Eco-Governance in French Algeria: Environmental History, Policy, and Colonial Administration

Winner of the 2004 Millstone Prize

Diana K. Davis
University of Texas

Scholars of colonialism are familiar with the many changes wrought by colonial administration, especially for the lives of indigenous peoples all over the world. French historians such as Charles-Robert Ageron, Charles-André Julien, and André Nouschi have been especially effective at documenting the multiple ways that French administration facilitated the expropriation of land, forests, and other natural resources from Algerians throughout the colonial period. What has been less well explored to this point are

The research for this paper would not have been possible without the generous funding of a National Endowment for the Humanities Summer Fellowship and two University of Texas at Austin Faculty Research Grants. I am very grateful to many who helped me at Les Archives Diplomatiques de Nantes, France, L'Institut du Monde Arabe, Paris, France, Le Centre des Archives d'Outre-Mer, Aix-en-Provence, France and l'École Nationale du Génie Rural et des Eaux et Forêts, Nancy, France. I would also like to thank James Housefield, Mark Lawrence, Patricia Pelley, and especially Alyssa Sepinwall, Kay Edwards, and Carol Harrison for their help.

the ways that French environmental history of North Africa, and thus environmental and related policies in colonial Algeria, were used to facilitate the appropriation of these resources and to effect social control.

Within the first two decades of the French occupation of Algeria an environmental narrative took shape that blamed the indigenous populations, especially the Arab nomads, for ruining what was claimed to have been a previously fertile, forested landscape. This questionable narrative was used to help to justify the appropriation of most forested land, for example, in the name of environmental protection. It was also used to appropriate the majority of agricultural lands, as well as most of the best pasture lands, for colonial production. Recent ecological research, however, has called into question much of the deforestation and desertification assumed in the French colonial narrative.

This paper argues that the use of such a fabricated environmental history and related policies acted as forms of what Michael Goldman has called eco-governmentality. Eco-governmentality, Goldman theorizes, integrates "the making of the modern rational subject and . . . the intensified regulation of the relation of these subjects to their natural territory." These "productive relations of government" are especially important to consider in examining the nineteenth century, a time when subsistence production in Algeria was systematically transformed into commodity production, a process that required large amounts of land, natural resources, and labor. The

---


declensionist environmental narrative constructed under French occupation facilitated this transformation by portraying indigenous land use systems as irrational, destructive, and in need of improvement, correction, and regulation.

**Algeria and North Africa**

**in the French Colonial Imagination**

Algeria and North Africa were well known to many in France and in Europe as fertile lands long before the 1830 conquest of Algiers inaugurated the French colonial project in North Africa. Within two decades of occupation, a story developed from this image of fertility that was used throughout the colonial period to justify and to motivate French colonization in North Africa. It was written primarily by military men, colonial administrators, the colonial lobby, foresters, settlers, and businessmen. This fanciful story was in part political history and in part an elaborate environmental history of the last two millennia. Informed by familiar readings of classical sources such as Herodotus, Pliny, Strabo, and Ptolemy, French writers increasingly depicted North Africa as "the most fertile region in the world."³

The writings of the Scientific Commission of Algeria formalized the idea that the North African environment was a landscape of spectacular natural fertility during the Roman period. This commission studied Algeria scientifically on the order of the French government in the late 1830s and early 1840s. The result was the thirty-nine volume *Exploration Scientifique de l’Algérie*.⁴ "This land, ³ P. Christian, *L’Afrique française, l’empire du Maroc et les déserts du Sahara* (Paris: A. Barbier, 1846), 315.
⁴ The thirty-nine volumes were published over a period of twenty-three years beginning in 1844. See Michael Heffernan, "An Imperial
once the object of intensive cultivation, was neither deforested nor depopulated as today... it was the abundant granary of Rome," wrote one of the authors, a colonist and physician, in 1847. By the second half of the nineteenth century, as a result of the *Exploration Scientifique* and numerous other official publications, the story had become firmly ingrained in the French mind that North Africa had been the granary of Rome. This false image was bolstered by the archaeological evidence of Roman ruins, including aqueducts and other irrigation structures as well as towns and olive presses that appeared to have supported the production of large quantities of grain.

