Historical Influences on the Development of Indigenous Jamaican Maroon Ethnomedicine: Comparisons with West African and Arawak Ethnopharmacopoeia

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A work written for the Jamaican Maroons: a people of love, strength, and honor.
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Abstract

The ultimate objective of this dissertation is to better understand the distribution of ethnobotanical knowledge across space and time and to honor the people whose fate was influenced, but not completely determined by the trans-Atlantic slave trade. Jamaican Maroon oral histories recognize an ancestry of African and indigenous origins, and this is supported by empirical evidence in the form of material culture, specifically the uses of plants as medicine. Through identification of non-universal patterns of plant selection and use among distinct cultures, combined with the recognition of local and global perceptions of cultural development in Diaspora societies, intercultural variability is measured using a variety of both quantitative and qualitative techniques. Results suggest that Jamaican Maroon societal development was influenced by the massive movement of people, plants across oceans and continents during the trans-Atlantic slave trade era. This led to an evolution of Jamaican Maroon ethnomedicine that has maintained aspects of West African Akan culture – such as plant species selection and their traditional use of this flora, including medicine preparation technologies. This cultural dispersal was coupled with the additional adoption of unique practices, as well as some associated with Amerindian groups.
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Chapter 1. Historical Influences on the Development of Indigenous Jamaican Maroon Ethnomedicine

This study focuses on the development of an ethnomedicinal body of knowledge and is based on purposive sampling and interviews with research participants in three windward Jamaica Maroon villages. Jamaican Maroon communities are found across the island, and there are different plants (and possibly different traditions) found in each; therefore, this study represents one aspect of Jamaican Maroon ethnomedicinal tradition, and is not a complete picture of the entire Jamaican Maroon culture.

Jamaican Maroons are an indigenous group of people whose ancestors founded sovereign communities in remote regions of Jamaica during the trans-Atlantic slave trade era. Through perpetuation of traditions from West Africa and interactions with Amerindians, a unique culture developed in the mountainous interior of Jamaica that is set apart from other societies across the island. To my knowledge, this work represents the largest collection of Jamaican Maroon medicinal plants with a presentation of shared concepts of health, healing, and botanical medicine among windward Jamaica Maroon residents and analogous concepts in West Africa.

This analysis takes a comparativist approach to ethnomedicine (see Berlin 1992) and seeks to identify universal patterns of plant selection and use in separate cultures. When universals are acknowledged, theories of knowledge transfer can be developed and supported through identification of shared anomalies. Pioneers that have laid the foundational work in Jamaican ethnobotany include Martha Beckwith who traveled to Jamaica four times over a period of five years to gather observations and recordings of traditional folklore and customs, as well as to collect the names and uses for over 136 plants used in Jamaican ethnomedicine (Beckwith 1928). Beckwith collected samples of the plants she recorded, and was able to identify 111 species with the help of Dr. Nathaniel Lord Britton of the Bronx Botanical Gardens. Beckwith’s recordings are invaluable, and a jewel for the Jamaican people’s archives.
The Honorable Colonel\textsuperscript{1} Collin Lloyd George Harris is an ambassador for Maroon culture and history. Extremely honored in his community for the international respect that he has garnered for his people, C. L. G. Harris is a true gentleman and a scholar. As an author of several publications (\textit{e.g.} Harris and Aarons 1988, Harris 1994, 2004, 2009), Colonel Harris has given the world an understanding of Jamaican Maroon history and tradition from an indigenous perspective. As a teacher, C. L. G. Harris has been, and will always be, a guiding light for future generations of Jamaican Maroons. I would like to emphasize here that for the true Jamaican Maroon history, one must always look to the source; and Colonel C. L. G. Harris is one of those true sources.

Milton Cohen did his dissertation field work with windward Maroons in Moore Town from June to September 1972 studying their traditional medical practices. Cohen collected approximately 82 plants, and was able to describe their traditional medical uses, but most of his specimens rotted away during his stay in the humid atmosphere of Moore Town, and so his plant list consists of common names only. Cohen’s work is still valuable, however, because he describes in detail the context of medical practices in Windward Jamaica Maroon society, with special attention to preparation methods and concepts of health and healing.

Asprey and Thornton (1953, 1954) studied the uses of plants for the entire island of Jamaica, and compiled a detailed descriptive list of more than 162 species included in Jamaican ethnopharmacopeia; however, they did not distinguish the cultural practices of Maroons. More recently, John Rashford (2001) did a comprehensive overview of the uses of \textit{ackee} (\textit{Blighia sapida} Koenig) in Jamaican culture. Also, Sylvia Mitchell (\textit{e.g.}, see Mitchell and Ahmad 2006), as well as Henry Lowe and colleagues (\textit{e.g.}, see Lowe \textit{et al.} 2000), are currently doing work focused on testing the bioactive properties of plants used for medicine in Jamaica.

Kenneth Bilby has written an impressive collection of publications based on Maroon oral traditions (\textit{e.g.}, 2005, 1996, 1994, 1984, and 1983). Bilby’s work stands as a beacon of support for Jamaican Maroon rights to land and perpetual autonomy. His efforts to document traditional language, song, story, and dance have produced a library

\footnote{Jamaican Maroons recognize traditional leaders, who are given the title of Colonel. Leaders are appointed in each region. For example, Colonel C. L. G. Harris is the former leader of Moore Town, Colonel Wallace G. Sterling is present leader, and Colonel Frank Lumsden is the leader of the Charles Town Maroons.}
that will surely prove a valuable resource for Jamaicans and Maroon groups worldwide for generations to come. Bilby has also expressed interest in supporting research efforts of Maroons to lead collaborative and participatory investigations in West Africa for the purpose of exploring ancestral traditions.

The intention of this work is to recognize and honor the intellectual property of Jamaican Maroons. Knowledge of medicinal plants played an important role in the establishment of free communities during the era of slavery in colonial America. It is hoped that the information printed here will serve to inspire people around the world to learn about their heritage and culture, to improve appreciation of Jamaican Maroon ethnomedicine, and to encourage additional research that is designed and led by members of the Jamaican Maroon community.

**Research question and hypotheses**

The primary research question asks, “Did West African Akan ethnic groups have significant and recognizable influence in the development of Jamaican Maroon ethnomedicine?” A secondary research question asks, “Did Jamaican Taíno Arawak have significant and recognizable influence in the development of Jamaican Maroon ethnomedicine?” The following hypotheses will be addressed:

a. Ghanaian Akan and Jamaican Maroon medicinal plant selection tendencies are significantly correlated.

b. Patterns of medicinal plant species selection, ethnomedicinal technology, and general indication are similar in Jamaican Maroon and Ghanaian societies.

c. West African ethnomedicinal species not available to Jamaican Maroons (not present in the Jamaican flora) are substituted with available related species.

d. The most salient species in Jamaican Maroon society are cited as part of the tropical West African ethnopharmacopoeia.

e. Arawak medicinal plant species selection and tradition has been perpetuated in Jamaican Maroon ethnomedicine.
Background

Maroons – defenders of freedom

Maroon communities were established across the Americas, in areas of relative isolation; however they should not be viewed as simply transplanted societies (Voeks 2009). Active processes of social revolution choreographed by community leaders and members have resulted in unique traditions that retain identifiable facets of perpetuated culture which have been transformed in a new environment (Rath 1993, 2000). This study addresses the introduced, integrated, and innovative use of plants among Maroon people in selected areas of Jamaica.

During the trans-Atlantic slave trade era, Maroon ancestors founded autonomous societies within slave-holding countries of the New World. Originally used as a derogatory label meaning “wild and unruly” or “to leave domestication and become feral” (Price 1979), Maroon has been transformed into a title of independence, pride, and liberty by the people it describes. Indeed, the innately human desire for self-determination (see Burger & Cooper 1979) is exemplified by Maroon people. The character of Maroon culture was and is determined by those who were forced to migrate from African lands (Rath 1993). Maroon custom has been shaped through past interactions of diverse groups, particularly indigenous Amerindians and West Africans, through a process described by Bilby (1996) as “primary ethnogenesis.” These historical influences are reflected in Maroon impact on and use of the flora in the Jamaican environment in which Maroon culture developed.

Although diverse African ancestry is a source of great pride, many Maroons possess an indigenous identity (Wright 1994). For example, according to Ivelyn Harris, Jamaican Maroon herbalist, the Rio Grande Valley was barren when her people first came, and it was Maroons who named it Grande. This self-identified autochthonous status was also expressed by Isaac Bernard, Jamaican Maroon healer, who told me, “Grande Konton Grande. That means we belong to the Rio Grande Valley.”

The various Jamaican Maroon groups and “tribes”2 also recognize their common connection to autochthonous founders such as Grande Nanny. Grande Nanny is one the primary progenitors of Jamaican Maroon culture. Born in the Rio Grande Valley (her

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2 At least four Maroon “tribes” are recognized in the Rio Grande Valley Maroon villages of Jamaica.
namesake), and guided by the traditions of her father, a prince from West Africa, Grande Nanny personifies the concept of deep-rootedness on both sides of the Atlantic. Equipped with intimate knowledge of her natal island, and sophisticated customs from her ancestral homeland, Grande Nanny was a skilled leader.

