

Perceptions and classification of woodland by Malinké villagers near Bamako, Mali

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This article briefly presents the results of a study which was undertaken to gain a better understanding of local villagers' perceptions and traditional classification of forest land, in order to improve villager integration and participation in the management of a gazetted (reserved) forest near Bamako, Mali.



A panoramic view of the study area

Effective forest management requires both detailed knowledge of the resources and the involvement of the local forest users, who are often the most knowledgeable about the resources. Attempts at forest management partnerships between local people and government employees are becoming more and more common. Establishing sustainable forest management schemes which promote the better integration and empowerment of local people requires an improved understanding and assimilation of local users' perceptions and use classifications of the forest.

The Monts Mandingues Forest, gazetted in the late 1930s, covers almost 15 000 ha and is located about 20 km from Bamako in the subhumid zone (average rainfall 800 to 1 000 mm). The forest gets its name from an escarpment which runs from the uplands of Guinea in the southwest, to Koulikoro beyond Bamako to the northeast. The escarpment itself takes its name from the major ethnic group in the area, the Malinké, an agricultural people with a long

and important history in West Africa. In the 1950s, archaeological excavations of a rock shelter in the forest revealed evidence of human habitation during the neolithic period (Szumoski, 1954). There are now six main villages on the periphery of the forest (Balandougou, Faraba, Farabana, Katibougou, Mamaribougou and Samanko) which use forest resources.

From 1980 to 1994, the management of the Monts Mandingues Forest was supported by the World Bank. During the first few years the emphasis was on establishing plantations (2 000 ha) of fast-growing species, mainly *Gmelina arborea*, to meet the fuelwood needs of Bamako. Local people were hired as labourers and enjoyed limited non-commercial use rights. In 1989, an effort was made to reorient management towards participatory multiple use and comanagement. It became clear that foresters and villagers did not perhaps share the same perception of the forest and its management.

In order to gain a better understanding and provide a basis for joint forest

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management, a study was undertaken of local forest users' perceptions and classifications of forest land. The study, which was supported by the FAO Community Forestry Programme, was designed and guided by a multidisciplinary team which included a sociologist, a linguist and a forester. In part, the study focused on identifying and then comparing classification and management units. It also touched on the different products/uses of the forest, the species that provided these products/uses and where these species were located (which "unit") within the forest.

The overall goal of the study was to improve the management of the forest through a better integration of local user groups. Specific objectives included:

- understanding the descriptors used by Malinké villagers for non-agricultural lands;
- describing the classification units;
- describing the vegetation – its progression in time and space – and use for each unit;
- describing the management of each unit;

- comparing the local classification with the "modern" classification;
- developing recommendations for forest management and for the follow-up to the study.

METHODS

The major study tools included a survey conducted by interviewers using a series of open-ended questionnaires for group and individual interviews, and a three-day village workshop/information exchange session. Open meetings were held in each village as well as semi-structured interviews with men, women, youth and "village experts". A variety of other investigational tools was also used, including transects, sample sorting, local mapping and drawing and bibliographic research.

The survey was undertaken in the six principal villages using trained and experienced interviewers, including two women, all of whom spoke the local language. To eliminate any possible bias, the surveys were not conducted by foresters, who might have a tendency to try

and fit responses into their own classification system, but by interviewers who had experience with socio-economic studies undertaken by the Human Sciences Institute. Four questionnaires were developed and 20 villagers per village were interviewed (ten men and ten women) based on these questionnaires.

For the part of the study that looked into uses of tree species, the approach was first to try and identify use categories and then query villagers about which species were used in each category. The categories were based on Poulsen in FAO (1981) and were defined as follows:

Wood products

1. Fuelwood
2. Construction wood (mainly poles)
3. Saw timber
4. Artisanal wood (utensils, etc.)

Products for livestock

5. Browse

Other products

6. Animal products
7. Beverages
8. Dyes
9. Fibres

10. Gums and resins
11. Honey and wax
12. Oils
13. Chemical products (tannins, poisons, etc.)
14. Pharmaceutical products
15. Food
16. Recreation/toys
17. Religious/sacred uses/products

The approach of working from category to species (instead of species to category) was felt to be more appropriate for the needs of the study. Showing a villager a sample of the species and asking for uses seems to encourage the invention of uses. While talking about uses, this approach also gave the interviewer the opportunity to ask where in the forest these species were found, to try and get an idea of "use stands". For the purposes of the study, a use stand was considered as a unit of the forest where there was one predominant use. For example, typical questions were: are there fuelwood stands? medicinal stands? dye stands? And, if so, what are the characteristics of these stands and how are they managed?

