Introduction

This paper documents the aesthetic, domestic and nutritional use of plant resources among several linguistically distinct rural communities in Niger State. There are enormous numbers and forms of domestic artifacts used for household chores, fishing, water transportation, hunting and farming (including harvesting, storage and processing of food crops). Their life expectancy is reduced by the frequency of their use and by their perishable and easily disposable nature. Few of these are recovered in archaeological contexts, so they must be studied, reconstructed and interpreted from direct ethnographic observation.

Over the last six years, the author has carried out an ethnoarchaeological investigation of contemporary material culture among several communities in Niger State (Aiyedun 1994). This region has rich potential for archaeological research. Large scale excavations have taken place in the Wushishi area, next only to Daima in importance and magnitude in the whole of northern Nigeria (Shaw 1986; Aiyedun and Shaw 1989). The author has been involved in archaeological research in this region for the last 10 to 15 years (Aiyedun 1987).

Niger State (Figure 1) is one of the most rural states of the Federation. Out of an estimated total population in 1979 of 1,623,704, more than 90% are rural, while the remainder are urban dwellers (Idachaba 1985:631). It is situated in the middle belt region of Nigeria and lies between latitude 8°00' and 13°30' North, and longitude 4°20' and 8°40' East. Its area of 74,244 km² represents about 8% of Nigeria. Four major traditional societies live here, including the Nupe who occupy about one-quarter of the land area, make up one third of the population and who are found in four Local Government Areas in the south (Lavum, Gbako, Agaie and Lapai). Another is the Gwari who occupy about one-quarter of the land area, and make up one-third of the population; they are found in three Local Government Areas in the east (Shiroro, Suleja and Chanchaga) and parts of two Local Government Areas in the central part (Rafi and Mariga) of the state. The third group is the Kambari, found in the two largest Local Government Areas (Mariga and Magama), and the fourth are the Hausa found in various regions, particularly in the central and northern parts (Magama, Mariga and Rafi) (Figure 2). In the eastern and central parts (Mariga, Rafi, Chanchaga) are also found the Bassa, Korim, Hausa, Kadara and Gwandara. In the northeastern (Rafi) and central (Mariga) parts are the Kamuku, Ura, Pangu, Bauchi-Madaka and Bassa, and in the north (Mariga) and northwest (Magama) are also the Bungawa, Fakawa, Dukkawa, Kanukawa, Achifawa, Abanchi, Fulani, Beriberi and Ungwai.

Use of plant resources in Niger State

The vegetation of Niger State has been described elsewhere (Aiyedun 1994), so is just summarized here. It is characterized by woodland savanna and is endowed with a great variety of plants, including grasses, vines, forbs and trees. This paper documents their aesthetic, domestic and nutritional usage. Wherever found, trees were owned, protected and treasured for nutritional, aesthetic, domestic and medicinal purposes (Harris 1976:326). Grasses, vines and forbs were exploited as sources of nutrition for people and their animals, as well as to provide raw material for roofing and domestic utensils.

Grasses used on an annual basis for roofing material include jan-baujee (Monocynbiunt cerasiforme), toofo (Imperata cylindrica), yamaa (Hyparrhenia rufa), k'yaaraa (Hyparrhenia disso-luta), bauje (Acacia sieberana), and kyasuwa (Pennisetum hordeoides). Ropes and vines used for thatch grass weaving include rama (Hibiscus caninus), ramaniya (Urena lobata), and baige (Coelospermum tinctorium). Criss-crossing of the roof is done with corn stalks, karan dawa, mil-
Figure 1: Nigeria showing Niger State
Figure 2: Map of Niger State showing the ten local governments
let stalks, karan meiwa, and with stalks from shrubs or forbs such as kwiwa (Adenodolichos paniculatus) and wuyan damoo (Combretum glutinosum). Grasses valued and used as fences for surrounding compounds include gamba (Andropogon guyanus), iwa (Rhytachne congolensis), zana, zanhure and jinji. Vines used for other purposes, such as tying animals and fencing, include kalgoo (Piliostigma reticulatum), kukkuukii (Andropogon guyanus), iwa (Rhytachne purpurea), and janbawa. Iwa grasses are used for making fishing traps, kembo for making mats and asabari for doorblinds. Kyauroo (Saccharum spontaneum) grasses are made into arrow shafts, and the former is also used for writing pens.

