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PEASANTS, RULES AND WOODSTOCK MANAGEMENT
IN ZINDER DEPARTMENT, NIGER

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Introduction

This paper analyzes human responses to growing Woodstock (all ligneous plants, from bushes to trees) scarcity in three villages of Inuwa* Canton (district) in south-central Mirriah Arrondissement (county), Zinder Departement (state), Niger. It notes, among other things, future possibilities for environmental management as defined by villager interest, legal, political and technical constraints.

Research conducted in 1979 and 1981 focused on attitudes towards and experiences with renewable natural resources management.** Although the bulk of the research effort concerned Woodstock management, information about soil, water and pasture management was collected as well.

The research design incorporated three different methodologies: in-depth interviews with local officials and knowledgeable villagers; administration of a survey instrument to a random sample of householders and their wives in the three villages; and collection of trouble-case data concerning access to and exploitation of renewable natural resources in Inuwa Canton.

The paper is presented in four sections: (1) description of the study villages and of the generalized resource situations in those settings? (2) partial results of the survey?

*A pseudonym, as are village names mentioned below.

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(3) trouble case materials; and (4) conclusions.

Geographic Setting and
Resource Availability

Mirriah Arrondissement encompasses the area immediately surrounding Zinder, the departmental seat. The northern part of the arrondissement may be characterized as "sub-desert sahel" (100-300 mm isohyets), the southern half as "sudano-sahel" (300-600 mm isohyets) [Thomson, 1983b: 168]. Inuwa Canton lies in the southern half of the arrondissement despite gradual reductions in annual rainfall amounts since the mid-1960s, the area still averages 450-500 mm of precipitation annually.

The Woodstock is highly variable. On some over-grazed, stabilized high dune lands, trees have been reduced to a few solitary specimens, sole reminders there, amongst the scrub weed Calotropis procera, of the time, a century earlier, when the area boasted substantial stands of low forest [Thomson, 1983b: 170-71]. African "mahogany" (Khava senegalensis) still exists in low-lying areas. Some stabilized dune soils support impressive stands of gawo (Hausa: pl. gawuna), **the** nitrogen-fixing Acacia albida. The latter, along with several palm species and a variety of other acacias, are semi-vigorously protected by Conservation Service agents and their local representatives who patrol throughout the canton on an irregular basis [Thomson, 1977: 64-71].

However, that part of the Woodstock commonly referred to as "the bush" has disappeared from all but the most remote,

ill-watered parts of Inuwa Canton. Isolated small patches of land left fallow for some years (probably because the owner is temporarily absent from the area - working abroad in Nigeria, on a pilgrimage to Mecca, in jail, etc.) have been heavily recovered by brush and small trees. But most trees which remain on the land occur in cultivated fields or, less frequently, on pasture lands. The traditional system of soil regeneration through timely and prolonged fallowing is now bankrupt. For this reason, a shift to more active techniques of soil regeneration has become imperative if human communities are to continue exploiting the land.

The three study villages - Dajin Kowa, Alagwum and Kwari - represent somewhat different economic systems. Dajin Kowa and Kwari residents are respectively Barebari and Hausa. All speak Hausa. They inhabit a concentrated central village and farm small scattered fields in the surrounding area. All practice sedentary rain-fed cereal agriculture as their basic economic activity. Stock-raising (small and large ruminants) and dry-season trading and artisan activities provide additional sources of income [Thomson, 1976: 92-94]. The Alagwum Bugaaje - descendants of Sudanian blacks enslaved by Tuareg raiders and settled in the area as grain producers by their lords [Thomson, 1976: 124-26; Baiert: 48-49] - have now become exclusively Hausa speakers. They aspire to practice a form of mixed farming which associates livestock raising with systematic shifting fallows. Each family lives on its own field in a dispersed residence pattern. When the system functioned efficiently, with

enough land for farming and pasture areas, it generally assured Bugaaaje substantially better harvests than those achieved by sedentary Hausa and Barebari farmers. Unfortunately, the system has broken down in many places as a consequence of ^{through} population growth, ^{land} inheritance proceedings, and micronization of land holdings.