The questionnaire responses were compiled and then compared. After a preliminary analysis, the data and the analysis were presented to representatives from all the villages during a three-day information exchange workshop which was held in one of the villages. The meetings included general sessions and work groups where women, young men and older men worked separately (to encourage more self-reliance on the part of groups which tend to be dominated by the older men). The villagers also drew maps of the forest and were exposed to the classical foresters' vegetation maps.

RESULTS AND DISCUSSION

Socio-linguistic aspects

On a general level, the interviews revealed that the woodland is viewed as a disorganized space. One interviewee said

the real name of the woodland was *brisa*, a word used to describe a bowl of leftovers, a jumble of things. The forest is often referred to in a derogatory manner and as being useless and unusable.

This idea of chaos contributes to the perception of the woodland as frightening and threatening. One woman, when asked to describe what the woodland contained, said: "trees, grass, snakes and nasty things" (the last item is a reference to a class of beings or spirits, *djinns*, that inhabit woodlands and often attempt to confuse and frighten people who venture there). To local villagers the forest begins where the village ends. It is a primordial world of chaos before human intervention. The bush, in general, is characterized by its wild, strange and unusual nature. "You walk in the bush and when you get to a certain place your hair stands up and your body shivers.... You see nothing but you are afraid." "Sometimes also, in certain places, you get suddenly hot, without knowing why." The bush is globally seen as a habitat for other beings and things of creation – serpents, lions, *djinns*, etc. – in opposition to the village.

The bush only becomes structured, organized and safe when it is transformed by humans. Therefore, it is somewhat contradictory to talk about a classification system, which implies a certain kind of structure.

However, the collection and analysis of words used to describe the forest reveal a lexicon of some 50 words. This lexicon is quite rich but has two major characteristics. First, it is mainly composed of words that are "borrowed" from agriculture: words that do not describe the forest cover *per se* but soil (over 30 words dealing specifically with soil texture and colour), topography and soil-water relationships. Second, words that refer to the forest cover are usually species specific ("a lot of *Isobertinia doka*") and are compound words (the species name plus a suffix, referring to pure stands).

Hence they are not words describing a vegetative formation. There are, however, a few terms that relate to the density of the vegetation corresponding perhaps to such terms as "clearing" or "dense thicket". There was generally a lack of correspondence to the classifications that were used by foresters (tree savannah, wooded savannah, bush savannah, hydromorphic prairie, etc.) and which were reflected, for example, in the vegetation maps used by the foresters to plan management activities (Kaloga, 1980).

Forestry aspects

The study underlined the breadth and depth of the villagers' knowledge of wood species. Some of the findings are discussed below.

For many use/product categories the number of species is quite large. Table 1 gives a recapitulation of the total number of species cited by local users in each of the categories. The number of species cited per category seems, by and large, high. Only for oils is the class size less than 10 percent of the total. Two-thirds of the total number of species are used as pharmaceutical products; the fraction might even be much higher as respondents were more or less limited to five species. Resource people from the Traditional Healers' Association who confirmed the list of pharmaceutical species stated that all species have a use in traditional healing although some individuals might not know the specific use for a particular species.

Surprisingly, perhaps one-half of the species available are used to make beverages; nearly one-third provide food, fibres or building poles; and one-quarter provide browse, bee products and enter into religious ceremonies or have religious significance.

There appear to be no useless tree species. The tabulation of all the species

TABLE 1. Total number of species mentioned in study, by use/product category

Use/product category	Number of species cited
Pharmaceutical products	67
Beverages	53
Fuelwood	50
Food	33
Fibres	30
Construction wood	30
Browse	27
Animal products	27
Honey and beeswax	25
Religious rites/ceremonies	24
Dyes	21
Recreation/toys	19
Gums and resins	19
Chemical products	19
Saw timber	17
Artisanal wood	12
Oils	6

mentioned at least once in one of the use categories gives a total of about 100 different species. Total wood diversity of the forest is probably around 110 species (see Table 2). Therefore, to all intents and purposes, from a villager perspective all tree species have a use.

Nearly half the species are multipurpose. Nearly 50 species were cited in more than one category. Six species are mentioned in over ten categories.