The claim that the Romans successfully exploited North Africa's natural fertility was accompanied by a story of the subsequent destruction, deforestation, and desertification of...
the environment by hordes of Arab nomads and their voracious herds of livestock.\(^8\) Popular and official government writings repeated frequently that "the profound convulsions that since the Roman era have upset the country: the passage of the Arab armies and later the Hillalian tribal invasion . . . have made of this country a desert strewn with ruins which, however, attest to its ancient prosperity."\(^9\) Once this story of decay and decline was constructed, it was then commonly argued that it was the duty and honor of the French to restore North Africa: "it is our [French] responsibility to raise Algeria from her fallen state, and to return her to her past glory."\(^10\) Indeed, as Patricia Lorcin has argued, by 1860 "the concept of the Roman legacy as integral to the Western tradition that bound Algeria to France had taken shape."\(^11\) Illustrations in French publications regularly reinforced these ideas.

---


\(^10\) Perier, 30.

\(^11\) Patricia M. Lorcin, "Rome and France in Africa: Recovering Colonial Algeria's Latin Past," *French Historical Studies* 25 (2002): 295-329. This author provides a masterful discussion of the complex and widespread appropriation of Rome by France and its legacy in Algeria. Heffnerman, "The Desert" also details some of the ways that the Roman heritage was invoked and used in Algeria.
throughout the colonial period (figure 1). The caption of this illustration reads: "numerous monumental arches mark the ruins of the ancient Cuicul, Djemila, magnificent evidence of Roman power in Africa. In the midst of a country then wooded, it was a vacation and summer holiday town."\footnote{Clément Alzonne, *L'Algérie* (Paris: Fernand Nathan, 1937), 6.}
A significant part of the evidence of North Africa's fertility was the claim of the previous existence of vast and lush forests. These descriptions of large forests were derived mostly from Greek and Roman sources. Thus in 1846, one French author quoted Strabo as evidence that "all of the [land] situated between Carthage and the Pillars of Hercules (from Tunis to the [Atlantic] ocean) is of an extreme fertility," and Pliny as evidence for "the grand forests of which the sides [of the Atlas mountains] are covered."\textsuperscript{13} Large forests were believed to have once covered not only North Africa's mountains, but also many of the southern desert regions. One forest inspector wrote from his observations in southern Algeria that "we are therefore right to conclude that the principal cause of the current dryness is the disappearance of clumps of woods that previously covered the country, and that their restoration will bring back the general conditions which permitted the development of agriculture, of commerce and of industry, under Roman domination."\textsuperscript{14} Such regular official claims justified French colonial policies concerning agriculture, pastoralism, livestock production, and forestry.

While the French drew on ancient classical sources for most of their evidence of North Africa's former fertility, they borrowed largely from the writings of medieval Arab historians for evidence of the region's apparent decay and decline at the hands of Arab nomads and their herds. Ibn Khaldoun's writings provided an oft-cited source for many of the French colonial accusations of the ruin wrought by the Arab nomad "invasion" of the eleventh century. It became especially commonplace after the 1850s for authors


\textsuperscript{14} Ibid., 6
to include lengthy descriptions of the destruction caused by the Arab invasion from the East. In 1869, Henri Verne, an ardent colonist, professed, for example, that "when the Arabs invaded the North of Africa . . . cities were annihilated, fire destroyed the harvests, the plantations, the forests, and a society newly established on this land was devastated."\textsuperscript{15} Ibn Khaldou\n was cited repeatedly during the last half of the nineteenth century and the first several decades of the twentieth for his description of the Arab nomads as locusts that "ruined gardens and cut down all the trees."\textsuperscript{16} Many authors also cited Ibn Khaldoun for evidence that "the Arabs have been fatal . . . by their way of life and their habits; it is their sheep, their camels, their goats that have ruined North Africa."\textsuperscript{17}

This story of North Africa as the granary of Rome, subsequently ruined by the Arab nomad "invasion," allowed the French to create a justification and an imperative for their colonial projects. They told themselves and the world that they must save North Africa from the "destructive natives" in order to restore the former glory and agricultural fertility of Rome.\textsuperscript{18} André Fribourg, deputy and member of the Superior Council of the Colonies, provided a characteristic proclamation in his book \textit{L'Afrique Latine}. In the section sub\textsuperscript{ted, "France, Heir of Rome" Fribourg pronounced, "and here is traced the role of

\textsuperscript{15} Verne, 20.