In the study villages, woodstocks vary in extent from very meager, on intensively cultivated fields and overgrazed pastures, to relatively abundant. The ^{Rain-fed} modal ~~agricultural form~~ ^{centers on} in the two sedentary farmer villages, Dajin Kowa and Kwari, ^{is} cereal cultivation ^(or some other) under an open canopy of Acacia albida and other species of lesser size and importance. In Bugaaaje Alagwum, by contrast, many fields are now seriously denuded and fallow areas which formerly provided both adequate pasture and a ready source of fuelwood and building poles have been largely exhausted. Even in those areas where open, park-like stands of trees cover fields under permanent or semi-permanent cultivation, villagers report wood for consumptive uses has become increasingly scarce over the past decade.

The national forestry code, which establishes a list of fifteen (15) protected species, puts many remaining trees off limits to prospective users looking for building poles or beams. In the three villages, unprotected species have been largely decimated. One can still find abundant Guiera senegalensis (Hausa, sabara [shabara]), a small brush species, and frequently, Annona senegalensis (Hausa, gwanda) and Bauhinia reticulata (Hausa, kalgo, pl. kalguna), somewhat larger trees. Many others

occur only rarely.

Non-consumptive uses are partially met, in consequence, but fuelwood and building materials are hard to come by. This artificial, legally-imposed shortage of wood in an area where supplies appear adequate for the short term functions as a ^{temporary} defense against rapid devastation of the woodstock. If controls were to be totally lifted tomorrow, ^{however,} it seems improbable the large stands of Acacia albida and other protected species would long survive the onslaught of pent-up need. But this solution - a legal barrier to consumption - fails to prevent surreptitious nibbling at the woodstock by users hard-pressed to shelter themselves, their families or their cereal harvests, to find wood for mortars and tools, and to feed their livestock during periods when fodder is in short supply. It also inhibits investment in future supplies, as survey results demonstrate. Herein lies a major dilemma for both peasants and policy-makers.

Survey Results¹

Three points stand out in survey results concerning use and management of local woodstocks. First is the disturbing popular perception, shared across all villages, of explanations for wood shortages. Second, the in-field woodstock is seen by many as a common property resource, available for all to exploit. Third, various, village-specific consensuses are emerging on the value of the forestry code as currently applied. Opinion on this point does not unambiguously reveal popular perceptions concerning solutions to woodstock management problems, however.

Popular Explanations of
Wood Shortages

Table I. presents explanations of wood scarcity chosen by respondents in the three villages.

TABLE I. Shortage Explanations by Village

[Explanations]	<u>Kwari</u>	<u>Alagwum</u>	<u>Dajin Kowa</u>	<u>Totals</u>
Lack of bushland, alone or in conjunction with other factors	33 (85%)	24 (71%)	15 (58%)	72 (73%)
All other factors (clearing fields, overgrazing, consumptive uses of wood, neglect or destruction of natural regeneration, lack of individual ownership, etc.)	6 (15%)	10 (29%)	11 (42%)	27 (27%)
Totals	39 (100%)	34 (100%)	26 (100%)	99 (100%)

Chi square not significant at .05.

Only one-quarter of respondents selected an explanation of scarcity relating the phenomenon to human or human-guided impacts on the environment. Fully three-quarters still envisage the problem as one caused by at least a partial failure of nature (lack of bushland). This suggests a very substantial majority of householders in the three communities still retain an entirely passive view of Woodstock management. That is, wood production is something which happens naturally, without human intervention. This clearly was the case until quite

recently: the environment itself provided almost automatically for wood supply. On the other hand, 27% of respondents did choose explanations reflecting awareness in some degree of human agency as a factor provoking wood shortages (consumptive uses of wood, clearing fields, failure of humans to actively culture natural regeneration, etc.).