Some “wood species” are in reality multipurpose species. In addition to some species that are “traditionally” considered multipurpose by foresters, such as *Vittelaria paradoxa* (mentioned in 13 categories) and *Parkia biglobosa* (9), the top ten multipurpose species (by number of uses) contain some species that are

usually viewed by the forester as being largely wood or timber species: *Pterocarpus erinaceus* (12), *Isobertinia doka* (11), *Azelia africana* (10) and *Daniellia oliveri* (9). From the villagers’ perspective, managing these species solely for wood might curtail other important uses and be “suboptimal” from an economic or subsistence point of view.

There are gender differences in forest perception. The mapping exercise brought out what appear to be significant differences in the way men and women perceive the forest. The maps based on input from men (either young or older men) seem to concentrate on spatial units with classifications based on agricultural potential and soil type. This is logical given that men are usually the farmers and are culturally responsible for providing grain for the family. The women’s perception was apparently based more on the products than the forest supplies and with individual species as the classification unit. Women’s depictions of the forest included discrete marks for several different species and marks depicting various forest products (such as a mortar and pestle). This is perhaps partly because women have limited access to agricultural land, think less in terms of agricultural potential and more in terms of forest products.

However, when trying to relate species to vegetation types or other larger management units the answers were either soil-related or extremely vague. Management of the forest resources by villagers seems to be based on the species as the management unit.

In the case of the Monts Mandingues Forest, since “official” management emphasis was largely on industrial plantations, the government-produced maps reflecting soil types (and, to a much lesser extent, vegetation types) were used in siting new plantations. The vegetation

maps and the classifications they reflected were beginning to be more extensively used with increasing concern for natural forest management. The trends were to develop management schemes based on the standing volume and to set aside the poorer formations (i.e. bush savannah and tree savannah) for fuelwood harvesting (as coppice) and grazing, and the richer formations for construction and saw timber.

Local knowledge is oriented to smaller units in line with the daily activities of the villagers. Villager notions only partially

TABLE 2. Total number of wood species encountered in inventories of natural stands or forests in the same ecological zone as the study

Author	Year	Place	Number of species
Sy	1990	Bangassi	61
Ballo	1990	Kayaba, Tieninko	83
Dembele	1977	Faya	57
Mangara	1977	Faya	69 (68?)
Anon. (Sylla?)	1991	Faya/Monts	98
Nasi <i>et al.</i>	1985(?)	Monts	60
Thienta	1987	Monts	55
Kone <i>et al.</i>	1989	Faya	60
Diarra	1977	Dioforongo	40
Thiero	1977	Dioforongo	42
Samake	1987	Koulala	48
Doumbia	1975	Faya	60
Magassa	1977	Faya	65
PIRL	1987	Sounsans	112
Sanogo	1981	Faya	62
Haidara	1977	Monts	56

Note: Most of these studies were undertaken by forestry students as part of their course requirements. They usually covered limited areas (4 to 20 ha) of one type of formation (usually the highest standing volume and the richest in terms of tree cover, “savane boisée” or “savane arborée”). The Projet d’Inventaire des Ressources Ligneuses (PIRL) inventoried sample plots in different formations in a national forest of some 40 000 ha. This partly explains why the total is significantly higher than the others – it represents total tree diversity across a range of different formations.

integrate the larger perspectives. Fuelwood as a “management objective” is reflected in species choice and not choice of vegetative formation. Management by formation type is likely to be seen by villagers as ignoring the diversity and the refinement reflected in species by species management.

It is very difficult to compare the two “forest classification systems” – there is no easy translation from one to the other. Each seems to have its own concept. (It is probable that soil types could be adequately compared, but this was not undertaken during the study.) One system seems to reflect an empirical and subsistence dynamic, the other a theoretical and “economies of scale” dynamic.

It is unclear whether or to what extent the villagers undertake activities in the forest to manipulate species composition and encourage the regeneration or productivity of preferred species. The

forest does contain stands of trees which have almost certainly been manipulated by humans (i.e. *Spondias mombin* and *Sclerocarya birrea*) and which are known to and used by the local people. However, these sites are also associated with iron smelters and may reflect manipulations of humanized space rather than manipulations of the forest.

CONCLUSIONS

There is an apparent contradiction in the perception of forest management units between the forester and the local forest user. The forester uses management units which could provide economies of scale and provide for efficient management based on the production of a relatively limited number of products. The units are defined spatially. In contrast, the local user seems to have opted for the species as the management unit. Species which provide the same types of product are

disseminated throughout the forest and do not seem to be categorizable in “use stands”. Some species are more likely to appear in certain areas than others but there is little or no correlation between soil, soil-water relationships and vegetation types, on the one hand, and the species/use complex, on the other.

