New York: Columbia University Press, 1996), 296-7.

³³ David A. Burney et al., "A chronology for late prehistoric Madagascar," *Journal of Human Evolution* 47 (2004), 34.

³⁴ Randrianja and Ellis, 24-26.

starting between 1000-1400 CE.³⁵ Human settlement contributed to the extinction of Madagascar's megafauna through hunting and habitat destruction. Recent research hypothesizes that Madagascar's extinctions might have resulted from a number of factors in addition to hunting and habitat loss, climate and disease among them.³⁶ Anthropologists Robert Dewar and Henry Wright summarized, "There is little consensus on the reasons for the extinctions of the large animals [in Madagascar], but it is likely that hunting, habitat loss, climatic change, and competition with newly introduced species all played a role."³⁷

These settlements were especially linked to the rest of the world via the Indian Ocean trade network. Later migrants sailed across the Indian Ocean or Mozambique Channel; this restricted the influx of farmers and herders.³⁸ Randrianja and Ellis postulated that large-scale settlement of the island resulted from the arrival of immigrants and ensuing conflicts over land, with the "losers" being forced to seek unclaimed territory elsewhere.³⁹ These groups of immigrants may have been the beginnings of the ethnic groups of today, identifying increasingly both with a set of cultural attributes and with the territory they came to inhabit. Fighting between population groups was common and worked to solidify groups as separate from one another.

³⁵ Burnery et al., 30.

³⁶ Elizabeth Culotta, "Many Suspects to Blame in Madagascar Extinctions," *Science* 268:5217 (June 16, 1995), 1568-9.

³⁷ Robert E. Dewar and Henry T. Wright, "The Culture History of Madagascar," *Journal of World Prehistory* 7:4 (1993), 426.

³⁸ Robert E. Dewar, "Does It Matter that Madagascar is an Island?" *Human Ecology* 25:3 (1997), 484.

³⁹ Randrianja and Ellis, 52.

Deforestation

Deforestation is a persistent global environmental problem, and Madagascar's unique biological diversity magnifies the effects of environmental degradation there. Forests serve as biodiversity reservoirs, soil regulators, counters to air pollution, and climate regulators, and also filter water and cycle nutrients. Pressures on the forest, such as fragmentation and overexploitation, have been rooted in population growth, demand for market goods, government support of extraction, and poverty.⁴⁰ As habitats for a wide variety of species, forests are invaluable (especially in Madagascar) as reservoirs of biodiversity. The biochemical properties of forest vegetation make forests a valuable agent against anthropogenic climate change on a global level. Forests aid water retention, reducing soil erosion and easing the severity of floods. Furthermore, forests and auxiliary resources provide raw materials (timber, fuelwood, fodder, food, and various non-timber products) that, when appropriately managed, can be used without threatening the forests' viability. However, when unsustainably exploited, forests change significantly and may eventually disappear. With Madagascar's exceptional level of biodiversity and endemism, such forest loss is an environmental tragedy.

Once the French had conquered the island in 1895, the colonial government viewed forests as a *ressource exploitable*: a resource to be used for the glory and profit of the French empire. French administrative officials promoted forest resource exploitation in order to amplify the colony's economic contribution to the metropole. French concessionaires, granted land by the colonial government in order to encourage the colony's economic viability, profited from timber and agricultural plantations. The French economy benefited from the export of Madagascar's

⁴⁰ For a broader discussion of people and forests, see: UNDP, UNEP, World Bank, and World Resources Institute, *World Resources 2000-2001: People and Ecosystems: The Fraying Web of Life* in World Resources Series (Washington D.C. : United Nations, 2000).

rare hardwoods, and other available and less valuable timber provided material for colonial public works projects like railroad construction in line with the *mission civilisatrice*. Logging and agricultural concessions to French entrepreneurs allowed the clearing of a significant amount of forests. The Forest Service sought to align forest use in Madagascar with European forestry models.

It is important to recognize that with all of its varied ecosystems, Madagascar had never been a completely forested paradise. A theory of a “continuous forest” that extended from the eastern rainforest to the western coast, promoted by noted French naturalists Henri Humbert and Henri Perrier de la Bâthie, dominated environmental discourses about the island through colonial rule. The theory contended that Madagascar was previous 90% forest (current estimates place the figure closer to 30%), that grassland resulted strictly from *tavy*, and that erosion was a consequence of landscape mismanagement (it is currently understood as a partially natural feature).⁴¹ Humbert wrote in 1927, “Temporary indigenous cultivation in forests (*tavy*), abusive logging exploitation, prairie fires, these are the three causes of the destruction of native woodland vegetation in Madagascar. Their common agent, fire, is the factor that man abuses, upsetting the preexisting biological equilibrium.”⁴² Perrier de la Bâthie criticized anthropogenic ecological change from a more dramatic perspective, stating:

Man came; and the marvelous scene edified by the centuries vanished before him.

Forests of the east gradually fell under the axe; those of the center blazed as a pile of

⁴¹ Michael Williams, *Deforesting the Earth: From Prehistory to Global Crisis* (Chicago: The University of Chicago Press, 2003), 343.

⁴² Original text: “*Cultures indigènes temporaires en forêt (tavy), exploitation forestières abusives, feux de prairie, telles sont les trois causes de destruction de la végétation sylvestre native, à Madagascar. Leur agent commun, le feu, est le facteur dont l’usage abusif par l’homme, a bouleversé l’équilibre biologique préexistant.*” H. Humbert, “La disparition des forêts à Madagascar. Ses causes, ses conséquences,” from *Revue générale des Sciences pures et appliquées*, T. XXXVII, no. 11 (15 Juin 1927), 335.

straw; those of the west disappeared more slowly before the fire. A very homogeneous vegetation, invariable in all climates, and a very poor flora, almost all exotic species, took the place of the space made vacant by the destruction of the indigenous...Erosion increased, deep gullies were carved into the sides of hills and mountains, some rivers were filled with sand and others changed their beds. Denuded laterites became harder, more compact and impermeable, and Madagascar was made into what it is today: a great barren, sterile land, covered with monotonous prairie, where we see the last native flora and fauna disappear.⁴³

Scholarly work in the past forty years re-examined the “continuous forest” theory. Much current academic opinion now supports a model of shifting ecological balance that attributes variety in landscape to natural causes, not strictly anthropogenic. Espousing this view, Christian Kull described Madagascar’s past environment as a “mosaic of woodlands, savannah, riparian forest, montane forest, and heathland.”⁴⁴ This natural diversity in ecosystems was not part of the environmental discourse of the colonial era; the French instead mourned the non-forested areas,

⁴³ Original text: “L’homme vint; et ce merveilleux décor édifié par les siècles s’évanouit devant lui. Les forêts de l’Est tombèrent peu à peu sous la hache; celles du Centre flambèrent comme un monceau de paille; celles de l’Ouest disparurent plus lentement devant les feux. Une végétation très homogène, invariable sous tous les climats, une flore très pauvre, à espèces Presque toutes exotiques, s’emparèrent des espaces rendus vacants par la destruction de la végétation et de la flore autochtone...L’érosion s’exagéra; de profonds ravins se creusèrent dans les flancs des collines et des montagnes, des fleuves s’ensablèrent et d’autres changèrent de lit. Les latérites dénudées devinrent de plus en plus dures, compactes et imperméables, et Madagascar fut ce qu’il est de nos jours: une grande terre stérile, couverte d’une prairie monotone, où nous voyons disparaître les derniers restes de la faune et de la flore natives.” Henri Perrier de la Bâthie, *La Végétation Malgache* (Marseille: Musée Colonial, 1921), 261-2.

⁴⁴ Christian Kull, “Saving the Land with a Spade: Human Landscape Transformations in the Madagascar Highlands,” in Jeffery C Kauffman, ed, *Greening the Great Red Island: Madagascar in Nature and Culture* (Pretoria, South Africa: The Africa Institute of South Africa, 2008), 12.

blamed the Malagasy for forest loss, and developed legislation and restrictions to prevent further deforestation by *tavy*.

Colonial activities supported deforestation during the colonial era. Moreover, deforestation left local communities that rely on nearby natural resources with precious few assets. The large-scale colonial exploitation of Madagascar's resources for profit caused habitat loss, erosion, nutrient leaching, salinization, desertification, and related consequences, as is discussed in the following chapter.

CHAPTER 2

Madagascar: The Forested Island, The French Colony

This chapter will address political control and land use regulations from the period immediately preceding colonization through the early years of the colonial regime. It will further explain how the colonial state approached forests, and what affect this had on the effectiveness of early colonial forest management. This discussion will establish a framework for a deeper consideration of economic concessions in Chapter 3. Prior to colonialism, Malagasy land use revolved primarily around subsistence. Land use practices changed abruptly when the French colonial administration shifted the economy to one based on production for export. For the first half of the colonial era, the French administration prioritized economic viability over environmental preservation, but by 1930, overexploitation had created an impetus for stricter forestry laws.

Pre-Colonial Imperial History

In the years preceding France's annexation of Madagascar, various European nations exerted influence over many policies of Madagascar's kingdoms. In 1500, the Portuguese became the first Europeans to arrive in Madagascar, hoping to set up a permanent trade relationship, but were unsuccessful. Instead, the French and British dominated European relations with Madagascar. France established a colony, Fort Dauphin, in 1643, and over the next two centuries, gained increasing control over the island. During the 18th and 19th centuries, various European powers fought for influence over the island. This contact ultimately influenced

the Merina kingdom's codified regulation of land use. Malagasy land use at the time of French arrival was subsistence-based, with limited exports except what Europeans had established.