\textsuperscript{17} Ibid. Several authors have argued that this interpretation of Ibn Khaldoun is flawed and that it was used in the service of French imperialism. See Yves Lacoste, \textit{Ibn Khaldun: the Birth of History and the Past of the Third World}, trans. David Macey (London: Verso, 1984 [1966]), and Shaw.

France in the wealthy isle [North Africa]: to take back the work interrupted for 1500 years, [and to] facilitate the rebirth of civilization by order and peace.”

Contemporary research, however, has shown that the land produced no more grain during the Roman period than it does now; furthermore, work in arid lands ecology and pastoral studies has questioned the destructiveness of traditional land uses assumed in this declensionist narrative. Many experts have concluded, to the contrary, that Roman over-cultivation was followed by "a phase of relative soil conservation and vegetative regeneration with the more nomadic land use system of the Arabs.” Recent paleoecological studies of fossil pollen analyses covering the last several thousand years, moreover, have not found evidence of massive deforestation over the last two millennia as was commonly claimed during the colonial period. Most deforestation in fact occurred during the colonial period itself.

---

Contemporary techniques such as fossil pollen analysis were obviously not available in the nineteenth century, so relict vegetation provided the basis for the interpretation of earlier vegetation states. This methodology produced subjective choices about how to interpret the environmental evidence and about the indigenous Algerian populations. Interpretations of the environment and interpretations about the local people both had political ramifications.

Associated with this elaborate environmental narrative, a similarly dualistic view of the local populations developed early in the French occupation. The colonial administration classified the "Berbers" as the original inhabitants, and the "Arabs" as the "invaders" who were nomadic. The Berbers were portrayed as sedentary, agricultural, and, therefore, good (or at least better) stewards of the environment. When this view of the local populations combined with the story of environmental devastation wreaked by the Arab nomads, it led to the "rational" conclusion that the Arabs must be "immobilized and civilized." The following quotation expresses this conclusion well:

---


23 Shaw.

Thus will civilization advance . . . it follows that the establishment of private property and the extension of colonization are indispensable where the Arabs are concerned; that military authority must maintain the native in a state of immobility which will fatally lead to their extinction. A barbaric people can not find themselves faced with an advanced civilization without engaging in a duel to the death. Civilization must conquer barbarism or perish itself. Let us work therefore to transform this race: there lies our interest, there also lies their salvation.25

This anti-nomad bias, in conjunction with the story of environmental destruction the French had constructed, resulted in a powerful, nearly ideological, policy of sedentarization. The nomads and their herds were blamed for irrationally destroying forests and for creating deserts. The need to control their allegedly destructive activities helped to shape colonial administration. The impact of this environmental narrative on colonial policy in Algeria, and later in Tunisia and Morocco, was wide ranging. It justified the appropriation of forests by the state, the expropriation of large amounts of agricultural and pasture land, the development of elaborate agricultural policies, and the control of pastoral nomadic populations in the name of environmental protection.26

Winners and Losers: The Art of Eco-governmentality

Although it is difficult to identify exactly who first wrote which part of this complex French colonial

25 Verne, 36.

26 A good example of Berbers being lauded as environmental stewards is provided by Paul Boudy, L’Arbre et les forêts au Maroc (Rabat: Résidence Générale de France au Maroc, Direction Générale des Affaires Indigènes, 1927), 17. For an excellent discussion of the Berber policy in Morocco, see Burke, and for France's ideas of its Roman heritage see Lorcin, "Rome and France," and Perier.
environmental history, it is possible to identify many of those who used it and for what purposes. In assessing many of the outcomes of its utilization, it is also possible to tease out who won and who lost as the narrative was put into effect. This declensionist narrative served three primary purposes throughout the colonial period: appropriation of land and resources, social control (including the provision of labor), and the transformation of subsistence production into commodity production. In all of these areas imperial interests won over indigenous interests most of the time. That is, the powerful used the environmental narrative to help govern the less powerful.