Grasses valued as fodder for animals include harki (Digitaria debilis), gamba, gyazama (Rottboellia exaltata), laalaki (Oryza barthii), gadaigii (Alysicarpus vaginalis), chaba, larnporu, kukkuukii (Andropogon guyanus), iwa (Rhytachne purpurea), drums and karan rneiwa, and with stalks from to porridge, they act as a substitute for sugar or honey; young leaves are made into soup and the trunks are made into boats and large drums. The leaves of kanga are used as ink after boiling.

Oil palm, kwaarar kwaakwa (Elaeis guineensis) fruits are edible; oil is extracted from the pericarp of the fruit by maceration and is used for cooking and lighting. The kernels are used for making pomade, alidi; soap is obtained from the hard cracked shield and wine is tapped from the sap (Harris 1976:326). The leaves can be thatched and used for roofing; ropes are made from the leaves and brooms from the leaf stems; the branches are cut and used as food stirring sticks, jebanchi, and as cloth weaving looms, ebagi.

Branches of the raphia palm, tukuruwa (Raphia sudanica) are used as roofing poles, gwangwalaa. The leaves are made into rope and mats, tabarma tukuruwa, as well as winnowing trays and sieves. The bark of the branches serves for doorblinds, asabari; the branches are also made into beds, gado eba, or into easy chairs, esa. The inner part which remains after bark is removed from branches is used for roof ceilings.

Fruits of the dom-palm, gooribaa (Hyphaene thebaica) are edible and their fresh immature leaves serve as material for mats, tabarma goriba, and as cover for milk (nono) containers. The leaves of the giginyaa (Borassus aethiopum) or deleb palm serve as material for mats, tabarma kaba; the trunk is used as azara for roofing; the fruits are edible; the inner part of the fruit is planted to yield a root tuber, maruchi which is edible boiled or roasted.

The branches of the tamarind tree, issaamiyaa (Tamarindus indica) are used as drum sticks. Fruits of the fig tree, bauree (Ficus sycomorus) are edible. Fruits of dara are used for sweetening. Fruits of the African ebony tree, kanyaa (Diospyros mespiliformis) are edible; the water in which they are boiled serves as sweetening. Fruits of the aduwa or desert data (Balantites aegyiaca) are edible; the wood is used for making arabic board.

The locust bean tree, dorawa (Parkia clapertonia) also has many uses. Local maggi (daudawa) are made from the seeds; the powder in the pod could be added to porridge and drunk as kunu; the branches can be made into hoe handles, bowls, mortar, dugout canoes, and other objects (Forde 1955:25).

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The trunks of the loko or iroko tree (Chlorophora excelsa) are carved into dugout canoes and house posts; the branches are made into canoe paddles. The fruits of the ci'woo (Landolphia owariensis), a climbing stem, are edible; the juice serves as gum. Fruits of the silk-
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The trunk of giyyayaa (Mitragyna inermis) is carved into arabic boards and stools; the branches are shaped into sticks, maburki, used for stirring soup and milk (baba). The leaves of lallee (Lawsonia inermis) are pounded dry to make lali for foot and palm decoration. The branches of baushee (Terminalia avicennoides) are made into bow, pestles and hoe handles; mortars can be made from the trunk. Dugout canoes are made from the trunk of the African rosewood tree, madobiya (Ptericarpus erinaceus); the branches are made into hoe and axe handles.

Indigo (Indigofera sp.) could be grown but it also occurs wild in the woodland savanna, and wherever found, it is often protected for the dye which is extracted from the tree by women and from the grass by men (Forde 1955:25).

For the total of 48 tree species known in Niger State, 82 uses were recorded. Thirty-six (43.90% of the 82) are used for medicines, 24 (29.26%) for domestic reasons, 19 (23.17%) for nutritional purposes and 3 (3.65%) for aesthetic purposes. Favored parts of these tree species sought for domestic use include the pod/fruit, leaf, leaf stem, branches, bark, the inner part of the branches after removal of the bark, the juice and the trunk. The most common part used is the trunk (33% of the total), followed by branches (29%), leaf (12%) and bark (10%). The least used parts are the leaf stem and the inner part of the branches after bark removal (2% each). Tukuruwa provides the greatest number of parts used for domestic purposes, 4 (50%), followed by kade and kwaii kwaakwa, each accounting for 3 (37.5%). Tukuruwa also provides the largest number of domestic objects (n=9), followed by gora (6); tauraa, kade and kwaii kwaakwa each account for 5.

