

African Pygmy Settlement Pattern

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Introduction

The African pygmies are the largest extant group of hunter-gatherers in the world (Cavalli-Sforza, 1986). They live in close association with farmers in the central African rain forest. This paper examines the spatial, temporal, and ecological aspects of the distribution of the various pygmy groups throughout the forest.

Although there are several lines of evidence regarding the prehistoric spread of farming peoples through the forest, nothing is known about the original pygmy occupation, nor the evolution of their relationship with the horticulturists. This paper will examine the history, geography, and ecology of that forest, and the prehistoric immigration of farming peoples in order to provide a context for both the original and current pygmy occupation. The history of trade, colonialism and Independence in the region had a significant impact on pygmy settlement pattern, and are discussed as well.

Although the forager-farmer relation is outside the scope of this paper, it clearly has had a profound impact on pygmy settlement pattern. We should keep in mind that this relationship has probably had a very long history, in which social, political, economic and ecological factors all played an important role. What we see today very likely differs in important ways from even the fairly recent past.

Forest History, Geography and Ecology

Unless otherwise noted, the following description of the central African rain forest is based on material in *The Conservation Atlas of Tropical Forests: Africa* (Sayer, Harcourt, & Collins, 1992). References as cited therein are marked with an *.

The broad shallow 1600 km diameter bowl of central Africa was a vast lake during the Tertiary period (65-1.6 MYA). This lake drained through a narrow outlet into the Atlantic, exposing the Congo basin which contains 80% of Africa's tropical forests (Wilkie, 1988). The rain forest itself currently covers approximately 7% of the land area of the African continent, which is estimated to be 1/3 of its original extent. The maximum post-glacial spread of the tropical forest was attained during the millennia after 10,000 BP, probably expanding from glacial refugia. Forest pollen reached its maximum value in Lake Victoria after 9500 BP (Kendal, 1969*). Montane forest is extensive on Mt. Elgon by 11,000 BP, in contrast to the period prior to 14,000 BP (Hamilton, 1967*). Lowland forest replaces montane grassland around Lake Bosumtwi in Ghana c. 9000 BP (Talbot 1984*).

After 4000 BP, a drier climate resulted in some retreat of the forest. Pollen diagrams from marine sediments off Senegal and Zaïre show replacement of more mesic by less mesic vegetation (Rossignol-Strick & Duzer, 1979*; Girresse & Lanfranchi, 1984*). At Muchoya and Ahakagezi, swamp forest replaced wetter vegetation. Evidence of *Podocarpus* increases at many sites, implying a shift to a drier climate (Hamilton, 1987*). Geomorphic evidence includes lower lake levels (Butzer, Issac, Richardson, & Washbourn-Kamau, 1972*; Hecky & Degens, 1973*), lower Nile levels (Adamson, Gasse, Street, & Williams, 1980*) and expansion of the Sahara (Geyh & Jakel, 1974*).

Near the edge of the current forest at Matupi Cave, savannah persisted until 3000 BP (Van Noten, 1977; cited in Bailey & Devore, 1989).

In addition to climatic factors, there is evidence of forest change due to human habitation. Some pollen evidence at Ahakagezi (Hamilton, Taylor, & Vogel, 1986*) can be interpreted as evidence of forest clearance c. 5000 BP, but this is disputed by (Taylor, 1988*) who claims a later date of 2200 BP. An increase in pollen from shrubs and herbs like *Dodraea*, *Plantago*, *Pteridium comp.*, *Rumex*, *Vernoria comp.*, etc, is noticeable after 2200 BP.

The modern lowland Congolese forest of central Africa can be divided into three regions: the western equatorial forest, lying west of the Zaïrean river and extending to the Atlantic coast; the eastern Zaïrean lowland, lying east of the river and extending to the highlands of the Albert rift; and the Cuvette Centrale, a low lying region of the Zaïre basin embraced by the southward curve of the river. Much of the Cuvette Centrale is swamp, or swamp/forest mosaic (Map 1).

