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Why Do People Burn the Bush?

Mr. Peter Bird Martin
Executive Director
Institute of Current World Affairs
4 West Wheelock Street
Hanover, NH 03755 USA

Dear Peter,

Much of the "bush" in Africa burns every year. In Upper Volta, for example, most of the uncultivated savanna south of Ouagadougou burns yearly. Further north there is less vegetation, and hence less to burn, so fires are less of a problem.

In a recent visit to the Dienderesso Forest, a "forêt classée" (classified national forest) located outside of Bobo-Dioulasso, Upper Volta, I witnessed this problem. As we drove towards the forêt classée, we could see a fire burning in the nearby bush. A couple of professors who teach at the forestry agents' school at Dienderesso were concerned that the fire might reach the forest. So when we arrived at the school, a crew of students set off with a professor and a few machetes to fight the fire.

On our way back into Bobo-Dioulasso, we stopped at the fire watchtower. The two guards on duty there had noticed the fire the day before -- which had been a Sunday -- and one had ridden off on his bicycle to report it, while the other stayed behind to keep tabs on the fire. (The guard tower doesn't have any radios or telephones. In fact, it really isn't even a guard tower -- just the remnants of a concrete water storage tower built under the French, the roof of which provides a good view of the surrounding terrain.) Apparently there had been a breakdown in communications, and no actions had been taken to fight the fire.

When we drove by the following day, Tuesday, we saw that the students had been unsuccessful in preventing the fire from reaching a Eucalyptus camaldulensis plantation in the forest. Although there were firebreaks -- strips of land cleared of vegetation to prevent the spread of fire -- the previous day's wind had carried the fire across the firebreaks that were supposed to protect the plantation. The eight-year-old plantation contained trees that were six-to-eight feet tall. Before the fire went through, there was dense grass, four feet tall, growing between and around the trees -- so dense, in fact, it was hard to see the trees. After the fire, all the grass was gone,

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Paula J. Williams is a Forest and Society Fellow of the Institute of Current World Affairs, studying the human uses of forest resources in sub-Saharan Africa.

the ground scorched, and the trees looked like burnt matchsticks. Fortunately, however, the fire stopped before reaching the next plantation, which contained older and bigger Eucalyptus trees.

The risk of fire is an important factor in planning forestry projects throughout Africa. Of all the money spent on forestry development -- whether for industrial plantations, for village woodlots, or for research trials of how different species and provenances(selections of seeds from different sources) grow in given locations -- much literally goes up in smoke.

But the problem of fire is not just confined to forestry projects. Many area of natural vegetation, currently unmanaged by the country's forestry staff, also burn. Many rural villagers will protect their homes, villages, and agricultural fields from fire, but they don't generally protect the "bush" from fire.

These bush fires can be very destructive. If they get out of control, they can destroy agricultural areas, by destroying topsoil, and removing vegetative cover and thus contributing to erosion. The destruction of vegetative cover can also reduce the forage available to livestock and wildlife. Consequently, many observers regard the problem of bush fire as a crucial one affecting the country's prospects for development and food self-sufficiency.(1)

The sociological aspects of the bush fire problem in Upper Volta were recently discussed at a meeting held February 22-24, 1984 in Ouagadougou. The meeting was attended not only by forestry researchers and managers, but also by social scientists and village representatives. The conference organizers had invited village representatives to attend, to present the rural residents' perceptions of the bush fire problems. Eight such village representatives came -- five were traditional village chiefs, two were heads of village "groupements" (men's work cooperatives), and one represented a hunting cooperative. These eight individuals were able to discuss why villagers are concerned about fire in their particular regions of the country, what they do about such fires, and why they believe the fires occur. In the case of the older village chiefs, they were able to provide a historical perspective on what the fire situation had been like under French colonial rule (prior to Upper Volta's independence in 1960). The testimony delivered at this conference greatly enhanced my understanding of why the bush burns so frequently in Upper Volta. (2)

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To minimize the bush fire problems, it is important to understand why the bush burns. The bush burns for a number of social and cultural reasons: people burn the bush or permit the bush to burn. Human agents are predominantly responsible for starting the fires: there are very, very few fires started by "natural forces". Lightning is unimportant. There have been some accounts of spontaneous combustion originating from ferment-

ing fruits of the baobob tree (Adansonia digitata), but these are not well-documented and are generally discounted.

Fires which occur in the bush are either intentionally set by people or result from accidents: often purposive fires escape human control and burn larger areas than originally intended.

