Supporting Information

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SI Text

Study Area. Gabon is bounded by Equatorial Guinea and Cameroon to the north and by Congo to the east and south. Gabon is home to ~50 different Bantu tribes, for a total population of ~1.5 million inhabitants. The Fang represent one-third of the total population (~600,000). Punu (~143,000), Ndzabi (~124,000), Myènè (~56,000), Ghisir (~47,000), and Tsogho (~30,000) are the five other principal ethnic groups. Gabon also counts several scattered Pygmy populations (Bongo, Koya, Baka; totaling ~5,000). French is the official language, and literacy rate approaches 88% (1). The population of Gabon is sparse (average 4.7 inhabitants per km^2) and unevenly distributed across the country. Urban agglomerations (Libreville, Port-Gentil, Franceville) account for 86% of the population (49% of which is concentrated in the capital, Libreville), whereas population densities in rural areas typically range between 0.5 and 1.7 inhabitants per km^2 (1). Gabon is rather uniform in its vegetation cover. Nearly 85% of the territory (267,667 km^2) is covered with equatorial forest, the rest by small areas of savannah and mangroves. Cultivated areas represent <1% of the territory (2).

Economy and Political Stability. Gabon has one of the highest per-capita gross domestic product (GDP) among sub-Saharan African countries (10,037 USD; 1). However, unequal redistribution of wealth has maintained widespread poverty, and Gabon ranks only 93/169 among countries worldwide in the Human Development Index (1). Gabon has enjoyed relative political stability since independence in 1960 (3). Except for two episodes of civil unrest, in 1990 when citizens pressed for political reforms and the introduction of multipartism, and in 2009 in the aftermath of the last presidential elections, the country has remained free of ethnic tensions and has not experienced major internal conflicts.

Agriculture in Gabon. Oil and timber industries represent most of the country's exports and account for 57% of Gabon's GDP (2). The agricultural sector, in contrast, is marginalized and represents only 5% of the country's revenue. Small-scale swidden farming systems are predominant. Farmers practice slash-and-burn cultivation with intervening fallows. Polyculture, involving crop rotation and intercropping, is prevalent. Manioc and plantain are the main staples (4). Other important crops include peanuts (*Arachis hypogaea*), maize (*Zea mays*), and melon (*Cucumeropsis mannii*). Since decolonization in 1960, Gabon has concentrated efforts on developing oil and timber industries to the detriment of agriculture. As a result, rural population has decreased by 42% and total cultivated area by 51% (2). Agriculture is therefore essentially familial and confined to subsistence, and ~60% of the country's food is supplied by imports (2). Lack of appropriate infrastructures has hindered development of opportunities for commercializing agricultural products (2). Isolation of villages, low road density [3 km × km^{-2} land area (1)], and the resulting cost of transport and problems of storage have impeded the transformation of local farming into an economically viable activity.

Research and Development Aid. Between 1970 and 1998, the International Institute of Tropical Agriculture (IITA) released 206 improved cultivars in Africa, 14 of which were introduced into Gabon (5). Based in N'toum, the Centre d'Introduction, d'Adaptation et de Multiplication du Matériel Végétal, Fruitier et Maraîcher (CIAM) was created in 1975 by the government to enhance agriculture by favoring farmers' access to IITA varieties. The CIAM contributed in the 1980s to promote IITA cultivars in Gabon. However, the center and its satellites in Booué, Lambaréné, Oyem, and Tchibanga have all virtually stopped their activities since the 1990s because funding was insufficient to maintain the collections (2). Modern cultivars from research and development aid thus have had a limited impact on the structure of genetic diversity of manioc landrace populations in Gabon and account for only a small proportion of the total varietal diversity present in the country (6).

Evolution of Manioc Diversity in Northern Gabon. Diachronic data (7–9) show that there has been little renewal or increase of the regional portfolio of manioc landraces in northern Gabon over the past 100 y. The limited range of varietal diversity now found in northern Gabon appears to owe its origins to the agricultural policy of colonial administrations that encouraged manioc farming in the 1890s–1910s. During the German occupation of Cameroon (1884–1916), sweet manioc varieties were introduced into French Equatorial Africa and successfully spread up throughout the region (10, 11). Diachronic comparisons (7, 9) suggest not only that this initial input of manioc varietal diversity in the region was limited, but also that diversity has stagnated at the regional level for over a century. Although the northern cluster includes only one village, other data show that this village is representative of the entire Fang region, which is characterized by low levels of manioc varietal diversity (Fig. S1). Short visits to neighboring villages and interviews with women selling manioc on the market in Bitam confirmed that the same limited set of landraces (*Adzoro*, *Esobo-Nku*, and *Afouba-Mbōng*) we found in Mbong-Ete is common to other villages in the region, including the bordering regions in Cameroon and Equatorial Guinea. Data from the literature (8, 9) also confirmed that these landraces are well established in the region.