Leaves can be used for making rope, thatched roof, winnowing trays, sieves and mats. The branches are sought for making wooden handles for iron implements, such as hoes, axes, sicles, knives and other domestic objects, including food stirring sticks, porridge and soup serving spoons, pestle, bowl, floor beater, melon beater, flutes, drum sticks, bow, loom, bed, roofing poles and canoe paddles. The bark from branches or trunks is also useful for making rope, baskets, trays, sieves, and doorblinds, while the inner part of the branches are used for roof ceiling after the bark is removed. The trunks are used for bed, mortar, drums, arabic boards, stools and dugout canoes.
Other notable parts of trees sought for domestic use include the juice from *kade* and *ci'woo* for gum; the pods of locust bean trees and the bark of *malmo* for hardening newly made floors; locust bean pods for closing pores of newly made pottery, the fruits of *riimii* produce cotton used for mattresses and pillows; the leaves of *kangaa* provide arabic ink, and the leaf stems of *kwaarar kwaakwa* are used to make brooms.

It should also be remembered that another major domestic use of trees is for firewood, which is collected solely by women in these rural societies. Branches of economically useful trees such as the shea butter and locust bean tree are cut and brought home immediately; all other trees are cut at the base into chunks, which are further split in the bush before being carried home as firewood. A tree with a trunk of about 55.5 cm in diameter cut at the base could take a Gwari woman about four to five hours to fell, with the aid of an axe which is sharpened every two weeks and which could last for 15 years.

Nutritional ingredients obtained from the tree species include: the fruits, which could be edible, serve as substitutes for sugar or honey; the sap, which can be tapped to produce wine; the kernels, which can supply butter for cooking or oil for lighting; nutritious powder from the pods or the feranineceous fruit pulp, which could be dissolved in water for drinking; the flowers and leaves which could be made into soup; the latter could also serve as fodder for animals. About 89% of trees used as nutritional sources have fruits which are edible, while about 26% of them have flowers and/or leaves which are used for soup.

Lastly, favored parts of trees sought for aesthetic use include the inner part of the fruit of *gaudee* and oil palm kernels, *kwaarar kwaakwa* for facial cosmetic decoration and body cosmetics respectively; the leaves of *lallee*, for palm or foot decoration, and indigo for dye, a coloring agent.

**Conclusions**

People in Niger State have an enormous knowledge of the uses to which plant resources can be put: for nutritional, medicinal, domestic, and/or aesthetic reasons. Since the environment of the region does not seem to have varied greatly in the last 2000 years, this study may provide a clue to past adaptational practices. There is a marked difference between the wetter southern part of the region, characterized by the southern guinea savanna and the drier northern part, characterized by the northern guinea savanna (Aiyedun 1994; Idachaba 1985:1). The differences in vegetation and soils can be seen in contemporary material culture, and were probably significant during the last two millenia.

In the southern region, the oil palm and raphia palm are widely available as roofing materials and many objects used in the home are made from the different tree species found there. These are largely exploited by the Gwari and the Nupe. While wooden objects, calabashes and pottery were used as containers in the wetter south, in the drier north only calabashes and pottery are used.

The use of plant resources has led to the development of professionals such as wood carvers, herbalists, hawkers of firewood and traders in the areas of comestics and nutritional (soup) ingredients. Ethnographic study of use of tree species, particularly of wood carving, could lead to the understanding of their mode of production, products made, their uses, frequency of manufacture, average life expectancy and their distribution and marketing. This would lead to models for the interpretation and reconstruction of archaeological materials. Studies of the various tools and equipment used in subsistence and economic practices (fishing, water transportation, hunting and farming, including harvesting, storage and processing of crops) could also help. This material is highly perishable, and its significance for archaeological sites might otherwise never be understood.
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ETHIOPIA

Archaeological excavations at Bieta Giyorgys (Aksum, Tigray): A preliminary report on the 1994 field season

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Introduction

From May 27th to June 12th, 1994, the Italian Archaeological Mission at Bieta Giyorgis (Aksum, Tigray) of the Istituto Universitario Orientale, Naples, in collaboration with Boston University, conducted its second field season at the site of Ona Enda Aboi Zague on the Bieta Giyorgys hill to the northwest of Aksum. Members of the expedition were Prof. Rodolfo Fattovich, I.U.O., Naples, archaeologist and director of the Mission; Prof. Mauro Coltorti, University of Siena, geomorphologist and geoarchaeologist; Dr. Livio Cresczenzi, Soprintendenza Archeologica per il Lazio, Rome, classical archaeologist and surface surveyor; and Dr. Michael DiBlasi, African Studies Center, Boston University, Boston, archaeologist. The Center for Research and Conservation of the Cultural Heritage, Addis Ababa, was represented by Ato Tamrat Wodajo, while the Regional Tigray