This division of opinion is not particularly surprising when considered in context. Inuwa Canton peasants, including some respondents well into their seventies, have lived until very recently in a resource surplus situation. In their environment, supplies of naturally-occurring renewable resources more than met demands made upon them by resident and transhumant human and animal communities. Fuel wood and building poles have been available for the taking for centuries; in effect, they were common property resources which anyone could use who was willing to collect them. They were, aside from the labor investment necessary to bring them home, essentially free goods. These goods reproduced themselves without human intervention beyond a simple timely shift of cultivation from worked-out fields to virgin bush areas - a very passive resource management strategy indeed. The objective situation has now changed [Thomson, 1983a]. As data in Table I. suggest, a change in perception of the problem is underway, but a blanket reorientation from passive to active Woodstock management has yet to occur.

The Woodstock as Common
Property Resource

In the three Inuwa Canton villages, opinion is divided concerning ownership of trees which grow in village compounds. Some householders assert they own and control trees around their houses, while others hesitate to claim a property right. The latter most commonly assert that the trees in such locations belong to "the forester".

No ambiguity exists however about property rights in trees which grow on villagers' fields. Although fields themselves are commonly claimed as individual or family property, and recognized as such by both officials and villagers, trees on fields are another matter. As Table II. indicates, respondents to an overwhelming degree indicate they do not own individual trees or bushes on their lands. Furthermore, as Table II. reveals, this perception is shared by respondents in all three villages: differing land tenure patterns (small fields scattered around a centralized residential area in the Hausa and Barebari sedentary agricultural villages, and dispersed dwellings located on consolidated single holdings in the Bugaaje community) exert no appreciable influence on perceptions of tree tenure.

TABLE II. Property Rights in On-Field Trees
by Village

[Village]				
[Asserted Tree Ownership]	<u>Kwari</u>	<u>Alagwum</u>	<u>Dajin Kowa</u>	<u>Totals</u>
Field owner	1 (2.6%)	4 (11.8%)	3 (11.5%)	8 (8.1%)
All others (forester, government, headman, etc.)	38 (97.4%)	30 (88.2%)	23 (88.5%)	91 (91.9%)
Totals	39 (100%)	34 (100%)	26 (100%)	99 (100%)

Chi square not significant at .05.

Villagers for the most part consider that either the forester or the government controls the trees on their fields. In point of law, the government, through the Conservation Service asserts authority to control use of protected species located on rural lands; from this legal perspective, the woodstock is thus a regulated common property.

Table III. indicates however that regulation is less than fully effective. It must be noted that data presented in Table III, concern a "delicate" topic, in the sense that foresters typically treat field owners as responsible in the last analysis for any protected species cut without authorization on their fields. In practice, this means a field owner who cannot, or is unwilling, to identify the individual who actually cut a protected tree on his land will be held responsible by the forester and required to pay the appropriate fine for cutting without authorization. It is possible - even probable - that some respondents concealed unauthorized cutting on their fields out of concern to avoid unpleasant complications with foresters, even though they were assured replies would be kept strictly confidential.

TABLE III. Number of Protected Trees Cut on Respondents' Fields by Village

[Village]				
[Nos. of Protected Trees Cut]	<u>Kwari</u>	<u>Alagwum</u>	<u>Dain Kowa</u>	<u>Totals</u>
1 - 2	5 (20.8%)	8 (32%)	9 (52.9%)	22 (33.3%)
3 - 5	14 (58.3%)	15 (60%)	7 (41.2%)	36 (54.5%)
6 - 30	5 (20.8%)	2 (8%)	1 (5.9%)	8 (12.0%)
Totals	24 (100%)	25 (100%)	17 (100%)	66 (100%)

Chi square not significant at .05.

Of the total sample of 99.32 reported no illegal cutting} one response to this question was incomplete.

Respondents were not asked to indicate whether they included themselves among those responsible for illegal cutting on their fields. However, to test the proposition that foresters and their representatives successfully control illegal cutting, that information is not necessary. The evidence is clear: illegal cutting does occur, and over 60% of respondents indicating illegal cutting noted that three or more trees had been chopped down on their fields without authorization. The control system, as presently constituted, obviously leaves something to be desired: foresters' efforts are simply insufficient to prevent unauthorized in-field cutting at present.

Preferred Future Directions
for Forestry Policy Regarding
Woodstock Management

Table IV. below presents respondents' preferences concerning revision of the existing forestry code.