Fire is an important human tool for the manipulation of landscapes and resources. Based on information regarding uses of fire in Upper Volta, I would argue that fire is used in three fundamental ways. People use fire to physically manipulate the landscape for a variety of utilitarian purposes. Fire is also used for religious and ceremonial reasons, to invoke spiritual assistance in control of the environment. Due to various legal statutes and competition between groups of people, fire also functions as a means of social interaction -- a mechanism for one group to appropriate resources from another.(3)

In Upper Volta, it is estimated that close to half of the bush fires originate from utilitarian uses of fire. Fire is widely used as a means of clearing land for agriculture and for promoting the growth of new grass for grazing. Old vegetation could be removed by manual labor or mechanical means: but these alternatives would require a lot more physical effort or money than most Voltaic peasants have at their disposal. Fire is also used to "cleanse" areas -- of flies, snakes, and wild animals, such as lions and hyenas. Fire is employed in a variety of ways for hunting, such as communal hunts which use fire to flush out the animals or hunting of birds in trees with torches. Children reportedly use fire to hunt rats. Fire is also used to smoke bee hives, so that men can remove the honey without getting stung. Fire is used to manufacture charcoal. Fire is also used to provoke the growth of certain flowers or fruits collected by people.

These different uses of fire are employed by different groups of people. Women, for example, sometimes set fires around karite and nere trees. The karite, or shea-nut, trees (Butyrosperum parkii) are highly valued for their nuts, which are used to make a nut butter and oil. The nere trees (Parkia bigolbosa) are valued for their fruit. Both resources are traditionally collected by women.

In the south-central and south-western parts of Upper Volta, three different explanations have been obtained from women for burning around karite and nere trees. One is a belief that the fires will cause the trees to bear more fruit, i.e. the trees will put more of their energy into producing fruit than leaves. Another explanation is that if the women burn the grass under the trees, when the fruits ripen and drop to the ground, it will be easier for the women to find and collect them. Third, if they burn the grass early in the season, the trees will be protected from more disastrous fires later on, which might destroy the crops.

The use of fire is one of the major ways in which these

trees are managed. Although highly valued, karite and nere trees have not been deliberately cultivated until quite recently. Historically, they have been conserved and protected where they have occurred naturally, in cultivated fields or in the bush.

After utilitarian uses, the next most important cause of bush fire is the use of fire in traditional ceremonies. One ceremony practiced throughout Upper Volta involves a sacrifice of the new agricultural crop, prior to proceeding with the harvest. According to one account, a chicken is first sacrificed, then the village chief or "chief of the land" lights a fire to the portion of the crop that is to be sacrificed. The area to be burned is traditionally circumscribed: if the fire passes its normal limits, another informant said, it means that the following year's rains will be poor.

Because the majority of Upper Volta's population still adheres to their animistic beliefs, such traditional ceremonies continue to be practiced in rural villages. The use of fire is an important element in the maintenance of relations between people, their ancestors, and religious spirits. To understand this use of fire requires an appreciation of this world view.

To date, the Voltaic government has been supportive of these traditional beliefs. Although not legally permitted, ceremonial fires have generally been allowed by forestry agents. In some cases, forestry agents have worked with village chiefs, to insure that such fires do not burn out of bounds. Whether this situation will change remains to be seen: the current revolutionary government is taking steps to limit the traditional power of the chiefs.

Fires may also be caused in the bush by malicious persons, pyromaniacs, playing children, or careless cigarette smokers. There is no good information on the extent to which this latter group may be responsible. Many of the conference attendees, however, placed blame for many of the fires on transients who pass through their regions and throw cigarettes out of their vehicle windows as they pass by.

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Fires spread through the bush not only because people purposively or accidently set them, but also because of the responsibility people feel towards controlling such fires, and the means at their disposal for doing so, if they feel so inclined.

Traditionally, fire in the bush has not been a direct human concern. In order to understand why people may let the bush burn, one needs to understand what the "bush" itself means to people. The bush, as it is commonly understood in Africa, consists of areas of natural vegetation which are apart from human villages or areas of settlement and cultivated fields. Thus, the bush is analogous to what we in the United States refer to as "wilderness". The bush is socially and culturally defined, and it is affected by human activities that are guided by these definitions.

The bush, moreover, means different things to different people. According to Pere Terrible, a Roman Catholic priest who has been studying local ecology since he first arrived in Upper Volta in 1951, Voltaic peasants have two basic conceptions of the bush. For some traditional Voltaic animists, the bush constitutes a mysterious, unknown, and sacred domain of nature: special precautions, thus, have to be taken prior to entering this realm. Other Voltaics have a more utilitarian orientation towards the bush, viewing it as an area to be entered and exploited. For both of these groups, the bush is an area which belongs to no one in particular, and thus for which no one is directly responsible.

A village chief from the Gourmantche region in eastern Upper Volta said that historically his people had a "chief of the bush", who served as the protector of the environment. The chief of the bush made sure that villagers observed certain sanctions, such as not cutting certain tree species or collecting karite flowers at a particular time of the year. The bush was regarded as the domain of the animals: there were, however, genies who served as intermediaries between the animals and the people. The chief of the bush could thus appeal to the genies to insure the safety of the people entering the bush -- for example, to hunt the animals. Today, however, the chief of the bush no longer exists: the only people who are seen as having responsibility for the bush are the government forestry agents.