**Inspiration for this research and how the hypotheses were developed**

The genesis for this research was a desire to help people investigate the roots of knowledge. I felt that my interest in plants, and how people use plants, could be used as a tool to find out more about the ancestral traditions that form the basis of Maroon culture. It is my sincere hope that the result of this effort is satisfactory in the eyes of my research partners and other members of the Jamaican Maroon community, and that this work can stand as a platform for continued endeavors. I remember the words of a man from Accompong who spoke at the 2010 Maroon conference in Charles Town. He said, “We want to do our own research; to write our own history.” I hope this dissertation helps, in even some small way, to get more people started.

When I first moved to Jamaica in 1999 I knew very little about the place and the culture. I truly feel that my naivety was what helped me to maintain an open mind, and to have opportunities to see Jamaica, and Jamaicans, in a true light. Eventually, I would come to consider the place as my second home, and the people I met have become like family to me.

**Knowledge of roots and respect for the ancestors**

My experiences in Jamaica have shown me that Maroons really know themselves. Jamaican Maroons know their heritage, and they see themselves as a distinct group within Jamaica. Jamaican Maroons have a unique history that identifies them as indigenous people with deep connections to their land, which they consider sacred and deeply associated with their ancestors. Jamaican Maroons also honor their ancestors and maintain connections to them through the continued practice of traditions that have been passed down from generation to generation. Maroons have their own language, their own

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3 This sacred association with land and ancestors is also a component of the land tenure system in Akan social structures (Manoukian 1950).
sacred areas, and their own culture. Maroons declare emphatically, “I am Yonkonkon!” Maroons know exactly who they are.

**Theoretical framework and research context**

The hypotheses driving this research have been shaped by a conceptual structure posed by scholars such as Pérez (2002), Armstrong and Kelly (2000), and Rath (2000) who present evidence to suggest ethnogenesis in creole societies was a process directed by the people. Through study of African music composition in 18th century America, Rath (2000) indicated that Africans in the Diaspora convey artistic expressions which can be linked to specific African cultures; yet the traditions were adapted to suit the New World slave labor-dependent environments people were forced to be a part of. For example, rhythms associated specifically with Central and West African drumming styles were perpetuated and transformed in musical traditions observed in South Carolina and Georgia using instruments available in 18th century America, including ones of European origin, such as the violin. Despite a past steeped in separation, slavery, and oppression, ethnic groups in the Caribbean have been, and continue to be, active players in their own cultural development through self-determined and conscious retention or adaptation of character from select societies, rejection of elements from others, and adoption or invention of entirely new traditions⁴ (Besson 2002). This theoretical underpinning recognizes the existence of simultaneous integrative and antagonistic forces in Caribbean society (Austin 1983), and is distinguished from ideas that emphasize ethnogenesis and creolization as reactionary movements of resistance against an externally driven process (Mintz 1996, Mintz and Price 1992), or passive developments of common culture with no collective past (see Olwig 1993, Glissant 1989).

The Caribbean is at once amalgamated and heterogeneous – both at the regional, state, and community levels (Mintz 1974, Brathwaite 1978, Smith 1965). Scholars such as Price (1983, 2007), Trouillot (1992), Mintz (1996), and Brathwaite (1973, 1978), underscore the necessity of historical context to appreciate the complex nature of Caribbean societies. For example, in many Caribbean societies there exist stratifications based on skin color, religion, language, occupation, etc. which act to impede progress as

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⁴ For a discussion of the invention of tradition within a European cultural context see Ranger (1983).
an integrated society; however, when history is considered it becomes clear that these internal divisions are not a reflection of a self-destructive nature, but likely an effect of the divide and rule policies enforced during the colonial era (Smith 1965, Brathwaite 1978, Trouillot 1992, 1998).

Despite imposed social hierarchies, Caribbean people have directed their cultural development in a way that is unified, autochthonous, and at the same time plural. Illustrating this is the work of Volpato and Godínez (2004) on the island of Cuba. Through their studies with pruzeros, Volpato and Godínez conclude that complex preparations of botanical beverages in Cuba is based on tradition, and can only be fully understood within a historical context of the multiple influential ethnic groups that played a part in colonial West Indian society development.

The consequential role of Africans in the transportation of plants, knowledge, and culture to the Americas, under conditions of forced migration, deserves acknowledgement (Carney 2009). By considering the Atlantic as a region interconnected through history, biogeography, and culture - with Africa, America, and Europe as equally important contributors (see Oppel 2008) - this project acknowledges displaced peoples as active participants in the transformation of their social and natural environment through self-directed patterns of plant species selection, transport, and use (see also Carney and Voeks 2003).

**Ethnomedicinal investigations**

Cultural interpretations of disease, health, and healing are holistic and multifaceted, with implications for medicinal plant species selection, treatment procedures, as well as knowledge distribution and environmental management strategies over space and time (Casagrande 2002, Etkin 1988, 2002). Forcing the complex nature of ethnomedicine into a biomedical classification system in order to “define” terminology disregards cultural understandings of people’s relationship with plants, treatment efficacy, and health, and has limited investigative capacity when used without presentation of culturally constructed descriptions of disease and healing processes (Etkin 1988). In order to compare concepts of ethnomedicine across cultures, folk illness terms must be defined by the people who use them. For example, it cannot be assumed that a plant said to be

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5 Producers and sellers of a traditional Cuban fermented beverage made with a mixture of plants.
used “for cold” is prescribed to treat the symptoms of the biomedical condition known as “viral rhinitis.” In this study, participants were asked to describe illness and treatment terms, thus providing a basis for cross-cultural ethnomedicinal investigations.

**Acquisition and transfer of knowledge**

Traditional knowledge, although difficult to define, is often described as the cultural practices and beliefs passed down from generation to generation – a holistic system of experiences and world views gained from people’s intimate connection to a specific place (e.g., see Berkes et al. 2000). Members of Diaspora communities, such as Jamaican Maroons, were removed from ancestral homelands yet have established strong relationships with the new place which reflects deep-rooted knowledge from both indigenous American and African sources. Nguyen (2005) worked with the Vietnamese Diaspora in Hawai’i and found that traditional knowledge is adaptive and can be maintained in foreign landscapes through plant species substitutions and recipe adaptations. In fact, according to Nguyen, the societal disruption from migration may be a driving force in traditional knowledge acquisition and perpetuation, as people are forced to prepare traditional foods in the new homes, rather than rely on specialized vendors that may not be available in the new places of residence.

According to Zarger (2002) and Omaghari and Berkes (1997), cultural knowledge transmission is founded on experiential learning that happens during daily work and play activities in one’s community. Reyes-Garcia et al. (2009) worked with Bolivian Amerindians and found that cultural knowledge is primarily transferred “obliquely” from an older generation (for example from grandparents to grandchildren or other young children in the community), as well as vertically (parent to child), and horizontally between peers (persons of one’s own generation).

In addition to empirically derived knowledge, people in various cultures may acquire knowledge from esoteric sources such as dreams, invocations, meditation, hallucination,\(^6\) trance,\(^7\) or spirit guides. For example, in Native American culture, the healing process may begin with a “vision quest” to attain knowledge about oneself and one’s purpose in life (Portman and Garrett 2006). In the Judeo-Christian Bible, prophets

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\(^6\) Hallucinations can occur as a result of ingesting psychoactive entheogens of botanical nature (see Schultes et al. 1998).

\(^7\) Trance can be induced through rhythmic music and dance (Fachner 2007).
attain wisdom, revelations, and visions from God (e.g., see Isaiah 18). According to Schafer (1974), Jamaican Maroon Kramanti\(^8\) healers may gain information related to traditional medicine from their ancestors during ceremony. Communication with ancestors is also revered by native Hawaiian people, and healing practices are guided by knowledge attained from messages received in dreams (Minerbi 1994). In Port Antonio, Jamaica, one woman explained to me that she was visited by her late grandfather in one vision.\(^9\) She described how her grandfather held up five plants, saying that they were the most valuable species to use for medicine, explaining the uses of each plant in detail.

**Jamaican Maroon ethnobotanical knowledge acquisition and structure and the changing epidemiological landscape**

In my research, many people stated that they learned about medicinal plants “from the older heads,” which is a general phrase interpreted as elder people in the community. Some clarified the statement by adding that they learned from one or both of their parents, or from their grandparents. In the words of one expert Maroon healer and Kramanti drummer, Mas Joseph, “the older head showed me - bigger people - when you sick they had their *performings* and work `pon you.” The Honorable Colonel Wallace G. Sterling said during an interview, “You begin to learn from a tender age; especially people in my age group and older because you find that in the morning your parents would send you to pick bush for tea. For example, if one has a cold you would be sent to get *rat ears, grow stake, tree of life*, combine [them and] put in a pan to boil. From that early age you begin to learn because your parents let you participate in collection.” This reveals that taxonomic and ethnomedicinal knowledge in Jamaican Maroon communities is traditional – passed down from one generation to the next – and may represent a

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\(^8\) The word Kramanti is dynamic and enigmatic. There are variant spellings, and several meanings. When referring to the Jamaican Maroon language and esoteric magico-religious practice, I use the spelling published by C.L.G. Harris, “Kramanti” (see Harris 1994). The word is thought to have derived from the appellate “Kormanteens,” which also has various spellings (e.g., Cormanty, Coromantee, Cormanteen, etc.), which was used by British colonists to refer to Maroons and enslaved people purchased from ports along West Africa’s “Gold Coast,” and likely originated from one particular place that was heavily involved in the trading of slaves - Kormantse, Ghana – considered to be one of the ancestral homelands of Jamaican Maroon people.