Although clear physical boundaries made Madagascar a distinct geographical entity, the island had never been united under a single government before French colonial rule; indeed, Madagascar's eighteen ethnic groups make national government difficult even today. Nonetheless, strong kingdoms had controlled sizeable portions of the island. The Sakalava kingdom along the island's western coast had become, by the 18th century, the largest kingdom in Madagascar to date, reaching all the way from Tulear in the southwest to Diego-Suarez at the northern tip of the island.⁴⁵ Less than two centuries later, on the eve of French annexation, the Merina kingdom, based around Antananarivo in the central highlands, gained even more influence over Madagascar, controlling over three-quarters of the island.⁴⁶ Each of these government systems arose out of one ethnic group who, through force and acquired technology, imposed their will over other groups in expanding geographic areas and claimed great control over the land. Before French colonial ambitions led to the island's annexation in 1895, the Merina kingdom established and maintained diplomatic relations with both the British and French governments through the nineteenth century, earning the moniker "The Kingdom of Madagascar" by Europeans.

The Merina kingdom's forestry policies influenced those of the French colonial government that succeeded it as the island's dominant power. Randrianja and Ellis noted, "The attempt to create institutions of government that were a hybrid of indigenous and imported models was a major theme of Madagascar in the nineteenth century," resulting in a set of

⁴⁵ Peter Tyson, *The Eight Continent: Life, Death, and Discovery in the Lost World of Madagascar* (New York: William Morrow, 2008), 8; Randrianja and Ellis, 100-107.

⁴⁶ Kull (2008), 116.

codified laws in 1881, called the Code of 305 Articles, that governed the kingdom.⁴⁷ The Code of 305 Articles introduced important directives on a spectrum of affairs, including forests. Among these laws, it claimed the state's rights to all forests and uncultivated lands and prohibited shifting agriculture (*tavy*) or any clearing of virgin forest.⁴⁸ Articles 101-106 addressed forest burning and prohibited settlement in forests. Writing in 1883, the British anthropologist G. W. Parker commented that these six articles "more carefully preserved" Madagascar's forests.⁴⁹ He also mentioned the duty of the Ministry of the Interior "to protect the forests and woods from injury or encroachment, and to encourage the planting of trees in towns and villages, and especially where the forests have been cut down."⁵⁰ Diane Henkels, an environmental lawyer with considerable knowledge of Malagasy law, wrote that Articles 101-106 "had less to do with conserving state forests, and everything to do with closing the fields and control of very valuable natural resources," especially in the eastern rainforest region.⁵¹ Historian A. Adu Boahen argued that the Code of 305 Articles was an attempt to "civilize" the country in order to facilitate relations with Europe.⁵² These two views of the Articles were not necessarily contradictory, considering Europeans advocated resource control by government. But although the Articles may have reflected European influence, they were not a total replication. Enforcement of Articles 101-106 presented a tremendous challenge to the Merina

⁴⁷ Randrianja and Ellis, 127.

⁴⁸ Daniela Raik, "Forest Management in Madagascar: A Historical Overview," *Madagascar Conservation and Development* vol. 2, issue 1 (December 2007), 6; Tyson, 280.

⁴⁹ G. W. Parker, "On the New Code of Laws for the Hova Kingdom of Madagascar, Promulgated at Antananarivo on March 29th, 1881," *The Journal of the Anthropological Institute of Great Britain and Ireland* 12 (1883), 316.

⁵⁰ *Ibid.*, 308.

⁵¹ Diane Henkels, "A Close Up of Malagasy Environmental Law," *Vermont Journal of Environmental Law* 3 (2001-02). <http://www.vjel.org/print.php?guid=VJEL10009&cat=journal#ref28>.

⁵² A. Adu Boahen, ed., *Africa Under Colonial Domination 1880-1935*, vol. 2, *General History of Africa* (University of California Press, 1985), 225.

government. As agroeconomist Pierre Montagne and forester Bruno Ramamonjisoa pointed out, the 305 Articles provided a framework for managing forest resources, but enforcement was difficult. This complaint appeared in a number of contemporary sources. In 1899, forester Lucien Girod-Gênêt wrote of the 305 Articles, “It is well known that this legislation was almost never applied.”⁵³ Indeed, the problem of enforcement in regards to forestry legislation recurred throughout Madagascar’s history. As Girod-Gênêt made clear, the government accepted the lack of enforcement as a matter of course.

Building on the authority of the Merina kingdom, the French colonial government installed itself as a governing body, capable of affirming and continuing Merina legislation while at the same time implementing new colonial legislation in support of the interests of the French empire. Resource regulation, including rights of use, underwent such selective affirmation, with some laws carrying over from the Merina kingdom and some being created by the French government. Regarding forests, the colonial administration continued a trend of administrative involvement that started in the Merina kingdom. However, they supplemented regulatory legislation with an aggressive concessionary system designed to make Madagascar a profitable colony.

Becoming a French Colony

Although the French presence in Madagascar dates back to the 17th century, a concentrated and prolonged effort at colonization was not evident until a series of treaties at the end of the 19th century that pushed French sovereignty over increasing portions of the island.

⁵³ Lucien Girod-Gênêt, as quoted in Pierre Montagne and Bruno Ramamonjisoa, “Politiques foresitières à Madagascar entre repression et autonomie des acteurs,” *Économie rurale* 294-295 (July-Oct., 2006), 11.

The Franco-Malagasy War (1883-85) resulted in the establishment of a French protectorate over the island. The British recognized this protectorate in 1890 in exchange for French recognition of British interests in Zanzibar.⁵⁴ This left France in a strong position to pursue complete control over Madagascar. Seizing on the weakness of the Merina government, the French moved steadily toward the conquest of Madagascar through strong military campaigns in 1894. Madagascar became an official French colony in 1896 with the removal of the Merina monarchy from power; the island would remain under French control until it achieved independence in 1960.

The French recognized the authority of the Merina government before annexation and proceeded to legitimize and reaffirm Merina codes where it suited French interests. A notable example of this was the folding of the Merina kingdom's 1881 Code of 305 Articles into French colonial legislation. French colonial law in Africa included a legal sector concerned with "customary law," which allowed for issues relating exclusively to African subjects to be regulated by "existing societal norms" as long as they were not "repugnant to civilized standards" and were not "subversive of colonial authority."⁵⁵ After coming to power in 1896, Governor-General Joseph Gallieni adopted the Code of 305 Articles as "the basis of the legal system administered under the French occupation"—*le code de l'indigenat*.⁵⁶ This was notable for two reasons: it illustrated a burgeoning double standard for French and Malagasy people in Madagascar in terms of laws, rights, and responsibilities, and it formed the basis for many important legislative acts regarding forests.

⁵⁴ M. Brown (2006), 216.

⁵⁵ Crawford Young, *The African Colonial State in Comparative Perspective* (New Haven, CT: Yale University Press, 1994), 115.

⁵⁶ M. Brown, (2006), 197, 238.

In broad terms, the selective application of a body of laws to the Malagasy population reflected racist French attitudes towards Madagascar's native population and consequently provided a basis for discriminatory resource appropriation, allocation, and administration. The majority of Malagasy were held accountable to a separate code and denied the rights of French citizens. They endured forced labor regimes and tax burdens in addition to reduced resource availability. The goals of taxes and compulsory labor were to raise revenue and fill labor shortages rather than to civilize the native population, although the *mission civilisatrice* remained a secondary goal.⁵⁷ This understandably caused mounting tensions between Malagasy communities and the colonial administration, which manifested in periodic displays of resistance the French repeatedly suppressed.

Forests factored heavily into Malagasy resistance to French colonial presence. Strong ethnic divisions made a strong military campaign by the French colonial government necessary for total control of the island, with much effort directed at eliminating resistance to the colonial government along the coasts. The Malagasy resistance used forests to hide from the colonists in an attempt to escape the colonial policies and influence. The pattern of repression and rebellion occurred in colonies worldwide; in the case of Madagascar, with its exceptional natural resources and rich biological diversity, the environment—especially forests—played an important role in French-Malagasy relations.

⁵⁷ Labor shortages that impeded effective forestry management were not ameliorated until after the establishment of the Service de la Main-Oeuvre des Travaux d'Intérêt Générale (SMOTIG) compulsory labor system in 1926. Sodikoff explains the problematic link between forestry and compulsory labor by her finding that the Forest Service and Public Works administrative departments were "ideologically complementary," having "jointly pursued what French officials deemed a plan of progress that was to be gauged in terms of the growth of export goods, communication, and transportation networks, and the cultivation of a sufficient and disciplined Malagasy labor force." See: Genese Sodikoff, "Forced and Forest Labor Regimes in Colonial Madagascar, 1926-1936," *Ethnohistory* 52:2 (Spring 2005), 408.

Madagascar's forest resources were valuable to the world market and less valuable timber could be used for construction, while cleared land could be planted with export crops. The colonial budget, including military expenditures, depended on the funds the colony could raise from exploitation of the island's resources, since the French parliament declared in 1900 that all colonies had to "finance themselves from their own resources."⁵⁸ This established a pressing need to develop Madagascar's economy and generate profit in order to fund the colonial military and ensure continued control over Madagascar. Concessions, as well as taxes, fulfilled this need.⁵⁹ The French colonial government sought revenue from forest products as it was the mode by which it could "increase the number and variety of collective goods provided through the state."⁶⁰ The economic situation of colonialism in Madagascar mandated productivity, even at the expense of sustained availability of forest resources; the Forest Service raised these concerns, but little action was taken to address resource sustainability, let alone ecological viability, during the first half of the colonial period.

Therefore, the French pursued development agendas that included the development of timber and export crops such as coffee, vanilla, and cloves. The colonists "intended to establish a profitable, colonial economy linked to agricultural production and resource extraction, and their policies reflect that goal."⁶¹ To this end, the colonial government pursued a program of intense commercial development that resulted in severe deforestation.

⁵⁸ Randrianja and Ellis, 158.

⁵⁹ Boahen, 110.

⁶⁰ Margaret Levi, as quoted in Young, 38.

⁶¹ Kull (2008), 117.