TABLE IV. Forestry Code Revision Preferences
by Village

[Village]				
[Code Revision Preferences]	<u>Kwari</u>	<u>Alagwum</u>	<u>Dajin Kowa</u>	<u>Totals</u>
Strengthen or Leave as Is	19 (48.7%)	2 (5.9%)	17 (68.0%)	38 (38.8%)
Reduce Severity, Eliminate Entirely, or Find Some Other Solution	20 (51.3%)	32 (94.1%)	8 (32.0%)	60 (61.2%)
Totals	39 (100%)	34 (100%)	25 (100%)	98 (100%)

Chi square significant at .001.

Only two (2) individuals, one each in Kwari and Dajin Kowa, preferred to strengthen the forestry code. Of the total of sixty (60) who preferred to weaken code provisions in some manner, or replace them with another approach, fully forty (40), or two-thirds, preferred to eliminate **the code** altogether, the others being quite evenly split between reducing severity (11) and finding some other solution (9).

On this issue, inter-village differences stand out. Kwari has a bare majority for reducing severity or eliminating the code, Alagwum a massive majority in this direction, and Dajin Kowa, by contrast, a two-thirds majority in favor of leaving the code unchanged (or strengthening it).

Several explanations may be offered for these different preferences. Major ones may be framed in terms of levels of local organization, and ease of finding a "working arrangement" with the Conservation Service over application of code provisions. In Dajin Kowa, where a majority appear a priori satisfied with existing code regulations, other data indicate the code is regularly violated there by villagers. They find it relatively cheap, in terms of time and money, to bribe the forester's representative. The latter, a Dajin Kowa native, resides in the village. In return for bribes, he steers the forester away from cutting sites when he can. This is a long-standing pattern [Thomson, 1977* 68]. Thus Dajin Kowa people typically do not confront the forestry code in its rigorous official form, but rather deal with a locally "adapted" version, with which many apparently judge they can live.

Kwari Hausa split down the middle over the question of whether to weaken or preserve the code. Kwari has a long history of low-level but effective organization. A public problem of the sort posed by foresters when they apply the forestry code would be likely to evoke an organized reaction, and in fact has done so. Kwari people cannot easily bribe the forester's representative, because their village lies some twenty (20) kilometers from Dajin Kowa where he resides. Thus they cut, hoping to avoid discovery, and deal with the issue of authorization after the fact if they are caught. As we will see below, villagers organized a joint bribe for foresters in 1981, as a way to reduce costs of illegal cutting.

Some doubt must remain about the intention of those in Kwari who wish to maintain or strengthen the forestry code. It might well be they estimate they can get away with illegal cutting as necessary, and therefore prefer to avoid rocking the boat. The system is not perfect, but it does not, in their judgment, impose intolerable costs. On the other hand, many in this group may actually desire protection for trees on their fields from the depredations of fellow villagers and those living in neighboring communities. They may consider existing enforcement efforts by Conservation Service agents as the best hope of preserving what remains of their Woodstock.

Finally, in Bugaaje Alagwum, characterized by highly dispersed compounds, communication difficulties and a pronounced suspicion of collective action, sentiment is solidly for reducing severity (6), eliminating the code altogether (19) or finding

another solution (7). Alagwum villagers faced with Conservation Service pressure for acts of illegal cutting cannot easily respond by bribing the forester's representative (distance is here again a factor, as ^{but in some cases over 15 km between village and forest} it is in Kwari). Nor can they easily get together to organize a community bribe for foresters. Each individual caught thus faces the consequences of his act alone, and will likely find the fine (or occasionally, the bribe) quite expensive. Thus the pronounced desire to be rid of forestry code restrictions on cutting.

What remains ambiguous in this regard are intentions of those who prefer relaxation of code provisions. Do they merely seek liberty to exploit wood on their own fields or elsewhere, i.e., a legally unmanaged common property which all would be at liberty to exploit on a first come, first served basis? Or are they concerned to replace the existing system of an effectively unmanaged, or poorly managed common property resource by another system of property rights which would facilitate management either on an individual or on a collective basis? If the former be the case, then removing existing forestry code restrictions amounts to giving peasants a carte blanche authorization to destroy the woodstock, rather than enhancing popular management opportunities.

