



Drought-killed trees have been harvested in large number, but have not been replaced.

## Depletion Of The Mauritanian Forest

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**ABSTRACT** — All Mauritanian "forests" are confined to the floodplain of the Senegal River at the southern boundary of the country. During the last decade drought seriously depleted them, and the losses have not been made up by restocking. Unless large-scale reforestation is begun soon, the entire resource is threatened with accelerated exploitation by a rapidly increasing population.

Virtually all of the forest resources of any consequence in Mauritania are in a narrow band in the floodplain of the Senegal River Basin, along the southern border of the country. The distribution of natural vegetation tends to follow rainfall patterns (fig. 1). As a consequence, Mauritania can be divided into two broad physiographic regions—the Saharan Zone of desert scrub and the Sahelian Zone of semi-desert. Although "forests" in Mauritania are poorly stocked and somewhat unprotected, certain areas under governmental management by the Bureau of Waters and Forests are organized into reserves or "forêts classées" (table 1). All of the managed "classified forests" are in the Sahelian zone, where the rainfall varies from 300–700 mm per year. Effective rainfall, however, is slightly over half of these totals.

The classified forests are vital to the economic well-being of the people. Although scattered trees and shrubs do exist beyond the classified forests' boundaries, they are severely and chronically overexploited. Thus, the scrub found beyond the fertile Senegal River Basin, extending into the Saharan Zone, is miniscule in importance.

The classified forests are dominated by only one species, Gonakie (*Acacia nilotica*). Indeed, pure stands of gonakie comprise 92 percent of the classified forests in the narrow band of floodplain between the cities of Selibabi and Rosso.

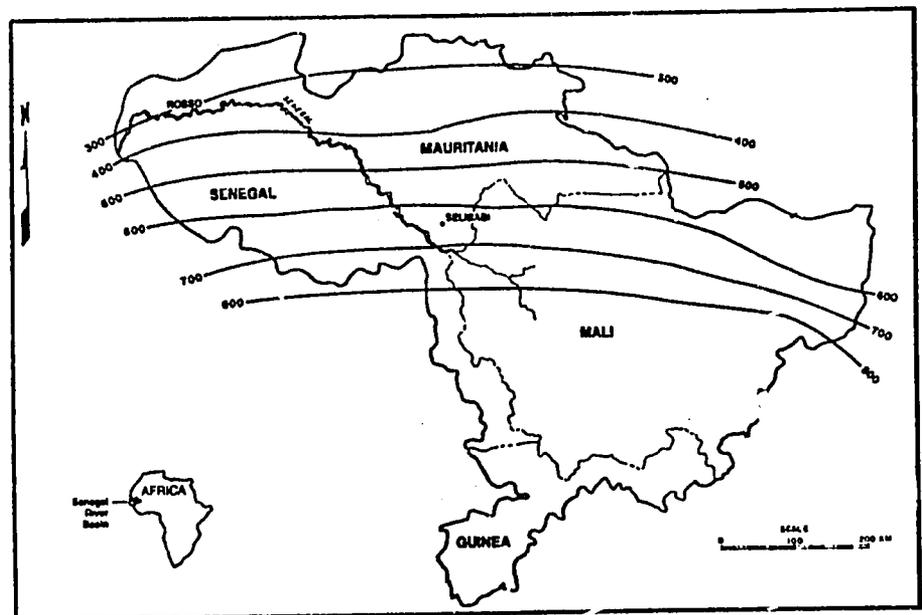


Figure 1. Senegal River Basin, showing isohyets of average annual rainfall.

Table 1. Name, area, and estimated loss of productive area due to drought of 1972–1978 in Mauritania.

Name of reserve	Predrought forest area	Estimated loss from drought	Proportion of land lost
	Ha	Ha	Percent
Dagana	540	81	15
Dar el Burka	330	33	10
Diarambol-Djibouel	745	112	15
Dindi	395	40	10
Dioldi	627	533	85
Gani	1,050	420	40
Ganki	600	60	10
Koundle	4,470	3,129	70
Lopel	532	175	30
M'boyo	3,400	1,700	50
Olo Ologo	220	209	95
Oualaide	321	60	25
Silbe	2,676	268	10
<b>TOTAL</b>	<b>15,956</b>	<b>6,840</b>	

Upstream of Selibabi, the Senegal River is more or less confined to its main channel, and thus the riverine stands of gonakié all but disappear. Downstream of Rosso, on the other hand, the soil is so heavily saturated with salts that not even agriculture can be practiced on a sustained basis.