Elements of the Colonial State

The early years of colonial rule, the French *pacification* program suppressed pockets of resistance. Lucy Jarosz described how, in response to the turmoil and difficulty that arrived with French colonization, many Malagasy escaped the reaches of the French military by hiding in the forests and living there as shifting cultivators.⁶² In 1896, Governor General Gallieni reported villages in the Imerina highlands region whose populations had abandoned their crops and scattered into the nearby forests in hope of provoking famine and driving the French away.⁶³ Gallieni's *pacification* strategy promised that those who hid in the forest would be returned to their villages; the Governor's charge was to make Madagascar into a peaceful and productive colony, thus it was imperative that the French be able to govern and control the Malagasy.⁶⁴ These military campaigns were vital to the colonial state's success. The future of the colony seemed linked to the ability of the colonial administration to defend itself. This need translated to increased focus on resource exploitation.

It followed that forest resources would be heavily harvested, yet at the end of the 19th century Governor General Gallieni remained skeptical of the need for a substantial Forest Service.⁶⁵ The forest department he finally created in 1900 had a small European staff and filled primarily an advisory role, leaving tasks such as reforestation to the military.⁶⁶ It became evident that such an organization would be ineffective and forest management fell instead to the

⁶² Lucy Jarosz (1996), "Defining Deforestation in Madagascar," in R. Peet and M. Watts, eds., *Liberation Ecologies: Environments, Development, Social Movements* (New York, 1996), 153.

⁶³ *Imerina* refers to the geographical location (in the highlands) of the *Merina* people (and the former *Merina* kingdom). On the scattering of Merina villagers, see Rapport du Général Gallieni, *Madagascar de 1896 à 1905* (Tananarive, Impr. Officielle: 30 April 1905), Académie Malgache, Fonds Grandidier 0770, 9-10.

⁶⁴ Rapport du Général Gallieni, 26.

⁶⁵ Montagne and Ramamonjisoa, 12.

⁶⁶ Sodikoff (2005), 413

chief administrative office of the colony; the Forest Service did not start operating as an independent bureaucratic organization until after 1930. Early forestry legislation, including laws regulating forest exploitation, land clearing, and *tavy*, therefore met obstacles such as limited means of enforcement and lack of political conviction.⁶⁷

The forestry policies that the early colonial administration implemented had been designed for France, or for other colonies (namely Algeria), and were tailored to Madagascar's social or environmental conditions.⁶⁸ This included the 1913 decree issued from France outlawing all pasture fires, including *tavy*.⁶⁹ With this decree, the French "sought to regulate the use of uncultivated lands, restricting the use of fire for pasture maintenance and forest clearance and initiating a variety of tree-planting schemes."⁷⁰ Yet, despite the *tavy* ban and slowed population growth, deforestation continued unabated. Approximately seventy percent of Madagascar's primary forests were cut between 1895 and 1925.⁷¹ Legislation in 1930 made a legitimate Forest Service necessary, however it suffered from lack of manpower and unpopularity among rural Malagasy communities. French forestry legislation followed "a Cartesian logic of geometric boundary marking for national forest management and the surveillance of peasants, deserters escaping military duty, and convicts—a space of outlaws,

⁶⁷ The discrepancy between legislation and actual conditions was especially apparent with *tavy*. Laws regulating or prohibiting *tavy* constantly faced obstacles in enforcement. For a political ecologist discussion of the history of *tavy*, see Kull (2004).

⁶⁸ Geographer Diana Davis discusses how the French colonial administration used forestry as a form of social control, limiting traditional agricultural practices in Algeria to consolidate French ruling power. These laws had another aim, in so far as the French thought in the late 19th century that the land would be more fertile if the deforestation could be reversed. See Diana K. Davis, "Environmentalism as Social Control? An Exploration of the Transformation of Pastoral Nomadic Societies in French Colonial North Africa," *The Arab World Geographer* 3:3 (2000).

⁶⁹ 1913 also marked the International Forest Congress, held in Paris. Forestry methods from around the world were displayed and discussed; see Montagne and Ramamonjisoa, 12.

⁷⁰ Kull (2008), 117.

⁷¹ Jarosz (1996), 152, 157.

from the state's vantage point."⁷² It followed rational and systematic guidelines, driven predominantly by a European economic ethos coupled with a motivation to conserve natural resources. This was characteristic of forestry in France, but it was not compatible with Malagasy forest use.

Forestry legislation during the first half of the colonial period (prior to the 1927 legislation that established a system of natural reserves) represented a weak effort to conserve resources to ensure availability for future use, but was more notable for the concentrated exploitation of natural resources through a system of concessions. As detailed in the following chapter, logging and agricultural concessions took a heavy toll on forests, both directly and indirectly. This impact was significant enough to prompt stricter conservation measures, in the form of the creation of natural reserves. Yet, these trends of resources appropriation and exclusion did little to remedy the pressures on the environment, let alone on the Malagasy people themselves.

⁷² Sodikoff (2005), 411.

CHAPTER 3

Appropriation and Exclusion

In the first half of the colonial period (1896-1927), the system of logging and agricultural concessions contributed heavily to deforestation in Madagascar. It furthermore illustrated the colonial government's dichotomous view of forest resource rights, as it largely deprived rural Malagasy of their traditional forest use. The conversion of forests to timber plantations degraded the forest ecosystem. Concessions disrupted local communities' relationships with forests, limiting access to forests and rights of use of forest resources.

Logging concessions produced and exported lucrative commodities like precious hardwoods, while other timber found uses in-country as raw material for public works projects like railroad construction—projects that were aimed primarily to develop the infrastructure necessary to facilitate better resource accessibility for increased exploitation under the guise of *mission civilisatrice*. Reforestation plantations concentrated on cultivating fast-growing non-native species such as eucalyptus and pine—species with utility, but without sufficient ecological value. Agricultural plantations fuelled the trade-based economy through the production of profitable crops for export. Sectors of the colonial administration, namely the Forest Service, occasionally contested these concessions, since such unrestrained resource exploitation did not align with their forestry management efforts. Objections from the Forest Service remained unheeded until the creation of natural reserves in 1927.

Larger concerns about the preservation of the forest—such as the concerns of the Forest Service—did contribute to the introduced protected area legislation in 1927, but that only shifted the pressures on the forest from commercial interests to rural parties. To understand the

problems with exclusionary protected area legislation, it is necessary to examine the unusual pressures on the Malagasy population that resulted from reduced land availability.

Resource Appropriation via Commercial Agricultural and Logging Concessions

Colonialism facilitated large-scale resource exploitation, punctuated by complementary attempts at modest industrialization—but was more notable for the demonstrated eagerness in turning Madagascar’s raw materials into fodder for increased French economic activity.⁷³ Forests were especially at risk of overexploitation because their resources were easily commodified and assigned economic values.

The French government pursued development agendas that included the planting and harvesting of timber and export crops. Concessions represented the economically driven state that dominated colonial government through the first half of the colonial period. Historians Randrianja and Ellis wrote that “of the 900,000 hectares given to settlers at this period, 550,000 ended up in the hands of just six companies, the rest being distributed among some 2,000 individuals.”⁷⁴ Concessions devastated the natural environment. In total, colonial development was responsible for cutting down four of the twelve million hectares of *forêts exploitables* in Madagascar.⁷⁵

The colonial administration offered three levels of timber concessions: permission to use for woodworking and carpentry; permission to cut for resins, rubber, and gum; and leases for

⁷³ Marcel DuBois and Auguste Terrier, *Les colonies françaises—Un siècle d’expansion coloniale* (Paris, Auguste Challamel, 1901) (Exposition Universelle de 1900), 786-787.

⁷⁴ Concessionaires were French, Reunionnais, Chinese, and Malagasy (primarily of the Merina ethnic group), and benefited from arable land that had been seized by the colonial government for redistribution. See Randrianja and Ellis, 158.

⁷⁵ Pierre Boiteau, *Contribution à l’histoire de la nation malgache* (Paris : Ministère de la Culture et de l’Art révolutionnaires de la République démocratique de Madagascar, 1982), 235.

timber cultivation.⁷⁶ By 1904, there were already 235,620 hectares of forest concessions.⁷⁷ These concessions led to the export of large quantities of timber. In 1925, 2,315 tons of rare precious hardwoods and 933 tons of wood for construction were exported.⁷⁸ In addition to the valuable timber exported, concessions produced common wood that found various uses within the colony.

In 1905, Gallieni counted 2,385 agricultural concessions (404,904 ha); most of these were large companies.⁷⁹ Production of certain cash crops skyrocketed during colonial rule. Vanilla exports grew from one ton in 1896 to 411 in 1925, coffee exports went from 60 tons in 1906 to 2,800 tons twenty years later, and sugar cane exports exploded during the 1920s, rising from 730 tons in 1923 to 2,359 tons in 1926.⁸⁰ To achieve these production quantities, the colonial government redistributed land, taking fertile land from rural Malagasy people and granting concessions to colonial allies.

These concessions supported French economic aims despite being detrimental to both the natural world and the subaltern population. The French colonists viewed Madagascar's forests as a natural resource to be protected from local usage in order to ensure availability for colonial exploitation. The French approached conservation measures from the standpoint that forests should be preserved to ensure future resource availability for France.⁸¹ This ideology translated into a program of permissible resource use by French colonists and its allies. The colonial

⁷⁶ P. Desfeuilles, *Les Colonies Francaises : Madagascar* (Paris : Editions Pierre Roger, 1932), 32.

⁷⁷ Boiteau, 231.

⁷⁸ Desfeuilles, 38.

⁷⁹ Boiteau, 231.

⁸⁰ Desfeuilles, 29-30.

⁸¹ Jarosz (1996), 156.

government deemed logging concessions to be a “rational” form of exploitation, and it therefore persisted.

The environmental impacts of concessions extended beyond direct deforestation. The French colonial economic agenda identified forests primarily as a profitable entity that was therefore open to logging concessions and subject to management by the colonial Forest Service. Reforestation plantations, designed to renew forest resources, could not replace old-growth forest habitats. Instead, poorly managed logging concessions slowly ate away at Madagascar’s forests, despite forestry legislation aimed at preventing such depletion.⁸²

The effects of logging concessions were certainly detrimental to old-growth forests and the biodiversity they harbored as timber monocultures replaced former habitats. Reforestation efforts (state plantations) focused on cultivating species of utility—eucalyptus and pine, predominantly—following French forestry models.⁸³ These fast-growing, non-native species ensured a supply of wood for the colonial government and in part appeased factions who expressed concern over forest loss. Political scientist and leading figure in peasant and agrarian studies James Scott pointed out that these “timber farms” required “the existence of a commodity market and competitive pressure, on states as well as on entrepreneurs, to maximize profits or revenue.”⁸⁴ The environmental impacts of logging on forest ecology were not a part of the discourse on forestry. Eucalyptus and pine forests could not replace the ecological value of the native woods lost to export or colonial utility. Karen Brown argued that “silviculture, like irrigation and anti-erosion strategies represented part of the Western technocratic assault on the

⁸² Sodikoff (2005), 425.