The biodiversity of the western equatorial forest is possibly the highest in Africa, with the eastern region not far behind. Gabon and Equatorial Guinea boast 28 genera and over 1000 species of endemic plants, 130 mammal species, and 20 primate species; Cameroon has 26 genera and over 600 species of plants, as well as 29 primate species, the second highest in Africa; the Congo has at least 4000 plant species—possibly as many as 6000 species—as well as 132 mammal species, 22 primate species, and 700 bird species; Zaïre, the largest country in the region, has over 10,000 species of plants, 400 species of mammals, 1000 species of birds, 400 species of fish, and 30 primate species. The Cuvette Centrale, lying within Zaïre, is somewhat impoverished in comparison with the rim of the basin. It is possible that the river acts as a barrier; the area may have also been dry c. 12,000 BP.

Close to the equator, there is no true dry season, precipitation exceeds 1500 mm/year, and the temperature is a stable 26°C. A bit farther away, there are four seasons, a long and a short dry, and a long and a short wet.

It is estimated that 54-59% of the moist forest remains, compared to its original *historical* extent; in Zaïre, figures are somewhat higher—59-67%. Although the Zaïre river is navigable for most of its length, the rapids below and above Kisangani have inhibited logging operations. Presently, overall loss of forest averages about 0.6% per year.

Prehistory of Human Forest Habitation

The prehistory of human penetration of the tropical forest has been reconstructed from both archaeological and linguistic evidence. The current model postulates a Bantu homeland north-west of the forest, and Ubangian people north-east of the forest. Iron using Bantu later appear east and south of the forest, apparently having migrated through it, since a route to East Africa lying north of the forest appears definitely blocked by the Ubangians. The major aspects of the Bantu expansion model are laid out by David (1982):

1. People, language, pottery, and iron [derive] from a single source area in the northwest.
2. Only one adaptive shift [is required] on the part of the peoples involved, that is, from a dry forest-savannah woodland to a moist forest environment.
3. Migrants [are not required] to compete with other food producers but only with Pygmy hunter-gatherers practicing a subsistence economy that is to some extent complementary.
4. Sufficient time [is allowed] for Bantu expansion into the forest and for diffusion of iron through it.
5. Natural diffusion routes [are respected].
6. Diffusion of new technology takes place only among speakers of closely related languages living in similar environments.
7. [The model is consistent with] the pattern of genetic relationships revealed by historical linguistics, comparative ethnology, and archaeological data available.

Ehret (1982) on the basis of linguistic evidence, argues that the Bantu expansion into the forest began 4000-5000 BP. Proto-Bantu vocabulary includes a word for yam (though no grain terms) and a fishing and boating vocabulary, consistent with a forest or forest/savannah adaptation. Linguistic evidence does not support the use of iron by proto-Bantu.

The Ubangians are generally recognized as having expanded eastward along the northern border of the tropical forest to dominate the drainage basin of the Ubangi River and its tributaries. Saxon (1982),

reviewing the linguistic evidence, proposes a three phase model for the expansion of the Ubangian peoples:

The first eastward wave was that of the early Eastern Ubangians, of whom one descendant people, the proto-Zandeans, pressed as far east as the middle Uele Valley before 1000 BC. The key advantage the first Ubangian settlers probably possessed was that of being the first food producers of the region. The second even wider spread was that of the pre-Ngbaka Babo, pre-Banda, and proto-Mundu-Ndogo, beginning perhaps before 1000 BC, but only taking off later on [David (1982) proposes knowledge of iron working as the cause of this second expansion]. The last expansion was that of the Zande which is recorded in the oral traditions and in the journals of European explorers. Much of the Zande expansion seems to have been at the expense of other Ubangian peoples rather than of Central Sudanic groups. The key to this expansion seems to have been a military advantage on the part of the Zande.

David (1982) points out that "the archaeological evidence from the C.A.R. and northern Zaïre is, as elsewhere in central Africa, wholly insufficient to support a detailed critique of Saxon's tentative reconstruction. Work carried out over the past five years has, however, produced evidence of Later Stone Age and Iron Age phases of expansion...."