If the bush is perceived to be an area for which people are not responsible, then people do not feel any responsibility for fighting fires which occur in the bush. To expend energy fighting fires around one's home, cultivated fields, or other property is one thing -- to fight fire in the bush which belongs to no one is another.

The question of responsibility is further influenced by the country's legal statutes. In 1925 a colonial decree prohibited fires in Upper Volta except for specific uses, such as renewing grass for grazing or cleansing areas of flies. Individuals found to have illegally set fires could be subject to fines. Legal decrees in the 1930s and 1940s also reserved certain areas as "forêts classées", in which the nearby residents were granted only limited rights of usage. For example, villagers might be allowed only to collect fruits, nuts, and "dead wood".

Given that fires are generally illegal, it is not surprising that many villagers deny setting fires or knowing who has set them. Commonly they blame others -- smokers, people from outside the village, or genies. A spokesman for a hunting cooperative insisted that the fires in his region were set by genies: the hunters never set fires, he said, but wait for the fires to arrive. His comments provoked quite a discussion at the conference. Some of the other conference attendees tried to explain the belief in genies as a native explanation for the inexplicable -- that if bush fires travel a long distance,

rural residents may truly not know how they originated. The hunting spokesman was quite insistent that such genies really do exist. (He was from the southwestern part of the country: the Gourmantche speaker stated, in contrast, that the genies in the eastern part of the country were "good genies" and not responsible for fires. This debate underscored the regional variety which exists in Upper Volta regarding perceptions of the bush fire problems.)

The laws are undoubtedly responsible for actually causing some of the fires. Since people are not authorized to collect green wood from the forêts classées for firewood, fires may be set to "convert" green wood into dead wood. Thus the fire serves as a means of appropriating resources that would not otherwise be available to the villagers. Some villagers, it seems, also hope that if the forêts classées burn, perhaps they will be declassified and made available to the villagers as additional agricultural land.

The use of fire as a means of resource appropriation also seems to occur with conflicts between agriculturalists and pastorialists over land use rights. Many pastorialists like to burn early, to encourage the growth of new grass. Some farmers, who wish to discourage the presence of pastorialists near their fields, deliberately burn the grass in the middle of the dry season, hoping to destroy the grass and thus to make it impossible for the livestock to graze in the area.

When fires do occur, there are limited means for fighting them. The best means for fighting bush fires are the setting of back-fires and the creation of firebreaks, so that the fires will reach an area which has already been burned, and extinguish themselves as they run out of fuel. Rural residents may be able to use manual tools to cut firebreaks: rarely do they use water as a means of fighting fire.

A better means of controlling fire may be the deliberate burning at certain times of the year, to prevent fires at other times. Thus, for example, if an area is burned right after the rainy season, when some of the vegetation is still humid and before the grass is too tall, it will be a less hot, more controlled fire than one occurring later in the season. An "early burn" is less likely to destroy the soil or kill the trees, more likely just to remove some of the grass cover. By burning early, thus, one can prevent fires later on in the dry season which might be more disastrous. Furthermore, by planning when and where to have fires, precautions can be taken -- such as creating firebreaks or having people on hand with fire-fighting tools -- to insure the fire stays within control.

Rural Voltaics, like many other Africans, live within a fire-shaped landscape. Although many Voltaic foresters would prefer to eradicate the problem of bush fire entirely by prohibiting all fires, they recognize that fire is too socially important to do so. The hope in controlling fire, thus, lies in understanding how to better channel use of fire to meet social needs, and how to change other social conditions -- such

as legal statutes, conflicts between pastorialists and agriculturalists, or people's needs for firewood and more productive agricultural land -- which encourage unnecessarily the burning of the bush.

Sincerely,

Paula J. Williams

Paula J. Williams
Forest and Society Fellow

Notes:

(1) For example, Rene Dumont, a noted French professor and writer on agricultural development issues, discussed the bush fire problem in reviewing causes of agricultural "destruction" (as opposed to "development") in a speech delivered in Ouagadougou on March 15, 1984 (reported in l'Observateur, no. 2802, on March 16, 1984).

(2) Data on the bush fire problem are also presented in a recent university memoire, or thesis: KABORE S. Vincent. Juin 1983. Contribution à l'étude des feux de brousse dans le Centre-Sud de la Haute-Volta (Contribution to the study of bush fires in the Center-South of Upper Volta). Memoire de Fin d'Etudes, Institut Supérieur Polytechnique, Université de Ouagadougou.

(3) I have more fully discussed my views on human resource use in my recent Ph.D. dissertation, which dealt with the use of firewood in African societies.

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