SI Materials and Methods

DNA Extraction, Primers, PCR Conditions, and SSR Allele Scoring. DNA extractions were performed on 20 mg of dried leaves, using DNeasy Plant Mini kits (Qiagen). Genetic diversity was assessed using six microsatellite markers [GA12, GA21, GA57, GA126 (12), and SSR55, SSR68 (13)]. PCR was performed by using Qiagen Multiplex PCR kits and phosphoramidite-labeled primers (MWG Biotech). All amplifications were carried out on a Biometra TProfessional 96-well gradient thermal cycler, in a final volume of 10 μL on 96-well PCR plates (Sarstedt AG & Co.). Amplification conditions followed the Qiagen protocol. Genotyping was performed on a 16-capillary ABIPrism 3130XL Genetic Analyzer (Perkin-Elmer/Applied Biosystems). Genotypes were extracted and analyzed using Genescan analysis 3.1.2 software (Applied Biosystems).

Analysis of Folk Taxonomical Systems. At the community level, landraces are recognized by a common name. The basis of the local taxonomy of landraces is therefore lexical, but only partially shared between farmers. Names given to landraces permit exchange, but do not necessarily imply that all farmers designate the same clone (or set of clones) under the same name. To identify synonymous or homonymous landraces, local folk taxonomies were explored through an analysis of consensus between farmers' nomenclature systems, based on analysis of the genotypic composition of manioc landraces. First, all plants were sorted according to their multilocus genotype (MLG), independently of local folk taxonomy. MLGs were then categorized as follows: (*i*) whenever the majority (≥50%) of plants showing a given MLG belonged to the same folk taxonomical unit (i.e., the same emically identified landrace), the MLG was said to be

typical of that landrace; (*ii*) groups of plants showing the same MLG but consisting of admixtures of plants variably assigned to different landraces, but with none accounting for the majority, were considered as atypical; and (*iii*) plants showing a genotype not shared with any other individual were considered as singletons. Landraces were considered synonymous when they shared the same typical MLG(s). Suspected synonymies were confirmed by computing Weir and Cockerham's (14) estimator of F_{ST} between all pairs of landraces using Fstat 2.9.3.2 (15). Population differentiation tests were performed by permuting genotypes among landraces 5,000 times. Significance of P values was adjusted by using Benjamini and Hochberg's sharpened test (16).

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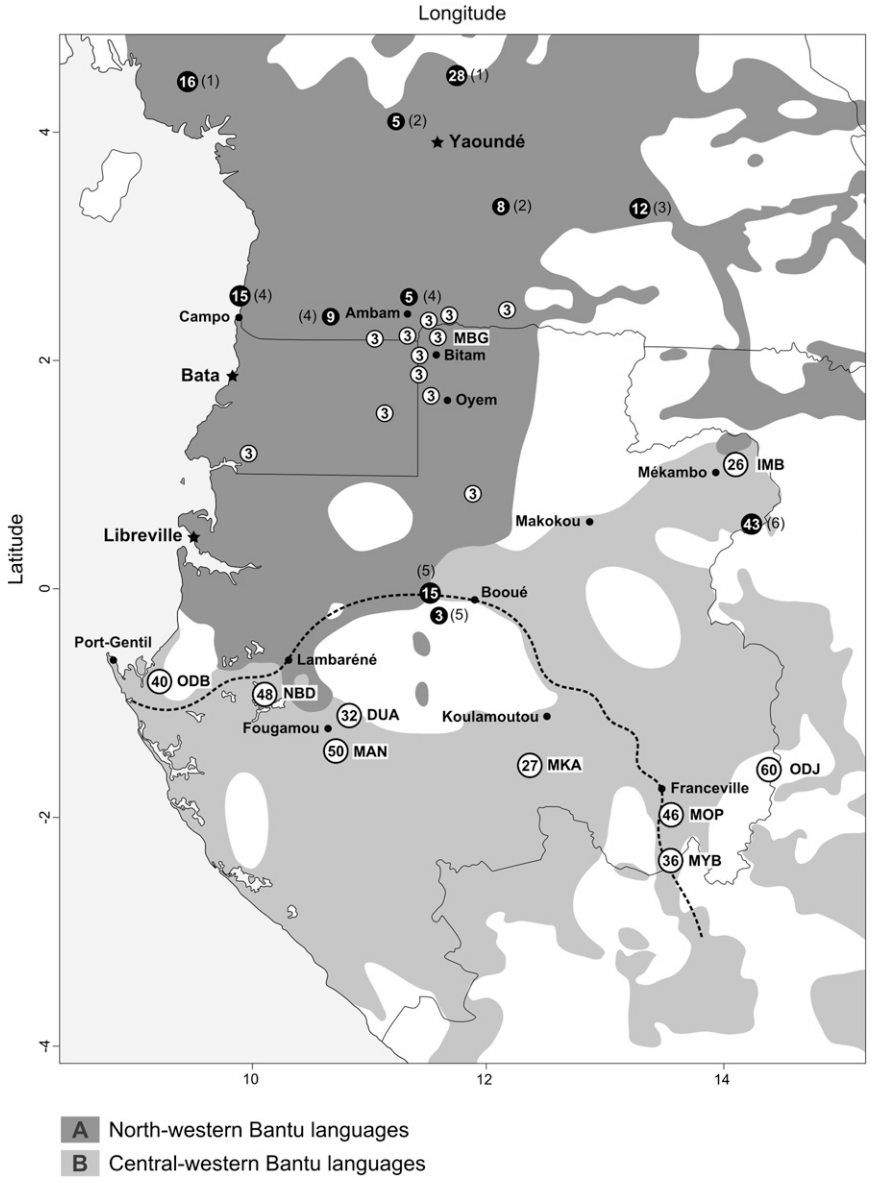