Table I. (above, p. 6) suggests, as noted, a non-active view of woodstock management, which would tend to argue against widespread sentiment in favor of individualizing tree tenure and replacing common by private property rights. Other survey data, to be presented elsewhere, indicate to the contrary however, that villagers do consider forestry code provisions prohibiting

cutting a barrier to better management of their woodstocks. Obviously the point is ambiguous, and whatever attitudinal evolution may be under way is by no means complete. Nonetheless, this development merits close scrutiny.

TABLE V. Planting Sites by Village

[Village]	Kwari	Alagwum	Dajin	Kowa	Totals
[Tree Planting Sites]					
Compound	33	6		17	56
Garden	0	0		9	9
Field	2	1		0	3
Other (state forest, village near compound)	0	0		12	12
Totals	35	7		29	80

[NB: some individuals reported planting trees in more than one site.]

Disaffection with field plantings is patent. Compound sites obviously offer the preferred location, followed closely by gardens, which are, by definition, enclosed, protected areas clearly recognized as private property at all times throughout the year. Exactly what dissuaded people from planting in their fields up to 1979, when the survey was administered, data in this table do not explain. It is highly probable that lack of effective private ownership of trees in fields convinced many that investing in future supply would be pointless. On the other hand, villagers may have considered difficulties of protecting and irrigating seedlings planted in fields far from

a local water source made their maintenance simply too onerous. People may also be culturing natural regeneration on their fields, in preference to planting nursery-raised seedlings there. The former technique offers clear advantages in cutting costs of producing supplies of wood for the future, assuming trees in question are not protected species, cutting of which might be prohibited by Conservation Service agents [Thomson, 1983c: 121-22].

It also is clear that Bugaaaje villagers in Alagwum had planted, up to 1979, decidedly fewer trees than the Hausa and Barebari peasants of the other two communities. This is in part explained by the annual displacement of Bugaaaje compounds in Alagwum, along the direction of the field axis, as part of the scheme of controlled manuring of Bugaaaje lands [Nicolas, 1962; Thomson, 1976: 261-64]. Furthermore, the systematic fallowing system and larger amounts of land in fallow guaranteed Bugaaaje, until very recently, an adequate supply of wood products. Thus Alagwum villagers perceived little need to plant trees until very recently.

Trouble Case Materials on Tree Ownership

Trouble case materials from the three study villages reveal villagers continue to face difficulties with foresters and their representatives who) criss-cross Inuwa Canton searching for violations of the forestry code. This is a continuation of a pattern which dates back to the colonial era and persists, despite increasing peasant resentment of restrictions on tree

cutting.

In general, peasants try to manipulate the system, either before or after they feel themselves forced to harvest a protected species. In both Dajin Kowa and Kwari during recent years, as well as on lands belonging to Inuwa villagers, Conservation Service agents have made a practice of riding from silo to silo and identifying newly-cut protected species wood. Peasants faced with a rotted or termite-eaten silo base feel they have little choice but to cut a protected tree, if - as is now often the case - no unprotected species are available to them.

Peasants fined for these "violations" of the forestry code often seek to reduce the monetary penalty involved by bribing either the forester's representative or the forester himself. Sometimes, when the pressure is severe, a village political entrepreneur will suggest getting up a bribe "pot" to appease the forester and win a respite for villagers. Everyone is invited to contribute: many do. The sum is then quietly turned over to the forester or his representative, with the tacit understanding that both will go looking elsewhere for forestry code violations.

A decidedly more interesting development however involves sporadic efforts by villagers to defend trees on their lands from unauthorized harvesting. Individual cases, which will be presented in detail elsewhere, suggest growing popular willingness to prevent cutting when detected. This process might best be described as creation of common law rights in trees growing on

fields (or "outlaw" rights, because contrary to forestry code provisions). Investment in policing begins with the minimal gesture of preventing an individual from cutting a tree on one's land, or trimming branches from it. In the past, this occurred only infrequently. Now however more householders are beginning to police their personal woodstocks against those who try to exploit them without field owner's permission. This represents a step escalation in policing levels from the formerly, and still common, practice of merely identifying the individual responsible for cutting a protected tree on one's field, in order to escape being fined by naming the culprit in the event the forester or his representative notices the violation. Those who have begun moving to protect their trees apparently apply the same standard to unprotected as to protected species: they want the trees on their land.