\(^9\) In Jamaica, “vision” is used as a synonym for “dream” (occurring during sleep without the use of psychoactive substances); it is also used to refer to a revelation resulting from deep meditation.
continuum from the first generation, which includes people born in Africa that survived the Middle Passage.\textsuperscript{10}

Some relatively recent activities appear to have had a palpable impact on Jamaican Maroon cultural transmission, due to the resultant disruption in the basic unit of knowledge transmission – the family. According to Ivelyn Harris, there was a great exodus of Rio Grande Valley Maroons in the 1960’s “to foreign.” Many members of the Maroon community left the island in search of opportunity in places such as England and Canada. When people returned to their Maroon homelands, they brought new experiences (and new traditions) with them. The effects of this family fracturing have apparently filtered down to the younger generations today who, according to Harris, are less interested in traditional uses of plants. When fathers and mothers leave the community, there is less opportunity for mentorship, which is the principle way research participants stated they learned about medicinal plants and Maroon traditions. Aside from emigration, I was also told by Jamaican Maroon research participants that “most of the elders who know the plants have died.”

The packaging and marketing of traditional Maroon herbs (\textit{e.g., cerasee}, and fever grass) has also apparently had an impact on traditional knowledge acquisition in Jamaican Maroon communities, because some children are now sent to the shop for tea bags instead of sent to pick tea bush. During an interview with Colonel Sterling, he expressed concern that some of the children are not learning the names of even common plants. He explained this as a new phenomenon in the community by stating, “[When] I grew up…I could not run to shop and buy tea bag because it was not around. My parents would pound coco, look \textit{chainy} root, \textit{raw moon}, \textit{swivel jack}…they would [use] different plants each day; \textit{cerasee} one morning, fever grass the next, then \textit{sigya} bush.” Colonel Sterling stated that incorporating Maroon ethnomedicinal knowledge into primary school curriculum would be helpful for the perpetuation of Maroon traditions over time.

According to some Jamaican Maroon elders and herbalists, ethnomedicinal knowledge can also be acquired directly from the ancestors. For example, one Jamaican Maroon herbalist recalled a story to me of how she was once diagnosed with appendicitis;

\textsuperscript{10} The trans-Atlantic route from West Africa to the Americas that was traversed by slave ships, primarily during the 15\textsuperscript{th} to 19\textsuperscript{th} centuries, which carried people as though they were a commodity that could be captured and sold into servitude for profit.
her grandmother visited her in a dream and showed her a plant and how to prepare it as medicine. She took the remedy and healed herself. In this way, she explained, herbal healing is something that you are called to do. Similarly, another Jamaican Maroon traditional healer told me that his ancestors are “all around him,” and they teach him how to compound medicinal plant preparations.

**Cultural development in Maroon communities**

Factors common to many Maroon communities include remote locations, initiation rituals, traditional names, and self-governance; all of which play a role to distinguish Maroon identity, culture, and worldview from analogous cognitions in societies that developed under the hand a colonial slave system (Adjaye 1994, Bilby 1994). Above all these things, however, it is the autonomy that most explains linguistic differences between Maroon and non-Maroon society (Kouwenberg 2008, Bilby 1994). For example, according to Morton (2005), certain Maroon groups in Columbia, called *Palenqueros*, remained isolated until late 19th century, allowing for divergent language development.

Incorporating a linguistic component in ethnomedicinal investigations can improve understandings of how people perceive and classify their ethnoflora, as well as provide a framework for distinguishing between universal and transferred ethnobotanical knowledge, and therefore is useful in cross-cultural studies (Herman and Moss 2007). The Akan language spoken in early Jamaican Maroon society, for example, appears to have facilitated perpetuation of West African Akan tradition and cultural ideology (Kopytoff 1978). In Bahia, Brazil, Voeks (1990, 1993) observed that Maroon *Candomblé* practitioners transmit knowledge of plant names, uses, and preparation methods to younger generations through a Nigerian Yoruba language and cultural framework. Also, Wooding (1981) compared cultural and linguistic characteristics of African Creole in the Para region of Suriname to Congo-Angolan Fante-Akan, Ewe-Fōn, and Bantu ethnic groups of Africa. Wooding’s linguistic analysis of Sranan identified Fante-Akan cognates (*e.g.*, the word for great-grandparents is *afo* in both languages, and the Sranan word for soul is *kra*, which is a cognate of the Akan word for soul, *krah*). Wooding also found

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11 Escalante (1954, in Price 1979) describes a San Basilio *Palenquero* settlement as large and remote, with a closed economy based on produce such as rice, corn, manioc, banana, peanut, and cattle.
similarities in Akan and Para-Surinamese religious beliefs, courtship, marriage ceremonies, and funeral practices. Specifically, Wooding notes how groups in both regions share the same taboos associated with menstruation and birth, observe dual mourning periods following a funeral, and recite nearly identical fables to their children (e.g., stories about the antagonist Anansi, a supernatural spider). According to C.L.G. Harris (1994), Jamaican Maroon elder and former traditional leader of Moore Town, Kramanti was the language of the first Maroons and their descendants. Another Maroon elder and healer living in Comfort Castle stated that Kramanti is a language that comes from Ghana. According to Bilby (1994), “Kromanti” [sp.] is a variant of a West African Akan dialect (mostly Asante-Twi), and is used in ceremony to communicate with ancestors. Bilby identified vernacular distinctions from the general Jamaican Patois lexicon, as well as many similarities to the languages spoken by Maroons in Suriname and Krio in Sierra Leone, emphasizing the historic link between these three groups.12

**Treaties between Maroon and colonial governments and subsequent pivotal events**

Eventually, nearly all Maroon communities signed treaties with colonial European governments (Campbell 1988, Kopytoff 1973, Davidson 1966, Price 1979). In Jamaica, a treaty between British forces and Maroon government officials13 was signed in 1739; a sacred “blood covenant” (Bilby 2005) that granted Jamaican Maroons indisputable sovereign status under national and international law. Some scholars (e.g., Bedasse in John 2007) refer to the treaty signing as the moment in time which marks “the beginning of creolization”14 of Maroon communities in Jamaica. If such a moment could ever be identified, or even exists, is doubtful. Maroons have always interacted with others outside the community in order to gain resources, supplies, information, and friends; and yet they

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12 In 1667 Dutch forces overtook Suriname from the English, driving the British settlers and their slaves to other colonies, especially Jamaica; in 1800 nearly 600 Jamaican Maroons were transported to Freetown, Sierra Leone by way of Halifax Nova Scotia (Bilby 1983, Dallas 1803); a journey that began and ended with deception and unfulfilled promises.

13 According to Isaac Bernard, Nanny asked Cudjoe to sign the treaty.

14 Certain stipulations in the treaty have been used to support this argument. For example, “white” (English, Irish, Scottish) “superintendents” representing the colonial English government were required to live with Maroons in their villages (Kopytoff 1987). These intimate interactions undoubtedly served as points of knowledge transfer between European and Jamaican Maroon culture, but likely primarily as a means through which knowledge diffused from Maroons to Europeans.
have maintained cultural values and traditions that clearly distinguish them from other sectors of Jamaican society.

The influx of Christian missionaries and churches into Jamaican Maroon villages after 1739 is also cited as an agent of change in Maroon tradition (e.g. Bilby 2005). However, it should be remembered that Judeo-Christian religions have had presence in north and east Africa from their genesis, and tenets of the faith could have spread into West Africa (along with plants and other knowledge) relatively early. Parallels in West African Akan religious structure, which recognizes one omnipotent Creator (Nyame) (Manoukian 1950) support this, and suggest that Nyame and the Judeo-Christian Yahweh could be one and the same15 (Williams 1931). Unfortunately, with the destruction of so many libraries (e.g., Alexandria, Timbuctu), religious fractionation, and suppression of texts for various power struggles (Hamza and Ghoneim 2000, Singleton 2004), understandings of ancient inter- and trans-continental migrations and knowledge diffusions across Africa have been muddled with time. Still, an “introduction” of Judeo-Christian ideology into Maroon communities cannot be considered completely novel to persons of African descent. Furthermore, as some scholars have pointed out, reception of new religion does not necessitate replacement of cultural traditions; and it may even help to perpetuate them (Kopytoff 1987, Bilby 2005). In my experiences, the Judeo-Christian faith functions in many ways to validate traditional Maroon values, such as the use of plants for medicine and maintenance of health (e.g., Genesis 2:9, Revelation 22:2), as well as ways of healing sickness (e.g., Luke 7:21, Matthew 8:16). Jamaican Maroon research participants often quoted various Bible passages to explain certain traditions and cultural values.