⁸³ Kull (2008), 124.

⁸⁴ James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998), 263.

African environment.”⁸⁵ But these efforts ignored the effects of the loss of endemic, slow-growth species, such as the precious woods so cherished by the French for their market value. These reforestation plantations illustrated the colonial attitude toward Madagascar’s forests: ensure availability for colonial use. This system of forestry, which recurred in many European colonies, was oriented toward single use, based on the environmental simplification of agriculture that skirted ecological issues and focused solely on generating a profit.⁸⁶ Accordingly, the Forest Service’s 1922 report opened with the statement that forestry should follow the guiding principles of regeneration, of exploitation with provisions for reforestation.⁸⁷ These reforestation plantations were often “targeted for acts of arson” by Malagasy due to frustrations with colonial government policies.⁸⁸

Along with logging concessions, the widespread introduction and implementation of cash crops such as coffee, vanilla, and cloves for export contributed directly to deforestation by necessitating that large areas of forested land be cleared for cultivation of these lucrative crops for export. Conservation from the colonial perspective stressed ensuring resource availability for France, without regard to ecological well-being or local livelihood dependence. This disregard was apparent with commercial agricultural concessions as well. Agricultural concessions resulted in the displacement of rural Malagasy people and the disruption of their lifestyle. It caused many Malagasy to expand shifting cultivation into forested areas for subsistence, resulting in further deforestation and aggravating a worsening environmental situation.⁸⁹

⁸⁵ K. Brown, 345.

⁸⁶ Scott (1998), 262-3.

⁸⁷ “Rapport du Service Forestier, Année 1922,” AOM 5(18)D5.

⁸⁸ Kull (2008), 124.

⁸⁹ Jarosz (1996), 154.

As coffee plantations claimed arable land, Malagasy were forced to farm forest frontiers.⁹⁰ Additionally, French taxes burdened many Malagasy and forced them to seek supplementary plantation work for wages. Lucy Jarosz argued that coffee cultivation contributed strongly to deforestation: plantations required arable land and attracted rural Malagasy as workers, and limited land and labor availability caused shortages of rice, the staple food in the Malagasy diet. The resulting lack of food pushed Malagasy farmers to expand shifting cultivation to forested areas.⁹¹ These exploitative activities provided economic benefits to the French colonial government at the expense of environmental conservation and local communities' well being.

Colonial concessions redistributed land and forced Malagasy to rely on shifting cultivation in forested areas. Internal rhetoric echoed concerns about *tavy* voiced by naturalists, linking the traditional Malagasy agricultural practice with extreme forest loss. This perceived cause-effect relationship reflected ecological thinking of the period and demonstrated the colonial misunderstanding of the cultural importance of *tavy* for rural Malagasy.

Rhetoric and Restrictions: Madagascar's First Protected Areas

The establishment of the first protected areas in 1927 amplified the conflict over resource use. Colonial foresters were not unaware of the effects of ecological destruction. Louis Lavauden, the head of the Forest Service from 1928-1931, worried that deforestation would cause changes in the climate.⁹² This provided an impetus to protect forests and keep them intact; this manifested through the system of *reserves naturelles*. But as these forested areas were

⁹⁰ Raik, 7.

⁹¹ Jarosz (1996), 153-154.

⁹² L. Lavauden, "Le problème forestier colonial," Berger-Levrault, 1931 (AOM: BIB ECOL //13219), 25.

closed off to local populations as new protected areas, pressures on land availability were compounded. When confronted with the problem of deforestation, the colonial administration, still interested in granting concessions to profit economically, avoided responsibility and instead developed a rhetoric that painted *tavy* as the agent of Madagascar's forest loss. The colonial government excused the deforestation that resulted from colonial economic endeavors aimed solely at export, shifting the blame for poor resource management to local Malagasy communities and their traditional agricultural practices.

As discussed in the last section, contrary to colonial rhetoric, which situated deforestation as a result of the ignorance and short-sighted resource management of the Malagasy, colonial logging concessions and focus on cash crop production for export contributed significantly to the deforestation problem. While the French were not wrong in thinking that Malagasy land use caused deforestation, the colonial administration put undue emphasis on this destruction as a result of its perceived irrationality, contrary to the rational colonial use of forest, and regardless to the harm that it caused the environment. In total, four million of the twelve million hectares of *forêts exploitables* disappeared, lost primarily due to the effects of colonialism.⁹³ The colonial government evidently remained unconcerned about the role of the forests in the livelihoods of local communities, as the French were convinced by traditional Malagasy agricultural practices like *tavy* that the Malagasy mismanaged—indeed, had been incapable of managing—their own natural resources.

The colonial rhetoric resulted from a complex misunderstanding—and unwillingness to understand—Malagasy peoples and their practices. The French were in this way able to continue the ecologically degrading economic activity, while deforestation came to be viewed as a result

⁹³ Boiteau, 235.

of indigenous activity. Moreover, they could now assert an ecological superiority over “backwards” Malagasy and their traditional agricultural system.⁹⁴ This was common for colonial regimes in Africa: Karen Brown argued that “they thus provided a justification for the colonial appropriation of African land and its natural resources.”⁹⁵ The Forest Service expressed concern over the intensity of logging concessions, but the vast majority of criticism and restriction focused on banning *tavy* in order to protect the forests. For Malagasy, practicing *tavy* was akin to worshipping the ancestors, an act of tremendous cultural significance. However, the French fixated on *tavy* the perceived cause of tremendous deforestation and focused their energy on a complete ban.

Tavy remained banned under colonial rule; this followed a precedent set by other “colonizers”—namely, the Merina kingdom—codified in the pre-colonial 1881 Code of 305 Articles and maintained by the French in the *indigénat*. The French took extra measures to discourage the practice, even as logging concessions ravaged the landscape. The forced labor organization, SMOTIG, sought to instill the Malagasy with a “conservation ethic” to prevent slash-and-burn agriculture.⁹⁶ Meanwhile, colonists ignored the destruction caused by logging concessions and other colonial activity: Kull estimated that during this time between one and seven million hectares of forest were logged.⁹⁷

Furthermore, this colonial rhetoric provided justification and rationale for the creation of protected areas in Madagascar. The French set up the first protected areas in Madagascar in 1927—however, to laud this as an act of environmental stewardship is to ignore the disregard for

⁹⁴ Genese Sodikoff, “Forest Conservation and Low-Wage Labor,” in Jeffery C Kauffman, ed., *Greening the Great Red Island: Madagascar in Nature and Culture* (Pretoria, South Africa: The Africa Institute of South Africa, 2008), 75.

⁹⁵ K. Brown, 344.

⁹⁶ Sodikoff (2005), 408.

⁹⁷ Kull (2004), 166.

local communities and their traditional use of the forests. The first protected areas decrees were crafted on the problematic assumption that the indigenous population was unable to properly and responsibly manage the island's natural resources. The French effectively imposed conservation on the Malagasy—setting a precedent for conservation to come from an outside body and work to exclude the local communities from what they viewed as a traditional resource.⁹⁸

Although establishing natural reserves seemed like a noble and environmentally conscientious pursuit, the insensitivity shown toward local communities' traditional relationship to the forests rendered these conservation efforts ineffective. Furthermore, the restrictive protected areas policy turned Malagasy who honored their traditional relationships with these forests into criminals—just as the *tavy* ban turned traditional Malagasy agriculturalists into criminals. In this way, the French systematically criminalized important aspects of Malagasy life.⁹⁹ Regarding protected forests, permission to use the forest or its resources—including trees and other “forest accessories”—could only come from the colonial administration—a route that would have been familiar to French colonists, but was completely foreign to rural Malagasy communities. These legislative requirements therefore excluded Malagasy from the forests, which in many cases supplied material for their very livelihoods. Richard Marcus and Christian Kull explained that the new protected areas “were wholly exclusionary with no local economic benefits, thus the local populations surrounding these protected areas viewed them as foreign and

⁹⁸ Sodikoff (2008), 75.

⁹⁹ Sophie Moreau (Joanna Burnett, trans.), “Environmental Misunderstandings,” in Jeffery C Kauffman, ed., *Greening the Great Red Island: Madagascar in Nature and Culture* (Pretoria, South Africa: The Africa Institute of South Africa, 2008), 58-59.

an additional facet of colonial oppression, exploiting the protected resources whenever possible.”¹⁰⁰

The unintentional result of the French-established protected areas was embitterment and disregard by Malagasy, leading to a willingness to exploit forest resources and an association between conservation and oppression. The exclusionary nature of these reserves elevated forest pillaging to an act of resistance. *Tavy* evolved into a popular form of resistance, “a quiet evasion that [was] equally massive and often far more effective” than organized revolt.¹⁰¹ Rural Malagasy celebrated landscape burning as a traditional agricultural practice that flew in the face of French colonial policy. The rise of practices such as *tavy* to acts of resistance was an important and unintended consequence of resource exclusion. The creation of these protected areas shifted acts of peasant resistance to areas supposedly set aside in the name of conservation. Denied access to resources, rural communities engaged in acts of resistance to the colonial state.

These early natural reserves illustrated the mixed impact of colonialism on deforestation. Superficially, the establishment of a protected area seemed to speak to an environmentally sensitive government. Yet, such an interpretation ignored the negative effects on the cultural environment and the impact of restrictive and exclusionary policies on Malagasy attitudes toward conservation. The reserves did little to accommodate the human population, attempting instead to reduce the ecology to strictly natural terms and isolate it from the viability of the local Malagasy communities.