Fig. S1. Manioc varietal diversity across Gabon, southern Cameroon, and Equatorial Guinea, as inferred from ethnographic surveys (open circles) and from published data (1–6) (filled circles).

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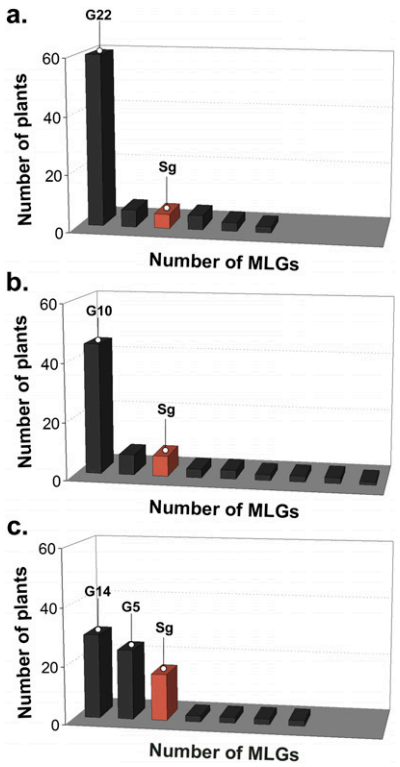

Fig. S2. Genotypic composition of *Esobo-Nku* (*A*; *n* = 81), *Afouba-Mbõng* (*B*; *n* = 75), and *Adzoro* (*C*; *n* = 77). Singletons (plants with a genotype not shared with any other individual) were grouped as a single category (Sg).

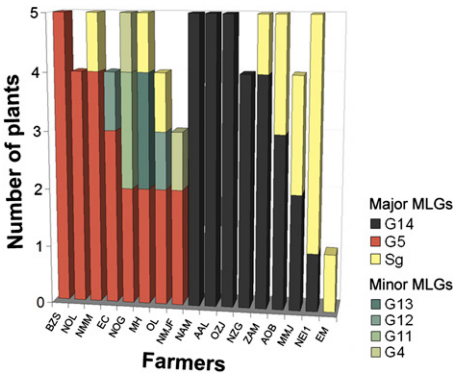

Fig. S3. Distribution among farmers of the two main MLGs (G5, G14) composing the landrace *Adzoro*. Farmers are referred to by their initials.