Agriculture in Maroon communities

Before emancipation, Maroon communities relied entirely on small-scale subsistence agriculture, as well as hunting and gathering, for survival. There appears to have been overlap in species selection and cultivation methods among distinct Maroon settlements, including intercropping and swidden techniques (Davidson 1966, Kopytoff 1973, Price 1979). According to Price (1979), both Old and New World plants were

15 To equate Nyame and Yahweh entirely would be in err, as the Judeo-Christian and Akan religions developed under distinct cultural constraints (Konadu 2010); however, linguistic and basic dogmatic principles do suggest common origins (see also Osam 1994).
grown in Maroon communities across the Americas, and historical descriptions of sites almost always included the following crops: peanut (*Arachis*), pepper (*Capsicum*), squash (*Cucurbita*), yam (*Dioscorea*), cotton (*Gossypium*), sweet potato (*Ipomoea batatas* (L.) Lam.), cassava (*Manihot esculenta* Crantz), banana (*Musa*), tobacco (*Nicotianum*), rice (*Oryza*), beans (*Phaseolus*), and corn (*Zea mays* L.).

According to Kopytoff (1973), women were the primary agriculturalists in early Jamaican Maroon society. Dallas (1803) writes that land was cleared by burning and then cultivated with a variety of plants including herb and root crops from the Old World (e.g., *Musa* and *Dioscorea* spp.), and New World grain crops (e.g., *Z. mays*). The agricultural techniques described by Kopytoff (1973), Dallas (1803) and others - such as slash and burn, intercropping, and an emphasis on root crop staples - is characteristic of traditional farming practices in tropical areas of the world, including Africa (e.g., see Abate et al. 2000) and the Americas (e.g., see Altieri 2004).

Where land space permitted, Maroons managed extensive agriculture systems with multiple livestock species. One example is *Pilaklikaha*, a large Maroon town near Micanopy Florida that managed cattle, horses, and fowl (Bateman 2002). Jamaican Maroons have also raised cattle and bred horses since at least the 18th century (see Dallas 1803). In other communities, hunting and gathering were the primary means of obtaining food. For example, Leaming (1979) describes the Maroon community in the wetlands of Virginia and North Carolina (the Great Dismal Swamp) as a place where large scale agriculture was unfeasible. Dismal Swamp Maroons were apparently hunters and gatherers, foraging wild grains (e.g., *Lupinus*) for cereal, and pursuing opossum, raccoon, venison, wild cow, bear, wild pig, wild goat, duck, partridge, pheasant, fish, and perch as game. Schwartz (1970) describes a similar situation for the coastal Maroon village of Buraco de Tatú, Brazil. Residents were able to exploit fish and other sea resources as a major food source, supplementing their diets with small gardens.

**Historical movements of plants and people in the African Diaspora**

The successful open ocean voyages to the West Indies and American continent by European navigators in the 15th and 16th centuries initiated a trans-hemispheric highway for species that were previously unknown to inhabitants of the Old and New Worlds – a

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16 Scientific names of crops are assumptions, as Price only provides vernacular terms.
biological exchange that continues to this day. Crosby (1972) credits Europeans’ purposeful spread and propagation of American crops throughout the Western hemisphere for their (the Europeans’) successful colonization of the New World. Voeks (2009) also pays tribute to indigenous American crop species, and their introduction to and use in West Africa, for the ability of forced African migrants to thrive in the New World – and establish colonies of their own. Voeks (2004, 1993) describes how economic plants grown in the Americas, such as peanuts, were introduced and widely cultivated in tropical Africa years prior to the massive enforced transportation of people across the Atlantic. Hence, many of the species available in the New World flora were likely familiar to forced African migrants, with known medicinal uses, before they (Africans) arrived to American shores (Voeks 2009).

Useful native West African plants, including ackee (Blighia sapida Koenig) and kola nut (Cola acuminata (P. Beauv.) Schott & Endl.), were introduced to West Indian colonies and are now part of Maroon ethnopharmacopeia. Merlin (2009) discusses another plant, the indigenous West African rice species (Oryza glaberrima Steudel), and its introduction to regions of southern North America during the slave trade. Merlin states that the establishment of this African staple in the New World was dependent on West African traditional agricultural knowledge; however, Africans are rarely accredited for their intellectual role in the success of the American rice industry.

Not all movements of plants are purposeful. Crosby (1972) estimates that most of the species introduced to American soil during the 15th, 16th, and 17th centuries came as accidental tourists – weeds. Unintentional seed dispersals can happen through a countless number of mechanisms including in cargos of grain or textiles, in and on the bodies of transported animals and people, or in the soil of potted saplings. Research with Maya communities in Chiapas Mexico show the majority of medicinal plants are collected from habitats in early stages of succession (i.e. forests that have been cleared for agriculture and/or community development) (Stepp 2002). According to Stepp, the types of plants that grow in disturbed places are pioneer, or $r$-selected, species that can tolerate harsh environments due their biochemistry, making them good candidates for medicine. Stepp states that $r$-selected plant selection tendencies in ethnopharmacopoeia may be due to both ecological as well as social historical factors (see also Stepp 2004, Stepp and
Similarly, it is this natural succession process and dispersal of species that may have been the most useful for Maroon ethnopharmacopoeia development. For example, one study in Jamaica estimates that over 30% of the commonly used plants in Maroon ethnomedicine are widely dispersed herbaceous plants (Austin and Thomas 2004). Also, in Brazil, the Maroon practice of Candomblé employs a *materia medica* consisting of approximately 35% “weedy” species of Old World origin (Voeks 1990, 1993).

Other species appear to have been carried across the Atlantic intentionally, but covertly. Bilby (2005) relates a Jamaican Maroon oral tradition that explains how the original founders of Maroon territory were able to transport African plant species to the Americas and propagate them successfully. According to Bilby’s sources, seeds were transported by slaves across the Middle Passage by swallowing and/or hiding them in or on the body. After reaching Jamaica, and fleeing to the mountains, the seeds were planted and grown for specific uses. A similar account is given by Courtwright (2001), who relates that Angolan slaves destined for Brazil carried seeds of *Cannabis* inside cloth dolls that were tied to their clothing. The Portuguese planters supposedly allowed the slaves to cultivate their *Cannabis* crop between rows of sugarcane.

**Historical 17th century descriptions of medicine in colonial Jamaica and Ghanaian Akan society**

Some of the plants included in Jamaican Maroon ethnopharmacopoeia were also used by British colonists during and around the 17th century time period. Historical descriptions of how these plants were used within Jamaican plantation culture, such as those provided by Sir Hans Sloane (1707, 1725) and Edward Long (1772), may improve understandings of the possible degree of colonial European folk medicine influence on Jamaican Maroon ethnomedicine development. If parallels or divergence of ethnomedical concepts in colonial European and Jamaican Maroon culture are identified, such patterns may represent conscious retention or rejection of various traditional elements present in early Jamaican Maroon society, as well as illuminate any influential impact African traditions may have had on colonial European ethnomedicine.

As a naturalist and a physician, the writings of Sir Hans Sloane (1660-1753) provide an intimate portrait of some common medical practices available to European...
colonists in Jamaica throughout the late 1600s. During his field work, Sloane often provided medical care for residents of Jamaica, prescribed remedies for various ailments, and wrote detailed descriptions of his methods and treatment outcomes in his two volume manuscript (Sloane 1707, 1725). Sloane’s prescriptions were part of conventional medicine in 17th century English society, and included bleeding, purging (vomiting), salivating, 17 unction (application of a topical ointment that often contained mercury), decoctions, and tinctures (some plant-based such as laudanum which contained opium from Papaver somniferum L., others mineral based such as Crocus Metallorum which contained potassium nitrate and antimony) (Sloane 1707, 1725, Macquer 1758). Intended outcomes of botanical and mineral-based medicine in 17th century European culture (particularly bleeding, salivating, and vomiting) appear quite different from anything I recorded in Jamaican Maroon ethnomedicinal practice. Some notions of disease however, appear to be similar to what has been described to me by Jamaican Maroon research participants; for example, “cold in the joints.” Sloane (1707) stated that Polygonum densiflorum Meisn. was used as a treatment for “aches and colds of the joints,” and tobacco “eases pains from cold.” Similarly, Jamaican Maroon herbalists prescribe remedies (using different species) for arthritic conditions caused by “cold in the joints,” and consider cold as something that can cause pain.

Two examples of plant species used in both the Jamaican Maroon and 17th century European colonial ethnopharmacopoeia are Tamarindus indica L. and Aristolochia trilobata L. Long (1774) stated that tamarind pulp (among other things) “temperates the acrimony of humours,” and Aristolochia trilobata was considered a “bitter” and prescribed to sweeten 18 the blood. Long’s descriptions of how T. indica and A. trilobata work in the body suggest that common perceptions of efficacy, health, and healing in 17th century European folk medicine did not coincide with analogous concepts in Jamaican Maroon medicine. For example, in Jamaican Maroon ethnomedicine, sweet blood is a cause of disease, and bitters are given specifically to counteract this condition.