Even in the case of fuelwood, it seems clear that although 50 species were cited there is a limited number of preferred fuelwood species just as there is of fruit species – not all species are used for fuelwood. The traditional search for fuelwood is for wood species disseminated throughout the bush landscape; it does not appear to be the harvesting of fuelwood areas.

Management of these forests with the objective of maintaining the production of all or nearly all of the non-wood forest products currently utilized by local users basically means managing species by species. For the outsider/forester this requires an amazing level of detailed knowledge of all of the species, all their uses and their biology and sustainable harvesting techniques. This knowledge, if it is possible to acquire, is decades away. It even appears difficult to prioritize products; products may be essential even if used rarely or only in small quantities, especially when there are no replacements.

The Malinké villagers’ perception of the forest goes against some of the conventional wisdom of “indigenous people’s” perception as being part of nature and in harmony with nature. Although dependent on the forest, these villagers seem to think of the forest as something foreign. Their view coincides with what is commonly interpreted as the “Western concept” of a separation between humans and nature, between civilization and wilderness.

At one level, the bush appears disorganized, yet species are well known and much used. The parts are familiar but



The maps produced by young men concentrated on agricultural potential and soil type



Co-author J. Anderson (centre) at one of the forest observation towers built as a result of the study effort

the total lacks structure and logic and, moreover, utility. The bush becomes useful only as it is manipulated into a humanized space. On the other hand, the trained forester's perceptions and knowledge are perhaps less detailed on the uses of species but allow the forest to be more "logical" and ordered; the forest obeys some kind of natural law. For the villager, the forest seems to obey some kind of supernatural law which perhaps only a few initiates, such as hunters, can fathom.

In this particular case, the villagers' perception, especially that of the men, is such that forest preservation or conservation is of low priority. The pressure to transform the forest, despite the many products and services it provides, is intense. It appears that the pressure to convert the forest might be somewhat mitigated by attempting to "organize" it without turning it into agricultural fields.

Subsequent to the study, the managers of the Monts Mandingues Forest have made a cautious attempt to make the bush less threatening and more ordered and familiar: with the help of the villagers they have constructed two observation towers which

allow the forest to be "visually dominated"; and they have sponsored "forest days", organized by local villagers, which involve recreational and educational activities within the forest. It is too early to judge the impact of these activities.

Villagers and foresters have different perceptions and ways of classifying the forest. Improved integration of villagers into forest management will require a new synthesis of these perceptions. This may be achieved through a better integration of the forest into local rural production systems together with the promotion of positive cognitive appropriation of the forest through activities which "humanize and socialize the forest" while conserving it. ♦



Bibliography

- Aubert, G. & Newsky, B.** 1949. Note on the vernacular names of the soils of the Sudan and Senegal. *Commonw. Bur. Soils Tech. Commun.*, 48.
- Bernus, E.** 1980. L'arbre dans le nomad's land. *Cah. ORSTOM Ser. Sci. Hum.*, Vol. XVII(3-4).
- Blanc-Pamard, C.** 1986. Dialoguer avec le paysage ou comment l'espèce écologique est vu pratiqué par les communautés rurales dans des hautes terres malgaches. In Y. Chatelin & G. Riou. *Milieux et paysages*. Paris, Masson.
- Dabin, B.** 1948. *La classification vernaculaire et son interprétation pédologique*. Paris, ORSTOM.
- Dabin, B.** 1954. *Les problèmes de l'utilisation des sols à l'Office du Niger*. Paris, Commission de Coopération Technique en Afrique au Sud du Sahara.
- Earl, J. & Moseley, W.** 1993. *Connaissances villageoises et éducation non-conventionnelle: fondements de développement communautaire – cas de Djitoumou au Mali*. (unpublished report)
- FAO.** 1981. *Important forest products in Africa other than wood and wood extractives. A preliminary study*. Rome.
- FAO.** 1990. *Community forestry: herders' decision-making in natural resources management in arid and semi-arid Africa*. FAO Community Forestry Note No. 4, Rome.
- Gallais, J.** 1984. *Hommes du Sahel*. Paris, Flammarion.
- Hardesty, D.** 1977. *Ecological anthropology*. New York, Alfred A. Knopf.
- Kaloga, B.** 1980. *Vegetation and soil maps and notice for the Monts Mandingues Forest*. Paris, Institut Français de l'Afrique Noire.
- Szumoski, G.** 1954. *La fouille de l'abri sous la roche de Kouroukouroukale*. Bulletin IFAN. Paris, Institut Français de l'Afrique Noire. ♦