Recent History

Both the colonial policies of the early part of the century, and more recent political and economic changes have had an important impact on Pygmy settlement pattern. Unless otherwise cited, the following account of the effect of trade, colonial policy, and economic change on the western pygmy groups is from Bahuchet and Guillaume (1982). A similar account for the eastern groups is from Wæhle (1986).

Trade

In the 1700's, Ngandu fled northward from the Imfondo area of the PRC to the southern banks of the Lobaye, in order to escape Dutch slave traders. These are the horticulturists with whom the Aka of Bokoka associate today. This movement undoubtedly increased the population density of the region, and demands on the Aka for meat and services (Hewlett, 1991).

Commercial monopolies granted after an 1899 decree focused exclusively on trade, especially ivory. French Equatorial Africa exported more than 100 tons of ivory per year during this period (Bruehl, 1918; cited in Bahuchet & Guillaume, 1982). The Aka were the principle producers. This intensified their contact and trade relationships with the villagers, increased their access to iron and salt, depleted elephant populations, and introduced new patterns of non-subsistence hunting.

In 1910, the Compagnie Forestiere Sangha-Oubangui (CFSO) began collecting rubber from a 17 million hectare concession which entirely encompassed Aka territory. CFSO used forced village labor to tap the rubber trees. Villagers, unable to meet subsistence needs, relied on the Aka to provide meat and other forest products. Villagers would also occasionally flee into the forest to avoid forced labor, and establish gardens in proximity to Aka camps (Hewlett 1991). In 1925, a market for duiker skins developed in France. To meet demand, Aka used newly acquired net hunting techniques, and settled near village work camps. From the 1940's on, demand for skins grew significantly. By the 50's, some areas were producing as many as 27,000 skins a year (Dongier 1953; cited in Bahuchet and Guillaume 1982). Aka camps grew in size from 15-25 adults to 40-60 adults, and became more permanent.

According to Wæhle (1986), the people of the northeastern Ituri were little affected by the cavalry empires, trading caravans, slave expeditions, mining and ivory expeditions of the 17th and 18th centuries, as compared with their western neighbors. After 1860, however, the Ituri region became involved with larger trade systems, mainly slaves and ivory. Swahili-Arab slave traders came from the east and recruited local armies and attacked forest communities (Fage and Oliver 1975-78; cited in Wæhle 1986). Local tradition remembers the latter part of the last century as one of violence, raids, and warfare. The Bila were at war with the Lese, with Mbuti fighting on both sides, resulting in the eventual submission of the Mbuti (Alingilya 1979; cited in Wæhle 1986).

Wæhle reconstructed the settlement history of one group of Efe known as Apomasa (Map 2). The Apomasa were attached to a farmer group which was fighting other Lese groups, and moved south with them when they were forced to flee. Both groups settled near Epulu. Several years later, both groups moved northeast.

After WWI, they were forced to work constructing the Kisangani-Bunia road for Belgian administrators, again to the south. After a while, they again ended up at Epulu. Another group of Lese who had been relocated for road work were not accompanied by their group of Efe. After completion of the road (about 40 years ago), this group then bought the Apomasa group at Epulu, paying with hoes, chisels, and anvils, and moved them north where they reside today.

Colonial Policy

In the 1930's colonial administrators in French Equatorial Africa initiated their Taming Policy, whose goal was to gain the Pygmies' trust in an attempt to deal with them directly, by-passing their village 'masters'. A Stabilization policy, used in other areas, was employed to resettle pygmies along axes of communication (roads and rivers) in order to facilitate tax collection, labor recruitment, census taking, marketing, etc. They were encouraged to undertake cultivation in order to further separate them from the villagers, and make them more dependent on the administration. Ultimately, this policy affected only a few, primarily in the riverside areas of Oubangui.

The eastern groups were also little affected, although the Belgian authorities did introduce some cash cropping, collected taxes, and kept the peace in the area.