Much rarer, but still significant, are cases in which an individual brings a complaint against a woodcutter before his village headman or the canton chief. Theoretically such officials have no standing to enforce Woodstock use rules. However, peasants frustrated by inefficiencies of the Conservation Service's enforcement system, and concerned - for whatever reason - to maintain trees on their land have begun to assert control, not only over trees on their fields, but over the tree tenure enforcement process. This situation appears to be evolving rapidly. For the moment substantial variations exist among householders, villages, cantons and arrondissements.

But evidence provided by foresters in neighboring arrondissements suggests villagers will increasingly claim trees on their fields as their own, and will seek to protect them.

This by no means resolves the enforcement problems many fields in sedentary agricultural communities lie some distance from the village residential center, and cannot be easily guarded during the dry season, after crops have been harvested and before the owner again goes into his fields regularly, at the end of the dry season, to prepare them for planting [Thomson, 1981: 130]. Nonetheless it demonstrates increasing popular interest in establishing a set of working rules - private ownership of trees, in this case - which will lay the groundwork for sustained-yield management of the Woodstock.

Conclusions

The evidence presented above suggest in general that Inuwa County peasants now live in a situation of critical and growing wood scarcity. Villagers recognize this problem, and difficulties it gives rise to in their relationships with Conservation Service agents intent on (selectively) enforcing provisions of the forestry code which prohibit harvesting of fifteen (15) protected tree species without a cutting authorization.

Villagers have not yet moved en masse to manage the woodstock for sustained-yield use - indeed, the large majority still see the problem as "lack of bush" rather than failure to engage in deliberate renewal of a renewable natural resource. Nonethe-

less, some have begun moving in this direction. A majority of respondents have planted trees, although inter-village differences in this regard remain significant. A smaller but growing number have begun actively defending trees on their fields against cutting by anyone other than members of their families.

The obvious policy implication supported by these various data is gradual revision of the forestry code to provide for firmer individual (or defined group) rights in trees on village lands. A reorganization of enforcement proceedings to heighten probability violators of tree tenure rules will be apprehended and taken to task for their actions is also in order. While such a policy involves risks users will proceed to destroy the Woodstock on a first come, first served basis, it appears more likely villagers will counter such activity when they see it seriously threatens their existence (soil degradation, growing fuelwood and building pole shortages, etc.)

Endnotes

¹Data on these points was collected through a survey instrument administered during March-May 1979 to an age-stratified sample of household heads and their wives (head wives in cases where the householder was polygamous). Interviewers resided in all cases either in respondents' villages or in neighboring communities, and were personally acquainted with all respondents. Respondents were assured their identities would remain confidential.

Survey questions were developed by the author in consultation with the interviewers, who had previously served as his research assistants in the same three villages during 1971-72, in connection with an earlier study. The sample was constructed through a random drawing of householders' names, from lists established on the basis of Mirriah Arrondissement tax records and stratified by age (20-39, 40-59, 60 and older). The sample pool was constructed proportional to the numbers of individuals in these groups in the three communities (ten percent sample of householders). Potential respondents in each location were included in the pool only *if* they were expected to be physically present in the village during the survey period. The sample may be biased to the extent that names of potential respondents were drawn from tax records rather than from village censuses carried out specially for purposes of constructing a sample universe. In the past, many individuals legally subject to taxation have managed to avoid being listed on Mirriah Arrondissement tax rolls [Thomson, 1976: 177-87]. It is, furthermore,

clearly biased to the extent that part-year residents absent on labor migration during the survey period were excluded. This bias was not however as serious as it might have been earlier in the dry season, since many temporarily absent villagers had already returned home to prepare their fields for planting in the coming rainy season.

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