The lack of concern for Malagasy populations and their livelihoods and resource requirements rendered the protected area legislation in some ways futile. Anthropologist Genese

¹⁰⁰ Richard Marcus and Christian Kull, “Setting the Stage: The Politics of Madagascar’s Environmental Efforts,” *African Studies Quarterly* 3:2 (Fall 1999) <http://web.africa.ufl.edu/asq/v3/v3i2a1.htm>.

¹⁰¹ Scott, as quoted in Kull (2004), 184.

Sodikoff argued that “structural inequalities and the criminalization of *tavy* in protected forests [led] rice farmers to think that *vazaha*¹⁰² and elite state officials use[d] ‘conservation’ as a means to appropriate forests,” leading to the problematic association between colonial appropriation and systematic resource preservation.¹⁰³

The natural reserves were the forerunners of conservation in Madagascar. Due to the restrictive nature of the forest protection agenda, the legislation was ineffective in introducing sensitive and responsible conservation strategies. The result was a lack of regard for the natural reserves. The colonial protected areas became simply another form of domination and exploitation rather than an effective means for conservation, and led Malagasy to challenge the legislation.

Problems in the effectiveness of the protected area legislation were compounded by enforcement difficulties. Although intended to eradicate this traditional agricultural practice, the ban on *tavy* saw limited enforcement due to logistical obstacles and lack of political will. Despite guards stationed around natural reserves, the administration could not prevent all exploitation. Thus, this legislation remained largely superficial. The natural reserves could not counter the damage caused to the natural world by intensive economic development on the part of the French. The French colonial administration’s top-down imposed conservation scheme did little to encourage effective and sensitive forest protection, instead following the model of utilizing resources to support and bolster the French economy. The colonial misunderstanding of the vital traditional role that forests played in rural Malagasy communities compounded the

¹⁰² *Vazaha* means “foreigner” in Malagasy and is commonly used to identify the French. The usage is also used to indicate a Malagasy person of a different ethnic group.

¹⁰³ Sodikoff (2005), 410.

damage wrought by the colonial state's economic agenda. The result was an established discord between the colonial state and the native population on resource use and conservation.

CHAPTER 4

Attitudes and Approaches to Forest Resources and Conservation

The case of Madagascar illustrated the enduring connection between politics and conservation. With political turmoil came instability in conservation initiatives and a distinct vulnerability to resource overexploitation, while periods of peace allowed opportunities to investigate new conservation strategies. As Madagascar experienced different political periods (a decade of independent government strongly influenced by France, a reactionary socialist regime, and a transition back to democracy, punctuated by political unrest), a corresponding change in forest protection occurred. This chapter will start with a brief discussion of the revolts of 1947 in which Malagasy reclaimed the forest and stood forcefully against French colonialism. The post-colonial history of Madagascar featured a changing political climate every ten to twenty years; each regime showed a distinct relationship with the island's natural resources. As Madagascar's post-colonial politics were inevitably tied to its colonial history, its approaches to conservation also continued to feel this influence.

Tensions Mounting: Political Unrest

Peasant resistance continued throughout the colonial regime, and rising post-WWII nationalism led to the development of new forms of more organized revolts. In 1947, multiple, loosely-organized rebellions against the French regime erupted simultaneously across the country in an attempt to dislodge the French colonial government. In what constituted a

repressive politicicide, the French retaliated brutally, killing an estimated 10-80,000 Malagasy.¹⁰⁴ Although the 1947 revolts did not immediately precipitate the end of the colonial period, it did signal that the French regime was coming to a close.

The natural environment—the forests—symbolized and supported the organized Malagasy resistance to the French colonial government. In these rebellions, Malagasy reclaimed the forests, incorporating them in the fight against the colonial regime. In the process, some Malagasy suspended any acknowledgement of the exclusionary reserves the French had established two decades before. Revolutionaries hid in forests and natural reserves to escape colonists, continuing a long trend of the Malagasy people's use of forests as safe havens against invaders. The Betampona *Réserve naturelle intégrée* harbored rebels, illustrating a Malagasy reclamation of the forests from which they had been displaced and excluded.¹⁰⁵ In 1947, revolutionaries found refuge and farmland in Betampona, using the land set aside for conservation as a nationalist base from which they attacked the French.¹⁰⁶ The rural Malagasy people affirmed their traditional relationships with the forests by using them for their material needs, for shelter from the colonialists in times of trial, and as a locus of resistance to an oppressive regime.

By the mid-20th century, most Malagasy sought an end to colonial rule. The revolts of 1947-48 were a manifestation of these intentions and the violence that followed clearly indicated

¹⁰⁴ Barbara Harff and Ted Robert Gurr define *repressive politicicide* as “mass murders targeted at political parties, factions, and movements because they are engaged in some form of oppositional activity.” See Harff and Gurr, “Toward Empirical Theory of Genocides and Politicides: Identification and Measurement of Cases Since 1945,” *International Studies Quarterly* 32:3 (Sept., 1988), 363-4.

¹⁰⁵ Betampona was one of the first ten reserves set aside for strict conservation in 1927. It was created as a *réserve naturelle intégrée* (integrated natural reserve). This category accorded the strictest protected area use restrictions. Today, Betampona is categorized as a strict nature reserve and its use is almost exclusively reserved for science.

¹⁰⁶ Kull (2000), 433.

their opposition to the colonial government. Although the rebellion was bloody and not immediately successful, it signaled a decline in French control over Madagascar.

Post-Colonial History and Environmental Trends

Madagascar's independence (1960) should have ushered in a new conservation era, yet in many ways little changed. In fact, post-colonial history illustrated the prevalence of certain themes regarding power and resource use. The first independent government continued many of the French colonial policies regarding land use. A reaction against policies that were sympathetic to France triggered a radical change in Madagascar's politics and a transition to socialism, and the subsequent period of regulatory neglect and mounting debt followed the expulsion of most foreign influences. In the last two decades of the 20th century, a return to democracy and the parallel environmental boom encouraged a re-introduction of foreign influence in conservation.

After the revolts of 1947-48, the French took steps towards relinquishing Madagascar. Madagascar eventually regained independence in 1960, but the new independent government remained markedly aligned to French interests. This was true of conservation initiatives, as well. Although independent Madagascar developed some new policies, they mostly expanded upon French initiatives. During the First Republic (1960-1972), conservation initiatives took the form of expanded categories for protected areas, reformed land use regulations, and reforestation mandates. New categories for protected areas included "national parks, special reserves, classified forests, reforestation zones, and nonhunting reserves."¹⁰⁷ Laws governing land tenure encouraged the re-cultivation of historically cultivated lands and, at the same time, limited

¹⁰⁷ Kull (1996), 54.

additional land clearance. Interestingly, international and non-French involvement in Madagascar grew in both environmental sectors (e.g., the World Wildlife Fund for Nature, or WWF) and non-environmental sectors (such as the United States Agency for International Development [USAID] and Coopération Suisse, both of which constituted foreign aid).¹⁰⁸ During 1970's International Conference on the Conservation of Natural Resources, Dr. Etienne Rakotomaria, Director of Scientific Research, stated:

We have touched on three problems—forest reserves, education, and the role of foreign scientists. In all three spheres we have seen international organizations negotiate with Frenchmen in the name of Madagascar but systematically exclude the Malagasy from our own concerns... The people in this room know that Malagasy nature is a world heritage.

We are not sure that others realize that it is our heritage.¹⁰⁹

As Kull pointed out, Rakotomaria's emblematic statement highlighted the problems of the First Republic beyond environmental considerations. Madagascar was still closely aligned with France, and many Malagasy yearned for economic independence. Antigovernment demonstrations caused the resignation of Tsiranana in 1972 and of his successor, General Gabriel Ramanantsoa, chief of staff of the armed forces, in 1975. The period from 1972-75 marked a transitory period characterized by increasingly leftist protest movements and a correlating attempt to restore peace through authoritarian measures. Didier Ratsiraka emerged out of the chaos, coming to power in 1975 to lead the socialist Second Republic.

The socialist Second Republic (1972-1991) reacted against continued French ties. During this period, foreign influences nearly disappeared. As a result, international conservation efforts stalled and a lack of enforcement severely weakened conservation policies already in place. The

¹⁰⁸ Ibid., 55.

¹⁰⁹ Dr. Etienne Rakotomaria, as quoted in Kull (1996), 59.

French embassy recalled witnessing “the nationalization of French businesses, confiscation of the land and collectivization of the plantations of former settlers, separation from the franc monetary zone and francophone community, and ‘Malagachization’ and the abandonment of French as a subject of study at both primary and secondary levels of education” during the early years of Ratsikara’s presidency.¹¹⁰ The Malagasy government was, in a sense, preoccupied with economic change and forest conservation suffered from severe lack of enforcement. As governmental controls over forest use weakened in the 1970s, exploitation rose to pre-regulatory levels reminiscent of the colonial logging boom prior to 1930. These were further symptoms of a troubled government.

In response to the economic crisis and political stagnation, the 1980-90s saw the reestablishment of democratically elected leadership and a parallel reintroduction of Western influence. Due to mounting national debt, Ratsiraka eased his socialist policies in the 1980s and sought relief from the International Monetary Fund (IMF). This introduced the possibility of international agencies and organizations providing aid to Madagascar and in turn directing the country’s development policies. With a global environmentalism taking hold and a period of relative isolationism in Madagascar ending, the country was poised to welcome international organizations. The introduction of conservation organizations such as the WWF occurred almost hand-in-hand with that of aid organizations like USAID. At the same time, privatization reemerged through government programs (1988-1993) and international players began to wield much influence in the shaping of economic and environmental policy and practices.