Development and Independence

The introduction of coffee cash crops in the west during the 60's created a demand for labor, demand that was filled in part by Aka, who now found themselves employed as agricultural laborers rather than forest experts and hunters. Instead of trading game for iron and cultigens, they traded labor for cultigens, goods, and money. Snare hunting, learned from the villagers, is replacing track hunting, and leads to a noticeable decrease in mobility. Demesse (1978; cited in Bahuchet and Guillaume 1982) argues that the closer integration of farmer and hunter groups has led to reduced nomadism, smaller hunting territories, and establishment of camps nearer villages.

The Simba rebellions in Zaïre in the 60's had a profound effect in the Ituri region. Many village tribes had to hide from rebels in the forest, dependent on pygmy groups to sustain them. Villages were completely destroyed, and when people returned after two years, they had to rebuild everything from scratch. Wilkie (1987; cited in Wilkie 1990) reports that while most of these groups had been forced to resettle along one of the three dirt roads through the region during the 1940's, many have now returned to traditional villages in the forest interior. Also, a strong cash crop economy has not returned.

Environmental change

Turnbull (1983) claims that dramatic climate change has occurred in the Ituri forest since the 1950's:

As late as 1958, official publications discussing the climate described the Ituri as basically non seasonal, with an annual rainfall of up to two meters distributed evenly throughout the year, with a slight slackening (referred to locally as either little dry seasons or little rainy seasons) about the months of July and December. This had been my experience throughout my visits back to 1951. More truly seasonal variations, though seldom with any totally dry periods, began instantly, east, west, north and south, wherever the forest gave way to open ground. But in 1970 the second half of the year was virtually dry until October in the central part of the forest, then again in January and February. Only two or three years later Japanese anthropologists found the seasons so firmly established that it did not seem to cross their minds that it had not always been so, just as when I wrote about the Ituri in the sixties it did not cross my mind that in such a vast forest climatic change could come about so speedily.

As we shall see, seasonality has a dramatic effect on settlement pattern.

Distribution of Pygmy groups in Tropical Africa

Vansina (1986) provides a map of pygmy hunter-gatherer distribution c. 1850-1890 (Map 3). Cavalli-Sforza (1986) provides the most comprehensive summary of the more recent distribution of tropical forest pygmies, and their approximate populations (Map 4). There are three major pygmy groups, the western cluster, inhabiting a broad stretch of the western equatorial forest, the eastern cluster, inhabiting the eastern Zaïrean

lowland, primarily the Ituri forest, and a central cluster inhabiting the western Cuvette Centrale.

The western cluster inhabit a 625 mile broad stretch (227,400 km²) of the western equatorial forest, from the Atlantic coast of Cameroon east to the Ubangi River. This distribution is centered at approximately 2 1/2 ° N latitude. Murdock (1959) estimated their population at about 27,000. Cavalli-Sforza provides an estimate of about 33,000. Cavalli-Sforza has obtained several unique sources of demographic information. These include an official 1965 census by the superintendent of the subprefecture of Bambio, prefecture of Mbaiki, in the C.A.R. The census records 1223 pygmies and 4197 farmers.

A French physician took a census (unpublished; cited in Cavalli-Sforza 1986) in 1947 in the district of Likouala, prefecture of Impfondo in the Congo. In this swamp region, 4493 pygmies were recorded in area 1, and 1467 in area 2, for a total of 5960. Dussaud (1936) recorded 1651 pygmies in area 2.

Sato (1992) has conducted a careful survey of pygmy groups in the Sangha region of the north-west Congo (Map 5). These groups constitute a significant fraction of the south central portion of the western cluster. He gives the total population in the Sangha region (55,800 km²) as 46,367, based on a local government census in 1984. He cites Cavalli-Sforza's data to give a hunter-gatherer population of 10,684. Sato identifies five distinct ethnic groups of pygmies in the region:

Baka (Bangomba):	NW Congo from Ouessou to Sembu and Souanke districts.
Bambenjele:	Left bank of the upper Sangha River.
Baluma:	Road south of Ouessou; right bank of the lower Sangha River.
Mikaya:	From Ouessou to regional border along the road.
Bakola:	Over the border of Gabon and Congo to the south of the Souanke district.