17 Salivation was often induced by poisoning the patient with a mercury-based salve (see also Rush 1809). Long (1772) also mentions mercury poisoning as a method of “treatment” employed by European physicians in Jamaica.

18 Similar descriptions of blood sweeteners in 18th century English ethnomedicine come from a recipe book written by Mary Kettilby in 1734, which provides explanations on how to make several remedies; some intended to be taken seasonally, in order to “sweeten the blood, and to correct those very sharp humours.”
Other descriptions of 17th century medicinal plant use in Jamaica indicate that European colonists learned how to use plants from the Africans and “Indians” on the island. For example, Lunan (1814) describes in detail several instances where enslaved people showed their “masters” certain medicinal plants and taught them how to prepare healing botanical remedies. Also, in his lengthy description of “wild ginger,” Sloane (1707) stated that the herb grew on the north side of Mount Diablo "among the shady woods, in the path going to Sixteen Mile Walk." He said the root of wild ginger can be bruised and applied as a poultice for “cancers,” and is "reckoned a very extraordinary and admirable medicine...and if one will give credit to the relations of Indians or Negros, is a never failing remedy in those desperate cases." Furthermore, when describing the therapeutic attributes of tobacco, Sloane (1707) stated, “If tobacco be bruised and put on wounds, it cures them if small, if large they must be washed with wine and stitched. This was taught our men by the Indians, and did us much service in conquering provinces.”

Pieter de Marees (1602) wrote about his observations of the Gold Coast Kingdoms in West Africa during the early 17th century. Although his writing is characterized by its racist undertones, he provided some insight into disease etiology in Ghanaian society during the era of the trans-Atlantic slave trade. For instance, de Marees writes that people of the Gold Coast are afraid of rain and attribute getting caught in it to be a source of disease. He writes, “If they have gone with their feet through water during the day time, they make a fire at night and lie down with their feet close to it, so that the heat of the fire may draw downwards all humidity and evil humours acquired through the water.” I include this short item from de Marees because I feel it is significant that I have observed similar19 ideology in Jamaica. My experiences have led me to understand that Jamaicans are generally averse to getting “wet up” in the rain. It is commonly known that if one gets wet from rain, particularly if their body is hot from work or travel, they will be more prone to illness. Cohen (1974) also observed this during his time in Moore Town. He describes a story told to him by one lady who explained the death of a young man who drowned in the Rio Grande River in Jamaica. According to Cohen, most people

19 The association between getting wet from rain may be a phenomenon widespread in cultures across the world (e.g., “catching your death of cold” describes the association between sickness and getting wet from rain and cold weather conditions in American folk tradition); additional research will help to sort out universals from cultural anomalies.
attributed the man’s fate to his entering the cool water when his body was hot; this action allowed cold to enter the young man’s body, which weakened him and rendered him susceptible to drowning.

**Traditional ecological knowledge in Maroon communities, including observations from this research**

Voeks (2009) calls attention to ecologists’ general view of migrant populations, particularly migrants whose ancestors were African slaves in the Americas, that they lack knowledge of sustainable ecological practices in their new environment due to an assumed disconnect from indigenous culture. Moreover, these forced migrants are frequently viewed as contributors to environmental degradation. Countering these prejudices with empirical evidence is John (2007), who documented traditional water conservation strategies in Jamaican Maroon communities. Using a participatory ethnographic approach, John determined that Jamaican Maroons represent a living link to Amerindian ecological knowledge through their intimate understandings of freshwater ecosystems. For example, John observed that Jamaican Maroons use their knowledge of the Rio Grande River ecology to identify natural water quality indicators. Also, Jamaican Maroons demonstrated an intimate understanding of native flora and fauna. John also noted an informal and orally transmitted code of conduct associated with river conservation practices in windward Jamaica Maroon communities, as well as deep associations between Rio Grande Valley natural history and Jamaican Maroon culture.

Another study with Maroons in Suriname by Bruce Hoffman (2009) compared indigenous and Maroon ecological practices. Hoffman concluded that Saramacca Maroons demonstrate a well-developed knowledge of local flora and ecosystems, and that they practice forest conservation management strategies that are perhaps more sustainable than those practiced by other, neighboring indigenous groups.

My observations of medicinal plant harvest by Jamaican Maroon herbalists revealed an intimate knowledge of plant flowering and fruiting cycles, habitats and microclimates, as well as sustainable harvesting and land-management practices. For example, some plants are only harvested during certain times and environmental conditions in order to protect the plant from being damaged. According to one Jamaican Maroon healer, “all herbs have a certain time.” Also, Jamaican Maroon research
participants were quite familiar with where different types of plants grow. For example, one Jamaican Maroon research participant was aware that the indigenous parasitic herb *Scybalium jamaicense* Schott & Endl. only appears seasonally (in August), and is host-specific (it is associated with one particular tree species). This specific knowledge indicates an intimate connection to the Blue and John Crow mountains flora that can only be obtained by careful observations over time. Furthermore, Jamaican Maroon research participants indicated that certain plants can only found “in the forest” or “in the hills,” and others can be found “along the road.” Harvesting trips for species that can only be found in the mountains can take an entire day, or longer. The products produced from the harvest support the livelihood of Jamaican Maroon herbalists; and so it is in their best interest to ensure that sustainable practices are carried out. For example, when harvesting bark from montane rainforest tree species, care is taken to strip only one side of the tree (see Figure 1.1). When I inquired whether this process is harmful to the health of the tree, I was shown the evidence of many past harvests. In fact, this was the same tree that I had been to, with the same practitioner, approximately ten years earlier. It appears that this one tree has endured nearly a decade of bark harvest without severe damage.

Many plants in the Jamaican Maroon ethnopharmacopoeia are herbaceous species. The use of herbicides, such as Gramoxone®, in the Rio Grande Valley is discouraged by herbalists because it kills many of the valued medicinal plants. Some see it as a movement away from more traditional practices of land management that use only lass (cutlass, or machete) to clear land; and consider the use of herbicides as “laziness.” Ivelyn Harris, Jamaican Maroon herbalist, has worked to educate people in her community of Cornwall Barracks about the dangers of using herbicides and their devastating effect on plants, health, and culture. In these ways, Jamaican Maroon herbalists act as stewards for the natural resources found in their community; they also stand as resources and repositories of knowledge for local youth and others who might be less familiar with the complexities of ecological systems and the correlations between water, soil, plant, and human health.
Figure 1.1. Harvest of medicinal bark in the Blue Mountains of Jamaica.

Trans-Atlantic comparisons

Shared characteristics in tropical West Africa and tropical America, such as similar ecological zones and forest types, as well as transported features of the landscape (both intentional and unintentional), likely provided opportunities to maintain medicinal plant selection preferences during Maroon ethnopharmacopoeia development (Voeks 2009, 2004, 1993; Carney and Voeks 2003; Moerman 1996). Richards (1973) and Thorne (1973) provide a comparative analysis of forests in both tropical America and tropical West Africa, and report that, although species overlaps are relatively few, important analogous features include 186 shared plant families and over 700 shared genera. Floral
disjuncts include genera that are restricted entirely to the tropical West African and tropical American region; such as, *Annona* (Annonaceae), *Copaifera* (Fabaceae), *Elaeis* (Arecaceae), *Haematoxylum* (Fabaceae), *Hyptis* (Lamiaceae), and *Lippia* (Verbenaceae). Botanical evidence suggests that disjunct taxa are primarily the result of long distance trans-oceanic dispersal mechanisms, rather than vicariance prior to continental drift (Thorne 1973). According to de Queiroz (2005), molecular data also supports over-water dispersal mechanisms as an explanation for disjunct taxa. Techniques such as dispersal-vicariance analysis (DIVA) have provided evidence that indicates trans-oceanic travel is more frequent and less random that biogeographers once thought. Abiotic factors such as wind and ocean currents have enabled directed colonization events (such as from the African continent to the West Indies, or from the South American continent to the African continent). Researchers now believe that trans-oceanic dispersal has been the primary means of plant (and animal) travel throughout time and space (de Queiroz 2005).

Early trans-Atlantic colonization events likely supported the transfer of ethnobotanical knowledge during mass human migrations, such as the trans-Atlantic slave trade. For example, Voeks (1993) points out that strand\(^{20}\) species native to both tropical America and tropical West Africa have parallel medicinal uses in the two regions, supporting the idea that plants were recognized by people in the African Diaspora and used with traditional knowledge.