The period following the Ratsiraka’s socialist regime saw the increasing introduction of international non-governmental organizations (NGOs), especially in the environmental field, as

¹¹⁰ The French embassy in Antananarivo, as quoted in Randrianja and Ellis, 194.

the political atmosphere opened up to the international community. These organizations worked to save Madagascar's native biodiversity by facilitating and promoting conservation management strategies they deemed most effective. The creation of a National Environmental Action Plan (NEAP) in 1988 heralded a new commitment to conservation. Endorsed by international donors like the World Bank and USAID, NEAP provided a framework for the implementation of Integrated Conservation and Development Projects (ICDPs), which hoped to align international conservation goals and the strengthening of local communities' economies. The NEAP also proposed a development plan the consolidation of Madagascar's national parks under the management of one organization (formerly known as ANGAP [*Association nationale pour la gestion des aires protégées*], this organization recently changed its name to Madagascar National Parks, or MNP).

These conservation initiatives continued despite a wave of political change. Opposition to Ratsikara's socialist regime reached a peak in 1991 and resulted in the establishment of the Third Republic in 1992. A temporary National Forum drafted a new constitution, and Albert Zafy won the presidential election that year. Zafy's presidency struggled, and in 1996 the National Assembly voted to impeach him. Ratsiraka, newly embracing economic liberalism, won the following presidential elections, returning to the presidency in 1997. Ratsiraka's second round of leadership ushered in a wave of economic growth and foreign investment. Accordingly, this corresponded with the second phase of NEAP, moving "away from relying on locally-oriented ICDPs for the integration of conservation and development, toward a broader 'landscape approach' working not only in the peripheries of parks and protected areas, but in larger priority corridors throughout the country."¹¹¹

¹¹¹ Marcus and Kull.

However, in the presidential elections of 2001, businessman and former mayor of Antananarivo Marc Ravalomanana defeated Ratsiraka after a battle for the presidency that caused a six-month long political crisis. During his presidency, Ravalomanana expressed a commitment to conservation. The U.S. Forest Service helped Madagascar design a “forest law enforcement strategy” in 2001, but the initiative suffered from lack of enforcement. Similarly, at the World Parks Congress in 2003, Ravalomanana committed to tripling Madagascar’s protected areas within five years. At present, the international environmental community and aid organizations contest the effectiveness of this pledge. Like much of Malagasy legislation concerning forests, these initiatives may have been fulfilled on paper, but enforcement (real protection) is not yet sure.

Since the development of the NEAP, much scholarship on conservation in Madagascar has echoed the uncertainty over the success of this system of resource management. Trends in international NGO involvement served as indicators of Madagascar’s political situations. The connection between conservation and international involvement had been sustained in the form of various partnerships between groups including: the governments of Madagascar, France, and the United States; aid organizations such as USAID and the World Bank; and international environmental NGOs, especially Conservation International and the WWF. Programs sponsored by USAID brought the US Forest Service to Madagascar to provide various kinds of aid, designing a new logging permitting system for “transparent management of financial resources,” providing forest zoning recommendations, assisting the development of an information management plan and system, and reforming forest law enforcement.¹¹²

¹¹² “Africa: Madagascar,” *US Forest Service International Programs* (accessed 17 Feb 2010), <http://www.fs.fed.us/global/globe/africa/madagascar.htm>.

Madagascar's government had strong incentive to commit to biodiversity conservation because it garnered international aid, but conservation schemes were not always successful. For instance, Richard Marcus judged ICDPs as ineffective in providing realistic economic alternatives for local communities to discourage overuse of resources.¹¹³ Marcus investigated whether conservation and development projects succeeded in improving perceptions of conservation efforts in communities neighboring three popular national parks in Madagascar. ICDPs were the primary avenue through which international groups hoped to encourage conservation in rural Malagasy communities. By providing alternative sources of revenue, ICDPs would ideally replace environmentally destructive activities that communities engaged in out of economic necessity. Marcus pointed out the mediocre impact that ICDPs have had in other countries. He measured the impact of ICDPs in Madagascar by comparing villages with ICDPs and villages without ICDPs on the periphery of national parks, and by examining the degree of individual participation in ICDPs. Marcus found that ICDPs "were not highly effective at increasing the well-being of villagers in the peripheral zones."¹¹⁴ This was perhaps because villagers did not connect conservation with the economic benefits of the ICDP, as was intended. Marcus stated that "there is a critical disconnection between conservation and development initiatives."¹¹⁵ Marcus's research showed that villagers view national parks as external and foreign entities.¹¹⁶

Difficulties with enforcement of conservation initiatives continued, especially after a recent period of political turmoil. This past spring, Andry Rajoelina displaced Ravalomanana

¹¹³ Richard R. Marcus, "Seeing the Forest for the Trees: Integrated Conservation and Development Projects and Local Perceptions of Conservation in Madagascar," *Human Ecology* 29:4 (Dec., 2001), 395.

¹¹⁴ *Ibid.*, 384.

¹¹⁵ *Ibid.*, 390.

¹¹⁶ *Ibid.*, 388.

and was leading a transitional government (that failed to follow through in its stated intentions to hold elections before the end of the 2009 calendar year). These political periods aligned roughly with certain developments in conservation: unstable forest management corresponded with political turbulence. Following the 2009 coup, bandits raided forests and harvested precious hardwoods that were later to be exported by a French company.¹¹⁷ The Missouri Botanical Gardens estimated 27,000-40,000 acres of protected rainforests were affected and over \$200 million in timber was harvested.¹¹⁸ To compound the problem, Rajoelina's transitional government gave permission for rosewood to be exported on December 31, 2009, widely speculated to be a move to finance his coming election campaign.¹¹⁹ Logging in national parks increased in 2010, mostly at the hands of well-connected international commercial interests rather than local Malagasy.

In Madagascar's post-independence history we saw that issues relating to resource rights and uses with respect to environmental protection and social justice have still not found a resolution. The difficulty in installing effective and sensitive conservation and resource management programs was closely related to political and economic resources. An additional important factor to successful forest conservation was psychological, relating to the perceived association of colonialism (manifested through "outsiders" imposing their management programs on the Malagasy) and conservation (an area that has attracted a significant amount of foreign attention). The following chapter will address how detrimental this association is and what recourse is most appropriate for future conservation efforts.

¹¹⁷ Jeremy Hance, "Thousands of tons of illegal timber in Madagascar readied for export," *Mongabay.com*, Mar. 13, 2010, http://news.mongabay.com/2010/0313-hance_mad.html.

¹¹⁸ Rhett A. Butler, "Coup leaders sell out Madagascar's forests, people," *Mongabay.com*, Jan. 27, 2010, <http://news.mongabay.com/2010/0127-madagascar.html>.

¹¹⁹ *Ibid.*

CHAPTER 5

A New Era in Conservation?

This chapter will examine the specific legacy of colonialism in Madagascar's conservation strategies. A persistent association between conservation and colonialism prevented effective incorporation and cooperation of local communities, still wary of "outsiders." Yet successful conservation could come from the Malagasy themselves. The village of Analafaly demonstrated a successful method of forest conservation in the arid south that was rooted in the rich rural Malagasy culture rather than science or environmentalism. What is important now is that Madagascar's rich and valuable environment is protected from undue harm. Forest loss can be prevented by sensitive and effective management and legislation; it is now of paramount importance to the global community to conserve Madagascar's varied species. Effective policy would give consideration to the benefits and costs of use schemes, weighing environmental, economic, and social aspects to achieve equitable and ecological outcomes.

The Legacy of Colonialism

The problematic association between conservation and colonialism continued far beyond Independence. As an island nation with astounding levels of species endemism and rich biodiversity, Madagascar received international attention from conservation interests hoping to preserve precious habitat and resources. The colonial record of exploitation and oppression worked in part to undermine modern conservation efforts. Too often, the Western conservation model continued a characteristically colonial approach to conservation. The transnational NGOs that had largely directed Madagascar's conservation strategies since the environmental boom in

the 1980-90s operated as another foreign influence, and the policies that resulted were often, despite attempts otherwise, ineffective and ignorant of local community needs.

Serious barriers to effective conservation legislation persisted. These included ignorance of Malagasy language and dialects, cultures, and traditions—important facets of conservation efforts. Without collaboration between conservation organizations and local peoples, conservation management strategies would continue to hit the same roadblocks that have characterized failed efforts for years. Sussman, Green, and Sussman pointed out that economic hardships brought about most deforestation that occurred in the south after 1970 and offered a prescription for successful conservation, stating, “In reality, to slow deforestation and maintain an integral forest in the east, conservation efforts must be focused at the fronts of deforestation and ultimately involve a cooperative effort by conservationists and *local* people to develop means of establishing sustainable use of lands that have already been cleared.”¹²⁰ Economic viability was a necessary component of conservation; in an area that suffers from poverty and hunger, resource preservation for environmental reasons was difficult. However, conservation with the support of local communities was not a lost cause in Madagascar, as we will see in the following case study analysis of the role of tradition in conservation.

Cultural Conservation: The Case of Analafaly

The sacred grove of Analafaly, a *fokantany* or *quartier* (village), of the commune of Faux Cap in the Androy region of southern Madagascar, was an interesting case study of conservation brought about through a cultural avenue. One strategy of modern environmental conservation efforts was linking with cultural institutions; traditional taboos called *fady* governed much of

¹²⁰ Sussman, Green, and Sussman, 340.

rural Malagasy life, and taboos against forest exploitation or protecting only a particular species, both common occurrences, were a rich resource for preventing forest (and habitat) loss. The very name of their village, *Analafaly*, means “sacred forest;” the village exemplified the successful institutionalization of conservation.

The history of Analafaly, recounted to me when I returned to visit in November 2009 after I had lived with them during my village stay two months prior, chronicled the potentials for conservation if effective communication could be achieved between local communities and remote governing bodies. When the colonists arrived at the turn of the century, the local Tandroy people used the cactus as a tool of resistance against them and as a result, the colonists felt it necessary to deforest the area in order to control the people. The villagers of Analafaly recognized the colonists as a threat to their sacred forest. Therefore, they explained the importance of their forest to the local colonial administrators and asked them to respect it. The colonial administration complied, leaving that parcel of forest alone. It still thrived at the time of my visit, harboring various plants and animals (such as turtles, birds, and lizards) and providing a place for *apiculture* (honey production).