When the French conquered Algeria, the vast majority of the indigenous population was pastoralist or agro-pastoralist; that is, nearly all rural inhabitants raised some form of livestock.\(^{27}\) One of the most widespread local land management techniques was semi-controlled burning to create productive pastures for livestock grazing and to prepare agricultural land.\(^{28}\) Throughout the country, forested areas were regularly utilized as a source of grazing for livestock. A majority of Algerians were engaged in subsistence production centered on plant and animal agriculture. The colonial administration and the colonists perceived these indigenous land uses as irrational and destructive.

Much of the Algerian population at the time of conquest was highly mobile, with access to horses and camels. A significant part of the population fought colonial


occupation fiercely. It took nearly thirty years of battle, until 1857, to finally "pacify" this rebellious population. It is not surprising then that the military and related administrators commonly utilized the declensionist environmental narrative to justify conquering rebellious tribes, sedentarizing nomads, and criminalizing traditional land uses. It was widely claimed that "the nomadic life of the Arabs is an obstacle to our domination as well as [an obstacle] to the civilizing action we must exercise."  

As early as 1845, the military put these ideas into practice by constructing a model village, the purpose of which was the "progressive fixation of the nomads to the soil."  

The levying of taxes that had to be paid in money and not in kind was another way the French administration exerted social and economic control over Algerians. At the same time Algerians were being forcibly engaged with the money economy through taxation, the criminalization of most indigenous uses of the forests and other lands squeezed their subsistence base and forced many into wage labor. In this way, a growing demand for cheap labor was supplied.

The appropriation of land and resources by imperial interests also squeezed Algerians' social reproduction in important ways. Forested lands were some of the earliest to be expropriated. All forests were declared property of the state in 1830, and the French forest code of 1827 was

---

30 Centre des Archives d'Outre-Mer [hereafter CAOM], GGA, 8H/10, letter from Capitaine Lapasset of the Arab Bureaux, to the Duc d'Aumale, Governor General of Algeria, 12 Jan. 1848.
31 See Julien.
applied. Many justified these actions in the name of environmental protection and reforestation. It was the application of the forest code and its significant revisions over the years that criminalized the multiple traditional uses of the forest. Although environmental, climatological, and health reasons were often invoked for forest regulation, the primary reason for the elimination of traditional forest use was the colonial economic interest in cork and timber production. The first of many subsequent government concessions to private companies for cork and timber extraction was made in 1848 to a Parisian businessman. These changes effectively transformed what had been primarily subsistence production in forested areas to commodity production of timber, cork, and other economically valuable forest products.

Two years before the first forest concession, a law was passed that defined land not under cultivation as "waste" land that was simply taken, without indemnification, for colonization efforts. Huge areas of valuable grazing land were lost due to this 1846 law, as were large areas of fallow local agricultural land. In 1848, Algeria was made an official part of France. This act was followed by the policy of the delimitation (cantonnement) of tribal lands in the 1850s, which further marginalized the pastoralists as the state appropriated more of their land on the grounds that

---


34 See Ageron, *Modern Algeria* and Julien.
they could not "productively" use all the land they had.\textsuperscript{35} Taking land from the Algerians was further justified on the grounds that the locals had destroyed the environment. According to one agricultural expert, the vegetation cover had been destroyed by "grazing . . . and above all by the fires that, each year, the Arabs light in all the land destined for cereal cultivation or the nourishment of their livestock."\textsuperscript{36} This author also blamed the Arabs for what he called the exhaustion of the soil of Algeria "by 10 centuries of barbarism and abandon."\textsuperscript{37}

Blaming the Algerians and their allegedly destructive land use practices for deforestation and desertification intensified over the course of French occupation. This narrative justified important laws in 1863, 1873, and 1887 that together destroyed indigenous, communal land tenure regimes and instituted individual, private property rights, thereby stripping large numbers of Algerians of access to their lands.\textsuperscript{38} Rather than diminishing as more and more nomads sedentarized, blame came to be placed increasingly on pastoral nomads for a variety of perceived ills. By 1906, one of the pre-eminent scholars on North Africa, Augustin Bernard, claimed that "nomadism, with its herds, tends to enlarge its domain unceasingly, to sterilize bigger and bigger regions. . . . insecurity favors their progress. . . . The nomad must disappear before the agriculturalist."\textsuperscript{39}