**Study sites**

The island of Jamaica is located in the Caribbean Sea at approximately 18ºN latitude and 77º W longitude (Figure 1.2). Jamaica is set apart from the Greater Antillean island chain, not only in geographic location, but in its volcanic origins, relatively late emergence, and biogeography. Asprey and Robbins (1953) describe conspicuous features of the Jamaican flora that differentiate this Greater Antillean island from the rest of the archipelago - as well as from the entire tropical American life zone. For example, Jamaica has a regionally disharmonic flora and an absence of indigenous genera in the

\(^{20}\) Tropical strand vegetation is characterized by species such as *Ipomoea pes-caprae* (L.) R. Br., *Urginea maritima* (L.) Baker, *Kalanchoe pinnata* (Lam.) Pers., and *Hibiscus tiliaceus* L. This vegetation type is likely the first seen by forced African migrants and may have served as a sensual mnemonic device that facilitated the transfer of knowledge across the Atlantic.
neotropics Monimiaceae, Marantaceae, Myristicaceae, and Proteaceae. Also, Jamaica has tropical rainforests with temperate forest characteristics, such as the absence of cauliflory, rare root buttressing, and infrequent drip tip leaves. Life forms in the montane rain forests of Jamaica are, however, quite typical and include large trees, epiphytes, lianas, aroids, bromeliads, orchids, and sparse undergrowth (mostly tree ferns, palms, and shrubs) (Asprey and Robbins 1953).

Jamaican Maroon villages are located primarily in the central montane regions of the island. Field sites for this study are located in the northeastern parish of Portland in the Rio Grande Valley (see Figures 1.3 and 1.4). The southern border of Portland follows the ridgeline of the Blue Mountains, and the Rio Grande Valley comprises approximately one-third of the parish area, or 286 sq km (Meikle 1998). Located on the windward side of the island, Portland holds the record for the most rainfall, with some areas receiving among the highest amounts in the world (Millbank averages 6,497 mm annually) (Davis-Morrison and Barker 1997, Asprey & Robbins 1953). Also, the highest point on the island is in Portland - Blue Mountain Peak, at 2,256 m. Vegetation communities include coastal strand, mangrove woodland, marsh formations, cultivated pasture and second growth scrub, lower montane rainforest, and mist forest (see Asprey & Robbins 1953).

Portland is home to several Maroon villages that were established during the period from 15th to 18th centuries. The Windward Maroons live in nine villages in the Rio Grande Valley: Moore Town, Cornwall Barracks, Comfort Castle, Grey Town, Ginger House, Millbank, Kent, Seamans Valley, and Bell View. Each village has distinctly named areas. For example, an area of Cornwall Barracks is called Rock Hall (see Figure 1.9). Interviews were conducted primarily in Moore Town, Cornwall Barracks, and Comfort Castle.

When historical place names and oral traditions are considered, the windward Jamaica Maroon region is quite extensive. Sacred areas are located throughout the Blue and John Crow Mountains; even extending into adjacent parishes (e.g., Dinner Time Peak is located in St. Thomas). The Honorable Colonel Sterling, current leader of the windward Jamaica Maroons, discusses Maroon places with reference to natural features of the Rio Grande Valley, such as rivers and springs. During one interview with him he told me, “Browns Field back to Seamans Valley, [is] an area bounded by Snake River or
Robin River – the western boundary. Robin River encompasses Kent land and Coco Spring.” Indeed, the vast range of land that Maroons have been intimately connected with since the beginnings of their society is exemplified by the fact that Nanny (one of the original heads of Moore Town) was also an influential leader in the Charles Town Maroon villages; suggesting that Nanny controlled a considerable area, as Moore Town and Charles Town are separated by over 20 miles of forested mountains. Both the Honorable Colonel Sterling and the Honorable Colonel Lumsden described extensive networks of footpaths used by Maroons to traverse undetected from village to village throughout and between parishes.

The windward Jamaica Maroon villages are remote and difficult to access. Sections of the road leading into the Rio Grande Valley are extremely eroded and travel by car is slow (generally five to ten miles per hour or less on unpaved sections). Heavy rains periodically dig out deep trenches in the road, and the community has had a difficult time maintaining the constant repairs. As many residents have described it in the past, ‘we na ‘ave no road; we ‘ave riva bed fe drive ‘pon.’ The poor road conditions have limited the community’s access to conventional healthcare. In June 2010, there was no functioning clinic or hospital in the Windward Maroon settlement; the nearest one is located about 9 miles north, in the town of Fellowship – approximately 35 minutes by car. Also, the driving road connecting Comfort Castle with other Maroon villages, including Millbank, was washed out c. 2007 and was not repaired when I was there in June 2010, forcing some residents to walk across a precarious foot path to reach the other side (Figure 1.9).

Exploratory research was carried out in Ghana, West Africa from June 1st to June 21st 2005 in two ethnic regions: Ashanti and Fanti (Figures 1.5 and 1.6). In the Ashanti region, I met with a traditional healer in Kumasi. In the Fanti (Central) region I resided in the coastal village of Biwiri, which is adjacent to the village of Kormantse (Figure 1.7). I was invited as a guest of Nana Kwame Akyen II and Nana Bonku V and their families.
Figure 1.2. The Caribbean region. Map courtesy of the University of Texas Libraries, The University of Texas at Austin.
**Figure 1.3.** The island of Jamaica. Map courtesy of the University of Texas Libraries, The University of Texas at Austin. Cockpit Country and Rio Grande Valley labels added.

**Figure 1.4.** The eastern end of Jamaica, showing the parish of Portland and the contour of the Rio Grande Valley - intersecting diagonally between the east-west running Blue and the north-south running John Crow mountain ranges.
Figure 1.5. Political map of Africa. Map courtesy of the University of Texas Libraries, The University of Texas at Austin.
Figure 1.6. Gold Coast Region circa 1896. Map shows location of both Ashanti and Fanti ethnic regions, as well as the historical towns of Kormantan (sp.) and Anamaboe (sp.). Map courtesy of the University of Texas Libraries, the University of Texas at Austin.
Figure 1.7. Map of Ghana circa 1995. Map courtesy of the University of Texas Libraries, The University of Texas at Austin. Kormantse label added.
Methods and general results

Methodology for this research was reviewed and approved by the University of Hawai`i Committee for Human Subjects. I gathered information through participant observation (Spradley 1980) of harvesting, processing, preparation, administration, and storage of herbal remedies. Digital photographs and written notes were taken during collection trips, and plant samples were taken and dried for vouchers (described in following section). Voucher specimens were prepared and deposited at the Institute of Jamaica and the University of Hawai`i at Mānoa. Identification of species was determined with the help of Dr. George Proctor and Keron Campbell at the Institute of Jamaica Botany Department, as well as Dr. Sterling Keeley, Dr. Tom Ranker, and Dr. Richard Criley at the University of Hawai`i at Manoa.

Prior informed consent and relationships with key research partners

This study would not have been possible without the support from my key research partners; particularly the Honorable Colonel Wallace G. Sterling, Colonel Frank Lumsden, Sister Iveylyn Harris, Lloyd Harris, and Lloyd G. Henry. Relationships with partners and other key collaborators in the Jamaican community were initially established through field work conducted during a collaborative study with windward Jamaica Maroon communities, the Portland Environment Protection Association in Port Antonio Jamaica, the United States Peace Corps Jamaica, the Centre for Ethnomedicinal Education and Research of Gainesville Florida, and the United States Agency for International Development in Kingston Jamaica, carried out over a period of 18 consecutive months from February 1999 to August 2001, and an additional four weeks in May 2002 and March 2003, during and following my service as a US Peace Corps volunteer in Jamaica. Continued observations and research were carried out through supportive funding from the Beatrice Krauss Foundation of Hawai`i and the Graduate Student Organization of Hawai`i for one four week-long field stay in Jamaica in June 2005, and one three week field trip to Ghana in July 2005. Additional research was conducted in Jamaica during two separate field-stays in Jamaica: two weeks in June 2004,
and four weeks in June 2010. In total, I spent approximately 21\textsuperscript{21} months in Jamaica, 18 of which were during my time as a US Peace Corps volunteer where I resided primarily in Port Antonio; the other months followed my Peace Corps service, during which time I focused entirely on ethnomedicinal research and I resided in various places throughout Portland parish, including Charles Town, Cornwall Barracks, Rainbow Valley, and Port Antonio.

During the fieldwork conducted in June 2010 I spent 26 days in Cornwall Barracks, a village in the windward Jamaica Maroon settlement, located in the Rio Grande Valley of Portland, Jamaica. Prior to my arrival in 2010, formal letters were sent to Colonel Sterling, Colonel Lumsden, Keron Campbell at the Institute of Jamaica,\textsuperscript{22} and other key collaborators in order to explain the reason for my return and my objectives for additional research. During the first few days of my return trip to Jamaica in June 2010, I made it a priority to schedule a meeting with the Honorable Colonel Wallace G. Sterling\textsuperscript{23} to request his continued permission to conduct interviews and collect additional medicinal plant specimens in windward Jamaica Maroon villages; which he granted. I would like to add that I first met Colonel Sterling in 2000. He has always been a consummate gentleman and an honorable role model and mentor; Colonel Sterling’s support for this research was and is critical to my continued work in the Rio Grande Valley.