This case study featured a very dedicated village of forest proprietors. The history of the village was inextricably linked to the forest: the ancestors decided to move the village to its current location from Anovy-Sud in order to protect the forest and enforce the restrictions on use. The associated responsibilities, such as informing visitors of how to respect the *fady*, or traditional taboos, were shared by all villagers. This ensured that visitors did not unknowingly desecrate the forest. The collaboration and cooperation between people in a village was common; the challenge was to extend the sense of togetherness and community. Ethnic tensions

made partnership difficult. Yet, cultural conservation might still play a large role in localized, regional strategies.

In considering tradition as a motivating force for conservation, one must examine the presence and trajectory of tradition in society. For example, the advent of Christianity shifted some *fady*—despite reassurances by the villagers that *fady* never changes, alterations in tradition are evident in some aspects of life. While the *fady* associated with the sacred forest of Analafaly had not changed, the possibility of future change could not be discounted. For this reason, religious environmentalism would benefit from legislative enforcement, since traditional and ecological ideologies do not always align. An awareness of the potential for shifting values and their effects on traditions and *fady* would be helpful when addressing change, if and when it occurs. Analafaly's forest benefited tremendously from its dedicated village of proprietors and if nothing changes will continue to thrive.

The biodiversity historically present in sacred forests bolstered and supported Madagascar's culture by ensuring the survival of biological aspects that carry unique associations with certain foods, livelihoods, traditions, and medicines. For example, the Tandroy culture was very nearly defined by the arid and harsh southern environment they inhabit. It was *fady* to eat certain turtle species that are threatened, and rare sacred forests must be respected as an extension of the revered ancestors. Biodiversity thrived in landscape heterogeneity, thus sacred forests comprised a haven for many species in the surrounding areas. The case of Analafaly illustrated what the international community often overlooks: that Malagasy have the largest stake in Madagascar's resource management.

Looking Forward: Policy Recommendations

It was evident that the conservation measures then in place had serious deficits that prevented effective forest protection. Here, history offered a body of experience. Conservation efforts that replicated the colonial system of appropriation and exclusion were limited by the lack of cooperation from local communities. Agendas that ignored the needs of these Malagasy would always be sub-optimal, since Madagascar's infrastructural problems impeded centralized control, making local communities' involvement a necessary part of conservation. Indeed, rural Malagasy villages could be a great resource for conservation, provided they had a means for living that did not inflict unnecessary harm onto forests and did not drastically change their way of life. As in the case of Analafaly, limited use of the forest had the beneficial effect of encouraging the community to take ownership over the survival of the forest. At the national level, a commitment to conservation from the government was necessary in practice as well as intention. Foresters were still scarce due to limited resources, allowing large-scale unlawful forest exploitation such as the rosewood incident this past winter. Some problems were complex and therefore difficult to solve. For example, corruption was an ongoing concern, but one unlikely to be solved by forest legislation. However, alleviating poverty will go a long way toward mitigating these obstacles. Although this does not make matters less complicated, it does set some parameters for conservation legislation.

Conservation faced serious complications with respect to economic development. *Tavy* was certainly a threat to forests, having become deeply culturally entrenched. In September 2009, during excursions within a day's drive of Fort Dauphin, I observed a number of cleared patches on the edge of forests. These tracts showed various signs of *tavy*, from charred tree stumps sticking out of the ground to giant plumes of smoke arising from the vicinity (Figure 2).

Even in a relatively urban environment in the arid south, Malagasy farmers were evidently still practicing *tavy*. In my first week in Madagascar, after a lecture on protected areas, we hiked into the forest only to find evidence of deforestation; this did not faze our Malagasy guide. A month later, during a stay in the Androy region, I witnessed *tavy* first hand. *Tavy* seemed a normal part of the rural community's way of life and thus it may have seemed natural to show me *tavy* during my village stay (Figure 3). Conservation measures that seek to limit *tavy* in the interest of preserving forests must be sensitive to *tavy*'s cultural importance and its role as necessary for some rural Malagasy's sustenance.



*Figure 2. Evidence of deforestation on Pic Boby in Fort Dauphin (left).¹²¹
Figure 3. Rural Malagasy farmer practicing tavy (right).*

A contrasting scene manifested during a visit to the QIT Madagascar Minerals (QMM) site in Fort Dauphin.¹²² The QMM ilmenite project was the largest project in Madagascar's history; its operations provided infrastructural improvements for the Fort Dauphin area

¹²¹ Photos by author (Figures 2-4), September-October 2009.

¹²² QMM is an ilmenite mining project located in Fort Dauphin that began in 2005. QMM is the result of a partnership between Rio Tinto and the government of Madagascar. Rio Tinto has a poor environmental track record.

(including paved roads, housing developments, and a new port). However, this project required the destruction of three sections of ecologically important forests. In September 2009, the project site looked like a desert (Figure 4).



Figure 4. At the QMM project site in Fort Dauphin.

These photographs demonstrated the continued problem with deforestation in Madagascar. Large-scale economic development posed another threat to forest preservation. Although the mine brought investors to Madagascar and continued to provide jobs for Malagasy, many environmental NGOs opposed it due to its destructive nature. These concerns were partially mitigated by QMM's proposed ecological restoration project, but the elimination of forest habitats and resources as a consequence of mining was not optimal. Even large projects designed to bring employment into the area did not stop *tavy* from occurring in nearby forests; meanwhile, the destructive properties of large-scale industry were at work on the environment. It is imperative that environmental policies offer effective protections against overexploitation while guarding against depriving Malagasy communities of resources.

There must exist a balance between development and conservation. A controversial land deal threatened to upend this balance in 2008, when the South Korean company Daewoo

Logistics negotiated a deal to lease half of Madagascar's arable land for the production of corn and palm oil.¹²³ This was another development in a long history of land exploitation by "outsiders," a frequent theme in Madagascar's colonial history. The publicity of this deal damaged the reputation of then-President Ravalomanana; one of the first acts by Rajoelina when he seized power was to cancel the unpopular deal. Unfortunately, in the political turmoil that followed, the environment suffered from exploitation from diverse parties ranging from individual bandits to international corporations.

¹²³ Vivienne Walt, "The Breadbasket of South Korea: Madagascar," *Time*, Nov. 23, 2008, <http://www.time.com/time/world/article/0,8599,1861145,00.html>.

CONCLUSION

An investigation into the environmental history of Madagascar's forests shows the multifaceted effects of colonialism on deforestation. The colonial regime pursued an aggressive economic program based on the exploitation of Madagascar's resources to the detriment of the Malagasy people and land. Additionally, the French government introduced protected area legislation in 1927 that excluded local communities from the forests and later incensed them to acts of resistance that, again, damaged the environment. The exclusion of local people from the forest was culturally and economically upsetting: in addition to a denial of natural resources, the restrictions severed important connections with the forest.¹²⁴

Yet, while the colonial regime broke many bonds between the Malagasy and their forests, it also helped forge new ones. Malagasy frequently turned to the forests in response to colonial action. When concessions displaced Malagasy farmers and retracted their lands, they escaped to pursue shifting cultivation in the forests; when the French quashed the 1947-48 revolts, revolutionaries hid in the forests. Resource requirements, including both those of the metropole and those of local communities), and power relations therefore compounded the effects of colonialism on deforestation.

By exploiting and dispossessing Malagasy from the land, the French colonial government wreaked havoc—not only on the land, but also on future conservation efforts. The high degree of ecological destruction was an unintended consequence of development, resulting from administrative short-sightedness and a profit-driven colonial mentality. Furthermore, the perceived link between colonialism and conservation prejudiced some Malagasy against

¹²⁴ K. Brown, 348.

environmental protection initiatives even after the French granted Madagascar its independence in 1960.

The particular history of deforestation in Madagascar should inform policy decisions in order to yield effective conservation legislation and forest resource management. As resource and protected area management schemes shift and evolve, greater consideration should be given to local communities' needs, as well as their involvement and consent in conservation projects. Yet problems persist: divergent priorities make agreement over resource allocation difficult. Solutions to these impediments can be achieved by working for greater sensitivity and cooperation between local communities and larger conservation organizations. Lessons from Madagascar's colonial era can and should be applied to contemporary conservation strategies in order to achieve comprehensive and appropriate conservation legislation and better-protected area management. Policy should explicitly advocate the preservation of ecologically valuable biodiversity and requisite environmental protection by creating a legislative framework around which local groups and communities can implement complementary initiatives that will address conservation without neglecting community needs.

In addition to providing some insight into effective conservation today, environmental history provides an alternative lens through which one can examine African history. The intersection between colonialism and Madagascar's environment demonstrates the enduring connection between politics and ecology. The histories and legacies of resource rights and use during colonialism and post-colonialism moreover provide a new perspective from which one can achieve a richer consideration of African history.