Other western sub-groups include the Bakui and Akoa in Gabon, the Libenge just east of the Ubangi river, and the Gelli, numbering perhaps 2000 near the south coast of Cameroon at Kibi.

The eastern cluster of pygmies inhabit the Ituri forest, a 60,000 km² watershed in northeastern Zaïre that varies in elevation from 600m in the west, to 1000m in the east. This group numbers 32,000 according to Murdock (1959), and 35,000-40,000 according to Turnbull. Wilkie (1990) gives their number as 10,000+, and the number of horticulturists as 50,000+. The hunter-gatherers are known collectively as Bambuti, and consist of four populations differentiated by language, custom, and technology. Their distribution is continuous, however, and they do intermarry. The four groups are the net hunting Mbuti, who live in the central and southern Ituri, and are associated with Bantu speaking Babila; the net hunting Sua (Batswa) who live in the western Ituri, associate with the Babudu and Bandaka, and often work as wage laborers on coffee and palm plantations; the Aka, in the savannah northwest, associated with Mangbetu and Azande, and most of whom are settled agriculturists and wage laborers on plantations; and the archer Efe, who have the broadest distribution of the Bambuti—most of the northern Ituri and down to the southeast—who are associated with the Sudanic Mamvu and Lese (Bailey & Devore, 1989).

A very large number of pygmies live in the western Cuvette Centrale. Known variously as Twa, Cwa, Tswa, or Batúa, this group numbers 100,000 according to Murdock; they live among approximately 2 million Mongo horticulturists (Van der Kerken 1944; cited in Shultz 198?). According to Shultz (198?), the Batúa have essentially become a working class population among the Mongo due to increasing concentration of settlements and depletion of game.

Finally there are pygmy populations in the rift area of Rwanda, Burundi, and the northern Zaire-Ugandan border. They are known as Twa, Gesera, or Zigaba. Murdock places their number at 9000; Desmarais (1977; cited in Cavalli-Sforza 1986), who censused them 1975, estimates their population at 18,271. Although a few of these groups still hunt, most are farmers and potters. There are also two groups of fishers in Zambia, also known as Twa (Murdock 1959).

Regional Distribution

All researchers complain of the difficulty of conducting careful regional settlement surveys of nomadic hunter-gatherers in the tropical forest, and thus this information is sparse. Furthermore, although Turnbull (1963), Ichikawa (1978), Hart (1978), and Schultz (198?) do provide maps of settlement location, it is apparent that the data were collected over a significant period of time, thus introducing an unavoidable temporal ambiguity into the overall pattern. The data comprising one section of the map represent a period of time different than data comprising other sections of the map. Unfortunately, with the exception of Hart (1978), this aspect is not made explicit. Finally, whether these data are the result of comprehensive surveys, or were merely collected opportunistically is not clear.

Turnbull does not discuss his settlement data, so I can merely refer the reader to Map 6. Ichikawa (1978) describes the territory and distribution of hunting camps and base camps for the Mbuti of the Tetri region. Map 7 shows the distribution of base camps along a 72 km stretch of road. Each camp is directly adjacent to a farmer village. Map 8 shows the distribution of hunting camps in the same area. Each hunting path represents the territory for a band, reflected in the Mbuti phrase "we use our own separate path." These territories range in size from 150-300 km², including overlap with other territories. Within a territory there are 4-6 hunting camps at 3-6 km intervals. Ichikawa also reports that he discovered nearly 30 abandoned campsites within one territory. It is clear from the map that hunting trails run roughly parallel to each other from the village into the forest, and they appear to cut across drainages.

Hart (1978) studied three bands of Mbuti in the southern Ituri in an attempt to understand the recent transition from subsistence to market hunting. The hunting ranges do not seem to correspond to the narrow strips observed by Ichikawa (Map 9). In addition, range area appears positively correlated with degree of commercial contact.

Sato (1992) has conducted a fairly comprehensive settlement survey of five groups of sedentary pygmy hunter-gatherers in the Sangha region. The Baka do subsistence and cash crop farming, as well as one day hunting excursions using snares and shotguns belonging to village farmers. They also conduct occasional 2-3 week hunting trips. Women forage for wild yams twice a week. The Baluma, Mikaya, and Bakola net hunt. Settlements consist of rectangular huts with clay walls situated along roads and rivers.