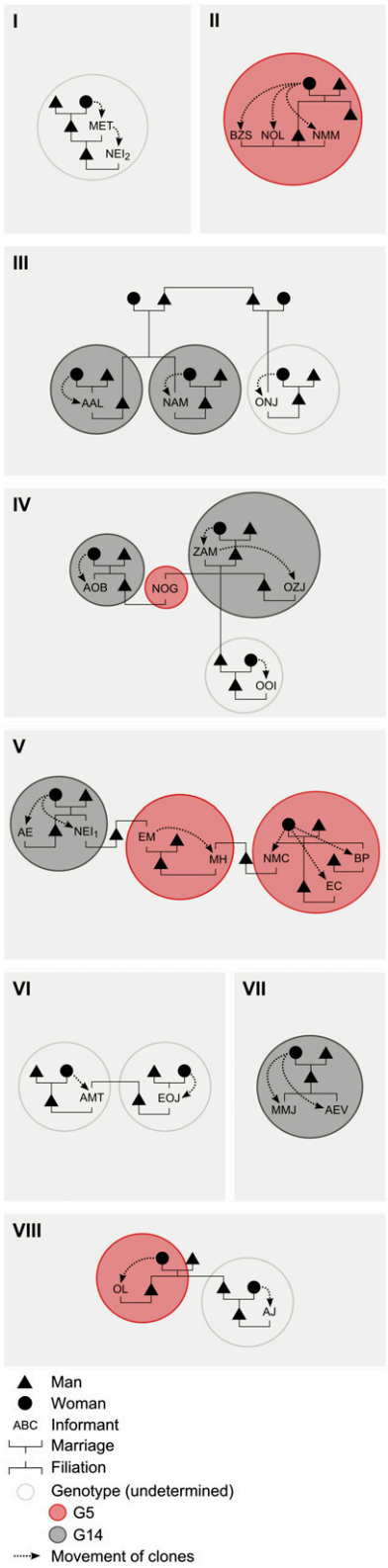

Fig. S4. Distribution of *Adzoro* clones along farmers' kinship networks in MBG. Groups of farmers linked to the same source of manioc clones (mother or mother-in-law) and growing either G5 or G14 were identified within eight family networks (numbered I to VIII).

Table S1. Typology of farmers interviewed in Mbong-Ete

Farmer	Village of birth (country)*	Ethnic group	Clan	Source of cuttings
AAL	Mbong-Ete (Ga)	Ntumu	Effak	Mother
AEV	Nkolmengboua (Ga)	Ntumu	Essabe	Mother-in-law
AJ	Zaminkan (Ca)	Ntumu	Essabe	Mother-in-law
AMT	Feng (Ga)	Ntumu	Nkodje	Mother-in-law
AOB	Mbong-Ete (Ga)	Ntumu	Effak	Mother
BP	Adzap-Essatop (Ga)	Ntumu	Essatop	Mother-in-law
BZS	Feng (Ga)	Ntumu	Nkodje	Mother-in-law
EC	Minang (EG)	Ntumu	Essandon	Mother-in-law
EM	Oveng (Ga)	Ntumu	Essandon	Mother-in-law
EOJ	Mbong-Ete (Ga)	Ntumu	Effak	Mother
MET	Missele (Ga)	Ntumu	Essandon	Mother-in-law
MH	Nkolekon (Ca)	Ntumu	Eba	Mother-in-law
MMJ	Zaminkan (Ca)	Ntumu	Essabe	Mother-in-law
NAM	Edoum (Ca)	Ntumu	Esambe	Mother-in-law
NEI_1	Mbong-Ete (Ga)	Ntumu	Effak	Mother
NEI_2	Ozakong (Ga)	Ntumu	Essabeng	Mother-in-law
NMC	Mbong-Ete (Ga)	Ntumu	Effak	Mother
NMJF	Mbong-Ete (Ga)	Ntumu	Effak	Mother-in-law
NMM	Nkoumekeke (Ca)	Ntumu	Gakein	Mother-in-law
NOG	Mbong-Ete (Ga)	Ntumu	Effak	Mother
NOL	Ngon (EG)	Ntumu	Esseng	Mother-in-law
NZG	Aniezok (Ga)	Ntumu	Essandon	Mother-in-law
OL	Nkoumekeke (Ca)	Ntumu	Gakein	Mother-in-law
ONJ	Nkoumekeke (Ca)	Ntumu	Gakein	Mother-in-law
OOI	Mobomo (Ca)	Ntumu	Essakounane	Mother-in-law
OZJ	Aniezok (Ga)	Ntumu	Essandon	Mother-in-law
ZAM	Bikougou (Ga)	Ntumu	Eba	Mother-in-law
ZE	Afanangui (EG)	Ntumu	Essahong	Mother-in-law

*Ca, Cameroon; EG, Equatorial Guinea; Ga, Gabon.

Dataset S1. Cultural, agroecological, and socioeconomic characteristics of the 10 communities included in the countrywide analysis of manioc genetic diversity in Gabon

Dataset S1 (XLS)