### Land Use

Flood-recession agriculture is, nonetheless, the most important land use along the river, and both forests and agricultural lands are central to the domestic economy of the area. Although gonakié is well suited to the nonsaline hydromorphic soils of the floodplain, classified forests occupy only 7.5 percent of the land area of the Senegal River Basin. Their combined area in Mauritania is 23,444 ha (Republique Islamique de Mauritanie 1969), about 0.02 percent of the 1,085,800 km<sup>2</sup> land area of the country. Because of discrepancies in data regarding the hectareage of the named classified forests, this report emphasizes only forest areas verified by my actual observation.

Despite their limited area and distribution, the classified forests of gonakié are the only reliable domestic source of fuelwood for the entire nation of 1.5 million people. And, inasmuch as they serve to ameliorate the microclimate in proximity to agricultural zones, the stands of gonakié are the chief protection against wind erosion in a region of severe desertification.

### Desertification

The extended drought in the Sahel during 1972-1978 devastated the forests of Mauritania. A combined aerial and field reconnaissance in 1979 indicated that mortality in some stands exceeded 50 percent (table 1). More disasters may yet come.

Fuelwood production data in Mauritania have not been recorded for the years in question, but do exist for the Fleuve region of Senegal, along the floodplain on the opposite side of the river. There the distribution of gonakié forests is roughly comparable, and thus the officially documented fuelwood production data (table 2) are probably indicative of the Mauritanian situation vis-à-vis the drought. The increased volume during 1973-1976 suggests, paradoxically, that there was increased production. In actuality, the drought-killed trees were harvested for firewood and charcoal. The volume salvaged was most often in large patches within the stands, so that the area of the stands themselves was not ostensibly changed. The gaps in the residual stands have not been restocked.

Meanwhile, demand for fuelwood remains high. Constant exploitation by man and browsing animals may ultimately destroy the entire resource unless replanting is started soon and on a large scale.

Of the 16,000 ha of classified gonakié forests that I observed (table 1), some 43 percent had been killed by drought. Stands on the remaining 9,100 ha were estimated to be growing at the rate of 3.5 m<sup>3</sup> per year. The total annual growth therefore is about 32,000 m<sup>3</sup>. On a standing volume of 1.1 million m<sup>3</sup>, this growth amounts to 2.9 percent. Many of the forests, however, are at or beyond the rotation age of 20 years.

The growth is insufficient to sustain the requirements of the local population, much less meet the fuelwood demand in other domestic markets of the country. The present population of 632,600 in the four regions of Mauritania which are astride the Senegal River (O.M.V.S. 1980) is expected to increase to over 1.1 million by the turn of the century and to rise to 2.2 million by the year 2028.

### Fuelwood Production versus Consumption

Current fuelwood consumption in the Senegal River Basin is between 1-1.5 steres per person per year (Beyrard 1974). Given the interactive complexities of differential growth curves of both people and trees, it is not possible to pinpoint the year of impending demise of the resource. Nonetheless it is clear that, at present rates, the fuelwood resource may be exhausted within a decade.

There is the possibility that the normal rotation will be shortened as a result of increased demand for fuel, thus decreasing ingrowth. This happened during the period 1973-1976. It should also be noted that local demand for fuelwood arises from both sides of the Senegal River. Mauritians and Senegalese freely cross the river; and during low water in the dry season, wood gatherers and graziers with their herds of cattle, sheep, and goats seek out the forest for whatever it has to offer.

Table 2. Total fuelwood produced in the Fleuve region of Senegal 1966-1977.<sup>1</sup>

Year	Amount <sup>2</sup>
	Steres
1966	29,141
1967	38,017
1968	43,543
1969	38,996
1970	48,457
1971	53,382
1972	62,664
1973	152,570
1974	223,669
1975	305,117
1976	353,620
1977	57,500

<sup>1</sup>The Fleuve region of Senegal along the bank of the Senegal River is roughly comparable to the Mauritanian flood plain in the distribution of gonakié forests.

<sup>2</sup>A stère equals a cubic meter of stacked wood or about 0.6 cubic meter of solid wood volume. Charcoal and firewood production data have been combined and expressed here in common units.



Mauritanian grazer "supplementing" the supply of feed during the long dry season. Tree crowns are often chopped out to feed browsing animals which have already consumed all accessible greenery.

### Massive Planting Program Needed

A large-scale planting program is needed in the Senegal River Basin of Mauritania. The need stems not only from the recent damage by drought, but also because the floodplain is about to undergo a major change in land use. Two major dams are under construction within the basin. One near the mouth of the river will back up water and drown some of the existing forests on both sides. More importantly, the agricultural and industrial activities made possible by the dams will be a chief stimulus to an influx of population. As a consequence, direct pressures on the forest will likely be accelerated drastically. At present no funding adequate to maintain even a nondeclining flow of fuelwood is envisioned. Time is running out. ■

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