These groups are distributed in three districts, Souanke, Sembe, and Mokeko (Map 10). Souanke had 15 settlements, almost all Baka, who were interacting with three ethnic groups of farmers: Kwele, Jem, and Fan. In the Sembe district, there were 22 Baka settlements along three roads. Farmers here were Kwele. Mokeko district had 33 hunter-gatherer settlements, consisting of Baka, Mikaya, Baluma, and Bakola. The Baka had moved here 30-40 years ago to get jobs working on oil palm plantations or building roads. The Bakola seem to be recent arrivals from Gabon. 28 of the 33 settlements were uni-linguistic, i.e. all inhabitants were of one linguistic group. Although most settlements didn't exceed 20 families, Attantion (40) had over 300 people, and was the largest settlement in the region. Farmer groups in Mokeko include the Kwele, Bongili, Banjimo, Bapomo, Bomasa, Mokiba, Bakota, Mbouku, and Sanghasangha.

Sato collected demographic information on the Baka in Souanke district. There were a total of 664 Baka; of the 305 adults, 132 (43%) were immigrants. Roughly half (61) of these immigrants came from Cameroon. Their widespread distribution in Souanke suggests that they belong to the same group as the indigenous Souanke Baka. The other half (70) appear to have come from the east, Sembe or Mokeko, and their tighter distribution suggest they belonged to a different group.

Of the 15 Baka settlements in Souanke, 7 were built basically within farmer villages; the other 8 were built an average of 1.3 km from farmer villages. Baka generally expressed a desire to live apart from farmers, while farmers expressed the reverse, that the Baka should live with them in their villages. Baka/farmer relations appear temporary and business-like.

Population Densities

Estimates for the Ituri include Tanno (1976): 0.4-0.5 pygmies/km²; Ichikawa: 0.4 pygmies /km² in Tetri; Hart (1978): 0.5 pygmies/km² in the southwest Ituri.

Cavalli-Sforza (1986) reports considerably greater variation in population density for the western groups: 0.06-0.36 pygmies/km², with an average of 0.14 overall. Thus, African Pygmy population densities range from approximately 0.05-0.5 pygmies/km².

Seasonal Aspects of Settlement Pattern

Aka groups living in the western equatorial forest consider the dry season to extend from November to June, centered on December-March. This emic perspective appears related to the frequency of rainfall rather than overall levels of precipitation (Fisher & Hudson, 1993). Although there is a great deal of variation, the dry season is one of aggregation, while the wet season is one of dispersion (Hudson, 1989)(Fig. 1).

Hudson (1989) distinguishes three basic camp types for these semi-sedentary groups (Map 11). Temporary forest camps are used for net hunting. These camps are popular in the Kinga area, though rare in Bagandou. They are located 8-40 km from the village, and are usually clustered with 3-4 other camps within a few kilometer radius at most. These camps serve as a residential base for 3-11 households (6-31 individuals), and are occupied for 7 days to 3 1/2 months (avg. = 2 months).

The reoccupied or semi-permanent forest camp appears to be a recent invention, and is not used by all groups. They are located 1-6 days hike from a village, and 2-6 camps will be clustered within 5 km. Aka plant their own gardens at these camps, and build more permanent rectangular mud structures. Unlike temporary forest camps, the same location will be used for many years. Up to 27 households (8-80 individuals) will occupy a camp for 3-9 months.

The temporary village camp is located within 5 km of a village and is occupied by an average of 25 individuals for 1 1/2 to 10 months. Aka in these camps subsist primarily by labor exchange.

Although the dry season is an optimal time for net hunting, the Ngandu farmers are also harvesting their cash crops, and clearing and planting subsistence gardens of manioc and plantains, activities for which they recruit Aka labor. Aka dry season settlement thus includes clusters of temporary village camps, and a reoccupation of semi-permanent forest camps for cooperative net hunting. Within this basic pattern of aggregation, there are several variations. Some Aka will split time between the two types of camps; some groups will split up, one half staying in the village camp, the other in the forest camp; and some groups will maintain both camps simultaneously (Fisher & Hudson, 1993).