By the end of the colonial period, the effects of French administration on the Algerian population were clear. The nomadic pastoralist population, estimated to be approximately 65% of the total population in 1830, was

\textsuperscript{35} Ageron, \textit{Modern Algeria}, 31, 35. See also Ruedy, 71.
\textsuperscript{36} Moll, 206.
\textsuperscript{37} Ibid., 132.
\textsuperscript{38} See Ageron, \textit{Modern Algeria} and Julien.
\textsuperscript{39} Bernard, 5, 7, emphasis added.
reduced to only 5% by independence.\textsuperscript{40} The number of livestock owned and raised by Algerians was cut nearly in half between 1875 and 1954. The state owned and regulated 75% of forested lands.\textsuperscript{41} In 1954, the European population comprised just over 11.5% of the total population of nine and a half million, yet 75% of irrigated crop land was owned by European colonists.\textsuperscript{42} Although Europeans only comprised 3.5% of the agricultural population in 1954, they owned 22% of the best agricultural lands with an average of ninety hectares of land per person. The Algerians averaged thirteen hectares of land per person.\textsuperscript{43} Land concentration and rural poverty were growing problems. In 1953, annual average per capita income for Algerians was approximately 19,000 francs while for Europeans it was 227,000 francs, twelve times greater.

Although many factors affected the inequality that defined Algerian society before the war of independence, the declensionist environmental narrative described here helped to further European interests throughout the colonial period. For more than 130 years French colonial administrators, military men, foresters, settlers, and businessmen created and utilized a negative vision of the local population as deforesters and desertifiers of the former granary of Rome to justify and facilitate many of their actions. The colonial apparatus redefined local land use practices that Algerians had utilized successfully for centuries and portrayed them as irrational, destructive, and

\begin{quote}
\textsuperscript{40} Muhammad Boukhobza, \textit{Monde rural: contraintes et mutations} (Alger: Office des Publications Universitaires, 1992).
\textsuperscript{41} Jean Saint-Germes, \textit{Economie algérienne} (Alger: La Maison des Livres, 1955).
\textsuperscript{42} Ruedy, 94, Saint-Germes.
\textsuperscript{43} Saint-Germes, 157-58.
\end{quote}
detrimental to progress. The colonial administration expended considerable energy, time, and money to demonstrate ecologically and economically "rational" (eco-rational) modes of agricultural production and natural resource use. Repressive and coercive policies designed to curtail or dismantle those indigenous practices deemed destructive accompanied this project. In this way, the narrative and its attendant policies acted as a form of eco-governmentality throughout the colonial period. Although the scientific and historical inaccuracy of this environmental narrative is no longer in doubt, it persists in North Africa and in writing about Algeria and North Africa to the present. It persists despite convincing evidence that most of Algeria and North Africa have not been desertified or deforested significantly during the last 3,000 years.

Importantly, though, the colonial environmental narrative became entrenched in many official publications such as histories and botanical treatises as well as agricultural and forestry manuals written during the colonial period.  

This environmental history and its related environmental policies thus laid the foundation for much subsequent education, research, policy, and practice. It was largely accepted by the post-colonial governments of Algeria, as well as those of Tunisia and Morocco, and appears to have become the dominant post-colonial environmental history of North Africa, still in widespread use today.  

Although Algeria was presented as a "model of


\[45\] See, for example, République Algérienne Democratique et Populaire, *Rapport National sur la mise en oeuvre de la Convention*
colonial installation" to be emulated by other French territories during the colonial period, scholars have barely analyzed the influence of Algerian and North African environmental narratives. My interdisciplinary research suggests that the influence of these narratives and related policies has been overlooked and should be explored for their relevance not only in Algeria and the Maghreb, but also in the other French African colonial possessions. By examining such narratives and their socially (and often environmentally) unjust effects during the colonial period, we may be better able to identify and to modify anachronistic assumptions, biases, and errors that continue to produce environmentally destructive and socially detrimental outcomes today.

---