SELECTED BIBLIOGRAPHY

Primary Sources

- Cayla, Léon. *Terres d'outre-mer. Destin d'un empire*. Paris: Ed. du Trielet, 1948.
- Desfeuilles, P. *Les Colonies Françaises: Madagascar*. Paris: Edition Pierre Roger, 1932.
- Girod-Genet, Lucien. "A Madagascar. Aperçus sur les forêts et leur exploitation." Extract from *Journal du Commerce des bois*. Paris: P. Dupont, 1904 (AOM: BIB SOM b/Br/10513).
- Humbert, Henri. "La disparition des forêts à Madagascar. Ses causes, ses conséquences." *Revue générale des Sciences pures et appliquées* T. XXXVII, no. 11 (15 Juin 1927), 325-336 (AOM: BIB AOM B12530).
- Lavauden, L. *Le problème forestier colonial*. Berger-Levrault, 1931 (AOM: BIB ECOL //13219).
- . *La forêt équatoriale, son passé, son présent, son avenir*. Paris : Association colonies-sciences : Comité national des bois coloniaux, 1935 (AOM: BIB SOM c/Br/2697).
- Levy. "La forêt malgache. Conférence faite à l'Ecole coloniale le 18 décembre 1911." *Conférences publiques sur Madagascar faites à l'Ecole coloniale pendant l'année scolaire 1911-1912*. Paris: Chaix, 1912.
- Little, Rev. Henry W. *Madagascar: Its History and People*. London: William Blackwood & Sons, 1884.
- Louvel, M. "Les forêts de l'ouest de Madagascar. Suivi du décret du 28 Août 1913 sur le régime forestier de Madagascar." Extract from *L'Agriculture pratique des pays chauds*. Paris: A. Challamel, 1914 (AOM: BIB SOM c1069).
- Parker, G. W. "On the New Code of Laws for the Hova Kingdom of Madagascar, Promulgated at Antananarivo on March 29th, 1881." *The Journal of the Anthropological Institute of Great Britain and Ireland* 12 (1883), 306-318.
- Perrier de la Bâthie, Henri. *La Végétation Malgache*. Marseille: Musée Colonial, 1921.
- Rapport du Général Gallieni, *Madagascar de 1896 à 1905*. Tananarive, Impr. Officielle: 30 April 1905 (Académie Malgache, Fonds Grandidier 0770).
- "Rapport du Service Forestier, Année 1922." (AOM 5(18)D5).
- Shaw, George A. *Madagascar and France, with Some Account of the Island, its People, its Resources and Development*. London: The Religious Tract Society, 1885.

Secondary Sources

- “Africa: Madagascar.” *US Forest Service International Programs* (accessed 17 Feb 2010).
<http://www.fs.fed.us/global/globe/africa/madagascar.htm>.
- Aldrich, Robert. *Greater France: A History of French Overseas Expansion*. New York: St. Martin’s Press, 1996.
- Anderson, David and Richard Grove, eds. *Conservation in Africa: People, Policies and Practice*. New York: Cambridge University Press, 1987.
- Boahen, A. Adu, ed. *Africa Under Colonial Domination 1880-1935*. Vol. 2, *General History of Africa*. University of California Press, 1985.
- Boiteau, Pierre. *Contribution a l’histoire de la nation malgache*. Paris: Ministère de la Culture et de l’Art révolutionnaires de la République démocratique de Madagascar, 1982.
- Brown, Karen. “‘Trees, Forests and Communities’: Some Historiographical Approaches to Environmental History on Africa.” *Area* 35:4 (Dec., 2003), 343-356.
- Brown, Mervyn. *A History of Madagascar*. Princeton, NJ: Markus Wiener Publishers, 2006.
- Burney, David A., et al. “A chronology for late prehistoric Madagascar.” *Journal of Human Evolution* 47 (2004), 25-63.
- Butler, Rhett A. “Coups leaders sell out Madagascar’s forests, people.” *Mondabay.com*, Jan. 27, 2010. <http://news.mongabay.com/2010/0127-madagascar.html>.
- Culotta, Elizabeth. “Many Suspects to Blame in Madagascar Extinctions.” *Science* 268:5217 (June 16, 1995), 1568-9.
- Davis, Diana K. “Environmentalism as Social Control? An Exploration of the Transformation of Pastoral Nomadic Societies in French Colonial North Africa.” *The Arab World Geographer* 3:3 (2000), 182-198.
- “Defining Protected Area Management Categories.” *IUCN* (accessed Feb. 21, 2010).
http://www.unep-wcmc.org/protected_areas/categories/.
- Dewar, Robert E. “Does It Matter that Madagascar is an Island?” *Human Ecology* 25:3 (1997), 481-489.
- Dewar, Robert E. and Henry T. Wright. “The Culture History of Madagascar.” *Journal of World Prehistory* 7:4 (1993), 417-466.
- Fairhead, James and Melissa Leach. “False Forest History, Complicit Social Analysis: Rethinking Some West African Environmental Narratives.” *World Development* 23:6 (1995), 1023-1035.

- . *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic*. Cambridge, UK: Cambridge University Press, 2002.
- Gade, Daniel W. “Considering Madagascar’s Deforestation Story in Paradigmatic and Reflexive Terms.” Jeffery C Kauffman, ed. *Greening the Great Red Island: Madagascar in Nature and Culture*. Pretoria, South Africa: The Africa Institute of South Africa, 2008.
- . “Deforestation and Its Effects in Highland Madagascar.” *Mountain Research and Development* 16:2 (May 1996), 101-116.
- Green, Glen M. and Robert W. Sussman. “Deforestation History of the Eastern Rain Forests of Madagascar from Satellite Images.” *Science* 248:4952 (Apr. 13, 1990), 212-215.
- Grove, Richard. “Conserving Eden: The (European) East India Companies and their Environmental Policies on St. Helena, Mauritius and in Western India, 1660 to 1854.” *Comparative Studies in Society and History* 35:2 (Apr., 1993), 318-351.
- . *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860*. Cambridge: Cambridge University Press, 1995.
- Guha, Ramachandra. “The Prehistory of Community Forestry in India.” *Environmental History* 6:2 (Apr., 2001), 213-238.
- Hance, Jeremy. “Thousands of tons of illegal timber in Madagascar readied for export.” *Mongabay.com*, Mar. 13, 2010. http://news.mongabay.com/2010/0313-hance_mad.html.
- Harff, Barbara and Ted Robert Gurr. “Toward Empirical Theory of Genocides and Politicides: Identification and Measurement of Cases Since 1945.” *International Studies Quarterly* 32:3 (Sept., 1988), 359-371.
- Henkels, Diane. “A Close Up of Malagasy Environmental Law.” *Vermont Journal of Environmental Law* 3 (2001-02). <http://www.vjel.org/print.php?guid=VJEL10009&cat=journal#ref28>.
- Jarosz, Lucy. “Defining and Explaining Tropical Deforestation: Shifting Cultivation and Population Growth in Colonial Madagascar (1896-1940).” *Economic Geography* 69:4 (Oct., 1993), 366-379.
- . “Defining Deforestation in Madagascar,” in R. Peet and M. Watts, eds. *Liberation Ecologies: Environments, Development, Social Movements*. New York, 1996
- Kull, Christian. “The Evolution of Conservation Efforts in Madagascar.” *International Environmental Affairs* 8:1 (1996), 50-86.

- . “Saving the Land with a Spade: Human Landscape Transformations in the Madagascar Highlands.” Jeffery C Kauffman, ed. *Greening the Great Red Island: Madagascar in Nature and Culture*. Pretoria, South Africa: The Africa Institute of South Africa, 2008.
- . “Deforestation, erosion, and fire; degradation myths in the environmental history of Madagascar.” *Environment and History* 6:4 (2000), 423-450.
- . *Isle of Fire: The Political Ecology of Landscape Burning in Madagascar*. Chicago: The University of Chicago Press, 2004.
- Loomba, Anita. *Colonialism/Postcolonialism*. New York: Routledge, 2000.
- “Madagascar National Parks.” *MNP* (accessed Oct. 29, 2010).
<http://www.parcs-madagascar.com/index.php>
- Marcus, Richard and Christian Kull. “Setting the Stage: The Politics of Madagascar’s Environmental Efforts.” *African Studies Quarterly* 3:2 (Fall 1999).
<http://web.africa.ufl.edu/asq/v3/v3i2a1.htm>.
- Montagne, Pierre and Bruno Ramamonjisoa. “Politiques foresitières à Madagascar entre repression et autonomie des acteurs.” *Économie rurale* 294-295 (July-Oct., 2006), 9-26.
- Moreau, Sophie. Joanna Burnett, trans. “Environmental Misunderstandings.” Jeffery C Kauffman, ed. *Greening the Great Red Island: Madagascar in Nature and Culture*. Pretoria, South Africa: The Africa Institute of South Africa, 2008.
- Norton, I. O. and J. G. Sclater. “A Model for the Evolution of the Indian Ocean and the Breakup of Gondwanaland.” *Journal of Geophysical Research* 84:B12 (Nov. 10, 1979), 6803-6830.
- Rabinowitz, Philip D., Millard F. Coffin, and David Falvey. “The Separation of Madagascar and Africa.” *Science* 220:4592 (Apr. 1, 1983), 67-69.
- Raik, Daniela. “Forest Management in Madagascar: A Historical Overview,” *Madagascar Conservation and Development* 2:1 (Dec., 2007), 5-10.
- Randrianja, Solofo and Stephen Ellis. *Madagascar: A Short History*. Chicago: The University of Chicago Press, 2009.
- Scott, James. “Everyday Forms of Peasant Resistance.” *Journal of Peasant Studies* 13:3 (1986).
- . *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press, 1998.
- Sodikoff, Genese. “Forced and Forest Labor Regimes in Colonial Madagascar, 1926-1936.” *Ethnohistory* 52:2 (Spring 2005), 407-435.

- . “Forest Conservation and Low-Wage Labor.” Jeffery C Kauffman, ed. *Greening the Great Red Island: Madagascar in Nature and Culture*. Pretoria, South Africa: The Africa Institute of South Africa, 2008.
- Sussman, Robert W., Glen M. Green, and Linda K. Sussman, “The Use of Satellite Imagery and Anthropology to Assess the Causes of Deforestation in Madagascar,” in Leslie E. Sponsel, Thomas N. Headland, and Robert C. Bailey, eds., *Tropical Deforestation: The Human Dimension*. New York: Columbia University Press, 1996.
- Tyson, Peter. *The Eight Continent: Life, Death, and Discovery in the Lost World of Madagascar*. New York: William Morrow, 2000.
- UNDP, UNEP, World Bank, and World Resources Institute. *World Resources 2000-2001: People and Ecosystems: The Fraying Web of Life* in World Resources Series. Washington, D.C.: United Nations, 2000.
- Walt, Vivienne. “The Breadbasket of South Korea: Madagascar.” *Time*, Nov. 23, 2008. <http://www.time.com/time/world/article/0,8599,1861145,00.html>.
- Williams, Michael. *Deforesting the Earth: From Prehistory to Global Crisis*. Chicago: The University of Chicago Press, 2003.
- Young, Crawford. *The African Colonial State in Comparative Perspective*. New Haven, CT: Yale University Press, 1994.