The rainy season is spent trapping, spear hunting, honey gathering and caterpillar collecting. These activities take place in temporary forest camps, sometimes the whole group together, sometimes with the men off in distant satellite camps. During this time, individual households may splinter off. Aka explain that net hunting is not practical during the wet season, as the nets are fragile. Trapping and tracking are easier when the ground is wet.

Hudson also reports another seasonal pattern, with clusters of temporary forest camps near villages early in the dry season, which move deeper into the forest later in the dry season. Clusters of these camps then break up during the wet season to collect caterpillars.

Both Fisher (Fisher & Hudson, 1993) and Ichikawa (1978) report on settlement patterns for the eastern groups. Fisher distinguishes two Efe settlement types, village camps and forest camps. Village camps are located within a one hour walk from the village, are spaced within a couple hundred meters of each other, and are occupied for an average of six weeks. The Efe use village camps for seven months of the year. Forest

camps are located within an 8 hour walk from village, and their average occupancy is two weeks. Fisher notes that storage of heavy, cumbersome, unneeded items is an integral element of Efe settlement pattern.

Ichikawa studied nine bands of Mbuti (592 individuals) in the Tetri region of the Ituri. He distinguishes two settlement types—base camps near villages and hunting camps—and three seasons: the main rainy season, the dry season, and the honey season, which takes place during the minor wet season. During the main rainy season (August - November), Mbuti live in the base camps and assist in the fields. There is little hunting. The dry season (December - March) has the best hunting. Mbuti move to the forest and hunt every day. Forest products are exchanged with farmers. During the honey season (April - July) the Mbuti are least dependent on the farmers. They collect honey and do some hunting. Turnbull reports that large Epulu Mbuti camps disband during the honey season (Turnbull, 1965). Ichikawa notes that the Tetri Mbuti don't seem to follow this pattern. Groups often stay together and hunt, though to a reduced degree (Ichikawa, 1978).

Some Ecological Aspects of Settlement Pattern

Although the complex forager-farmer relationship is far outside the scope of this paper, certain ecological aspects of the distribution and size of hunting territories are relevant. Ichikawa (1986) argues that the Bambuti are evenly distributed throughout the Ituri, as evidenced by consistent population densities, and that hunting camps are evenly distributed every 3-6 km throughout a hunting territory. He interprets both these facts as evidence of the general resource homogeneity and uniformity of environmental conditions in the Ituri forest. He calculates that the annual hunting yield is 7000 kg of meat per band. Watt (1968) and Nishida (1984) (both cited in Ichikawa 1986) argue that the annual catch must not exceed 20% of the standing stock in order to preserve the game population. Ichikawa (1983; cited in Ichikawa 1986) has estimated game biomass at 300-500 kg/km². This implies a necessary hunting range of 70-120 km²; the current territory of the Mawanbo Mbuti is 200 km², more than enough. The territories of other groups are estimated at 150-300 km² (Ichikawa, 1978).

Conclusion

Virtually every aspect of pygmy settlement in the rain forests of Africa, its origins, history, and current configuration is poorly understood. If African history is difficult to reconstruct, pygmy history is almost impossible. Archaeology in the tropical forest is practically non-existent, and the pygmies speak the languages of the local farming groups. It is also unlikely that pygmy settlement pattern can be understood without understanding also the current and historical settlement pattern of the neighboring horticulturists, and the long-standing and no doubt dynamic relationship between these two groups of people.

The nearly universal assumption that pygmies either were the original inhabitants of the forest, or immediately retreated there from forest/savannah ecotones with the influx of farmers should be tested if possible. Possible relationships between all groups of pygmies need to be explored as well. In general, a regional perspective is missing from pygmy studies, and the historical perspective has only recently been pursued. In this regard, Vansina's map (3) is interesting in that it reveals where pygmies were not c. 1850-1890.

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