During my first week of field work in 2010, I spent time discussing my research objectives with many potential participants (sampling techniques are described below). Prior to any interviews, the research aim and methods were discussed in detail with each person. The individual was made aware that the information provided would be published and available for public access. When appropriate, I provided a written explanation of my

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\textsuperscript{21} This does not include an additional four months of work in Jamaica before I moved to Portland, during my training in Kingston, residence in Sligoville, St. Catherine, and subsequent 3-month residence in Sturges Town, St. Ann.

\textsuperscript{22} The Institute of Jamaica is a government established organization responsible for (among other things) managing the national museum, documenting and disseminating information on the impact of the African presence in Jamaica, and housing all research plant collections in the national herbarium (see www.instituteofjamaica.org).

\textsuperscript{23} Colonel Sterling expressed to me that he would like to organize a formal delegation back to Ghana; that it would be “like a closing chapter on the whole history of our people.” He also expressed frustration in the difficulty with travel (and therefore communication and knowledge transfer) between Jamaica and Africa, as there are no direct flights – one must first go to Europe before reaching the soil of Africa. In this way, the triangle linking the West Indies, Europe, and Africa still exists to this day.
research (see Appendix B). If, after hearing and/or reading about the research the person agreed to participate, we proceeded with the interview, or scheduled to meet at a more convenient time. If the person indicated at any point during the interview that they were uncomfortable or did not want to continue, the interview ended.

When I was in Ghana, I initially stayed in a district of Accra known as Adabraka. Based on the oral traditions of Iveylyn Harris, one of the Jamaican Maroon key collaborators whom I have been working with for the past ten years, I selected Kormantse as one study site and made plans to travel there and meet with the traditional leader, King Kwame. After taking a bus to Cape Coast, I took a smaller taxi to Kormantse. The taxi driver brought me straight to the king’s palace. When I walked in, I introduced myself and told King Kwame the purpose of my visit, and also that I am working with Iveylyn Harris from Jamaica (she had met with him two years prior to my visit). As soon as King Kwame heard that I was working with Iveylyn Harris, he welcomed me with open arms and exclaimed, “Why did you wait so long to come home?” Since I had just spent a month of field work in Jamaica, I brought King Kwame a small bottle of Wray and Nephew white rum as a gift. He was very pleased and immediately poured libation for the ancestors before passing around some for all to drink. King Kwame, members of his council, as well as King Bonku V of Biwiri agreed to work with me on this project. They stated that they would also help me identify persons to interview in their community, once I secured enough funding to return for an adequate period of time.

I observed a somewhat similar ceremony of libation prior to important meetings and events in Jamaican Maroon communities. For example, before an interview with one Jamaican Maroon traditional healer and elder in Comfort Castle, he took a mouthful of white rum and aspirated it around us. He then said that his ancestors were there and they told him that they liked me “because I was humble;” and they approved of our conversations and my work in the Rio Grande Valley.

**Key collaborators**

Interview questions and general research methods were reviewed with key collaborators to ensure questions and exercises were constructed and performed in

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24 All key collaborators are persons with whom I had worked with previously during my work in Jamaica as a Peace Corps volunteer (1999-2001). Traditional Maroon herbalists were identified by referral from
culturally meaningful and appropriate ways (Alexiades and Sheldon 1996). Based on these consultations, I was able to word my interview questions in a locally relevant and understandable manner. I was also cautioned against the use of digital voice recording devices during most interviews, and guided on appropriate ways to compensate people for their time spent during interviews and field collections. Jamaican research associates include:

♦ Leaders of the Windward and Charles Town Maroon communities – Honorable Colonel Wallace G. Sterling, Honorable Colonel Frank Lumsden;
♦ Traditional Maroon herbalists - Ivelyn Harris, Lloyd Harris, and Lloyd G. Henry;
♦ Head botanist at the Institute of Jamaica – Keron Campbell.

Biography of some of the key collaborators and other medicinal plant experts I interviewed in Jamaica and Ghana

Oppong Ankrah

The traditional healer interviewed in Kumasi, Ghana was Oppong Ankrah, traditional Asante herbalist. I met him by chance as I was walking through Kumasi after meeting with Ntim Gyakari (ethnobotanist at the National Forestry Commission). Ankrah worked at the Asanteman Sanitorium and I saw the sign outside of his clinic describing a range of ailments he treats with herbal medicine (see Figure 1.8). I went inside and was greeted warmly by Ankrah. He was busy filling a very large sack with dried barks and roots. What I saw looked very similar to what I had observed in Jamaica. I politely introduced myself and explained my research objectives in detail; Ankrah then agreed to do an interview on camera. He told me that he travels very far to collect his medicinal plants, but he does not charge the patients anything. One of the most common ailments he treats is HIV AIDS. He told me that he has cured many children from AIDS.
Joseph Alpheus

I met Joseph Alpheus (Mas Joseph) while walking towards Nanny Falls in Moore Town with a very helpful and friendly local youth named Andre. Andre introduced me to Mas Joseph, who was just returning from his farm. Andre explained to Mas Joseph that I am researching plants and how they are used for medicine in both Jamaican Maroon and Ghanaian traditions, and that I was hoping to interview people in the community. Mas Joseph agreed to meet at a later time for an interview.

When I reached Mas Joseph’s house he was waiting for me on the veranda. Mas Joseph was very kind and welcoming. Mas Joseph is a 77 year old Maroon drummer and a member of the Maroon Council. He told me stories of big celebrations in times past, where people would kill and cook roast cow and pig, boil blue drawers (dukunu), and prepare dishes with cacoon (see Chapter 4 for recipes and explanations of these traditional foods). Mas Joseph then said “Maroons used to travel all around [play] drums, abeng; but not now.” Mas Joseph told me he was thankful to talk about Maroon culture,
because “It’s good to know about your culture. *Me a Maroon; my mada and fada a Maroon.*” He then said, “*All a dem dat know someting a dead.*”

**Isaac Bernard**

Isaac Bernard is a well-known and respected member of the Rio Grande Valley Maroon community. He is known for his talents as a drummer and as a healer. He is also a licensed evangelist. Isaac Bernard was 84 years old when I met with him during my research in 2010. He told me that he is the oldest man in the Comfort Castle community, and that he is “looking for his ancestors in Ghana.”

I first met Isaac Bernard when I was walking with another research participant, Lloyd Harris, who was grown in Comfort Castle. We were on our way to collect plants in the mountains, and Bernard’s house was on a small hill on the way to the trail. Mr. Harris wanted me to meet Mr. Bernard, and so we stopped at his house. Isaac Bernard was sitting on his veranda when I first saw him; he was very kind and genial as we approached. Isaac Bernard said to me, “*Me Yonkonkon...me a Grande. I know lots of herbs – but I do it different...*” He explained that Maroons have four tribes, and that is why he does herbs different.

During one of my later visits with Isaac Bernard, he blew some rum before we talked. He said, “Maroons have a spirit; walk with *esah...*when want to speak to ancestor – throw or blow rum.” Isaac Bernard described himself as “a spiritual man” and said, “I boil medicine for various diseases; gall stones and all various diseases; *I* boil medicine and it pass through.” He showed me the room where he works with people who come to him for healing. In the room were (among other things) a small bed, a chair, and an *abeng*.

Bernard told me that he has a gift from God. He said, “I am an herbalist and a Maroon. I play Maroon drum, I blow *abeng*, because *Grande Konton Grande*, that means we belong to the Rio Grande Valley.” He explained his healing practice by saying, “If you sick, I put you back.” Later, Bernard explained how he received his knowledge to heal. He said, “I know I have a gift from my ancestor – I am born with it... I born as a Maroon – as I put my head down them tell me...”
David Gray

I was also introduced to David Gray by Lloyd Harris. I met David Gray on his farm in the mountains near Comfort Castle. David Gray was a strong and kind 72 year old man hard at work tending to his farm, where he was growing a range of plant species, both for food and medicine, including tobacco and yellow yam. Gray told me that he was “born in Barracks.” David Gray indicated that herbs can help with “every problem” and heal “all ailments.” He emphasized that three good herbs together can “keep you.”

Ntim Gyakari

After traveling a whole day on a large bus from the coast of Ghana, I finally reached Kumasi. There I met Ntim Gyakari, a pleasant gentleman ethnobotanist. Ntim Gyakari was pleased to hear about my research and was eager to work with me. We talked in detail about my research objectives, and he was very excited because he is also working on a similar subject with people in the Asante region. He agreed to help me identify research participants once I was able to secure enough funding for a longer field stay. Ntim Gyakari is very interested in learning more about the similar ways that Jamaican Maroon and Ghanaian Akans use plants for medicine. His expertise is in ethnotaxonomy of Ashanti plants.

Iveylyn Harris

Iveylyn Harris is one of the primary contributors to this work. Without the support and guidance provided by Iveylyn Harris throughout the course of my field research, it would not have been possible. Iveylyn Harris provided the majority of interviews, helped review research questions, and provided editorial remarks on first and final drafts of chapters in this dissertation.

Iveylyn Harris is from Cornwall Barracks. During one of my interviews with Iveylyn Harris, she helped me draw a sketch of her village so I could better understand where natural landscape features such as mountains, rivers, and springs are situated relative to man-made contructions such as bridges, roads, and houses (Figure 1.9). Ms. Harris is a true leader in Cornwall Barracks at the grass-roots level, and she has been very active on a range of projects aimed to perpetuate traditional Maroon knowledge. For example, she was one of the co-founders of the eco-tourism company Valley Hikes, and
she has volunteered on several projects, including as an instructor for a traditional Maroon medicine training program.

Iveylyn Harris just published her second book on medicinal plants and she is currently authoring several more focused on Maroon traditions and history. It appears she is taking after other members of her family, such as C. L. G. Harris, who also authored several publications. Iveylyn has expressed great interest in collaborative research opportunities both within her community and in ancestral places of West Africa. Iveylyn Harris is a beacon of traditional Maroon knowledge, and is poised to be a community mentor for local youth to help perpetuate the valuable skill of Maroon ethnomedicine. At a recent event with the Cornwall Barracks Basic School, I was able to bear witness to Iveylyn’s natural teaching ability.

Ivelyln Harris told me that she learned to use plants from her elders; mostly her four great aunts, “from [when she was a] youth on up.” She added, “Once you grow and are mentored, you just know the plant because you know it, you are mentored.” Harris told me that her great aunts “learned by tradition; coming all the way back from Africa to when they were brought to Jamaica. From Africa, they carried knowledge about the plants, food, and the ways of life for survival in the mountains for so many years.”

When asked about diagnostic procedures, Harris explained that people usually go to the doctor before they come to see her. It is the doctor who gives them a diagnosis; then they come to her for certain “bath or other herbal remedies that will heal them.” Iveylyn Harris stated that she heals people according to individual needs, starting with the disease as the basis. Harris also indicated that she commonly treats bleeding wounds and cuts, excess menstruation, insect bites and stings, menopause, menstrual cramps, PMS, and sprains; however, in the last five years she mostly treats “women with hot flashes” and “men with prostate problems.”
Figure 1.9. Features of Cornwall Barracks; drawn with Ivelyn Harris.

**Lloyd Harris**

Lloyd Harris learned about the traditional uses of plants from his grandfather and grandmother. He grew up in Moore Town and Comfort Castle, but his grandfather lived in Moore Town. Lloyd Harris specializes in “roots tonics,” and he treats people most often for pain, asthma, “blood,” and “nerves.” He told me that people ask him for what they want, they describe their symptoms and he gives them “bitters.” Lloyd Harris also helps people with infertility problems. During our last meeting, he joyfully described how, all the while, people on the street come up to him and say, “see my daughter here,” or “see my son…thank you!”

According to Lloyd Harris, “Natural herbs cure the thing; [with] doctor treatment you right down back.” He exclaimed, “Herbs are the meat and the healing of the nations;” and stated, “Any complaint I know herbs would help – even AIDS.” Lloyd collects herbs mostly in the mountains. Lloyd Harris is an expert “roots doctor;” in his own words, “I do my roots constant.”

**Lloyd Henry**

Lloyd Henry learned to use plants from his mother, a practicing herbalist. Although he was born and raised in Port Antonio, Lloyd Henry stated that he has a lot of
family in Moore Town and used to visit the Blue and John Crow Mountain region often to collect plants. Henry told me that he most often treats people with pain, anemia, “trembles,” or men who “need an erection;” he most often prescribes botanical remedies that are “anti-inflammatory” or “antibiotic.”

Lloyd Henry is very familiar with both montane and coastal strand vegetation. Additionally, Lloyd knows the uses for a wide range of grass species that grow in and around Port Antonio.

**Sampling technique**

In order to efficiently identify people who use plants for medicine, non-probability purposive sampling was used with the help of key collaborators in Jamaica and Ghana (Bernard 2006, Marshall 1996). Snowball sampling was used to identify persons knowledgeable in Maroon ethnomedicine (Bernard 2006). Specifically, key collaborators were asked to recommend someone (or more than one person) they knew that was knowledgeable about the traditional uses of plants for medicine, then that person was asked to recommend another person, and so on. I learned a great deal about the community just through this method of sampling alone. For example, many people stated that those who are/were most knowledgeable are dead. One person simply stated that there was no one else (besides themselves) in the village that could tell me more. Often, I was referred back to my key research partners, or other experts that I had already spoken with - an experience which could be an indication of sampling frame saturation (see Bernard 2006), or simply a reflection of people’s hesitation to name people. I was able to interview all named experts in the three villages I worked in except for two. One highly recommended individual I spoke with was not interested in participating in this research. I was not able to approach the other person due to time and safety constraints (I was advised not to travel to this particular place alone).

In Ghana, I met with researchers and faculty in the Botany Department at the University of Ghana at Legon. There I met Dr. Enu-Kwesi and Dr. Alex Asase. Dr. Asase is an ethnobotanist specializing in traditional remedies for malaria (e.g., see Asase et al. 2005). He works primarily in the northern territories of Ghana. Dr. Asase recommended that I look for Ntim Gyakari at the National Herbarium in Kumasi.
In addition to snowball sampling (with key collaborators as the original sources), I also used purposive convenience sampling (Bernard 2006) in order to increase my sampling size and to speak with a broader range of community members (people who are likely knowledgeable about medicine, but not necessarily professional herbalists or healers). I chose this method as a practical way to speak with different members in the community in a manner that was not too invasive or time consuming for the participant. Basically, I spoke with persons who were outside of their houses, walking down the road, or sitting down near the village square. The method was purposive because, rather than randomly approaching people who appeared available to talk, I selected people that were likely very knowledgeable about the traditional uses of plants; specifically, family members of herbalists, elder persons, farmers, sellers of produce, and women (see Bilby 1983, Zent 2001, Reyes-Garcia et al. 2007, and Voeks 2007). By using more than one purposive sampling method, I was able to formally interview 38 people in Jamaica for this study (nine of which were identified and recommended by other community members as highly knowledge about medicinal plants, including the three traditional herbalist key collaborators). In Ghana was able to interview two persons, both of Asante heritage, one of which was a traditional Asante healer. In addition to formal interviews, I was able to participate in and observe ethnobotanical culture in a variety of setting across Ghana, such as medicinal plant and fetish gardens in the coastal Fante village of Kormantse, traditional food preparation in Biwiri and Adabraka, medicinal and food plants and botanical-based medicines bought and sold at open-air markets in Kumasi and Adabraka, local customs associated with botanical-infused beverages, and important plants and uses showcased at botanical gardens in Mampong and Abrusi.

The age range of participants was 13 to 90, with an average of 54. Of the ten medicinal plant experts (nine in Jamaica and one in Ghana (two women and eight men), the average age was 65 (Tables 1.1and 1.2). I was able to interview several of the medicinal plant experts on multiple occasions, some over a ten-year period.
Table 1.1. Average age of participants interviewed in each village

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<th>Village</th>
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<td>Jamaica</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
<td>Comfort Castle</td>
<td>Jamaica</td>
</tr>
<tr>
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<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
<tr>
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<td>50</td>
<td>Moore Town</td>
<td>Jamaica</td>
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<td>2</td>
<td>53</td>
<td>Kumasi</td>
<td>Ghana</td>
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Table 1.2. *Research participants interviewed in Jamaica and Ghana*

<table>
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<th>Residence</th>
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</thead>
<tbody>
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<td>1</td>
<td>Colonel</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>2</td>
<td>farmer, drummer</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>3</td>
<td>Farmer</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>4</td>
<td>farmer, evangelist</td>
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<td>Jamaica</td>
</tr>
<tr>
<td>5</td>
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<tr>
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<td>Moore Town</td>
<td>Jamaica</td>
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<tr>
<td>7</td>
<td>Forester</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>8</td>
<td>security guard</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>9</td>
<td>taxi driver</td>
<td>Moore Town</td>
<td>Jamaica</td>
</tr>
<tr>
<td>10</td>
<td>Herbalist</td>
<td>Pleasant Hill</td>
<td>Jamaica</td>
</tr>
<tr>
<td>11</td>
<td>Farmer</td>
<td>Comfort Castle</td>
<td>Jamaica</td>
</tr>
<tr>
<td>12</td>
<td>Farmer</td>
<td>Comfort Castle</td>
<td>Jamaica</td>
</tr>
<tr>
<td>13</td>
<td>Healer</td>
<td>Comfort Castle</td>
<td>Jamaica</td>
</tr>
<tr>
<td>14</td>
<td>Artist</td>
<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
<tr>
<td>15</td>
<td>domestic work</td>
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<td>Jamaica</td>
</tr>
<tr>
<td>16</td>
<td>Electrician</td>
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<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
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<td>Jamaica</td>
</tr>
<tr>
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<td>Cornwall Barracks</td>
<td>Jamaica</td>
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<tr>
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<td>Housewife</td>
<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
<tr>
<td>27</td>
<td>Mason</td>
<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
<tr>
<td>28</td>
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<td>Cornwall Barracks</td>
<td>Jamaica</td>
</tr>
<tr>
<td>29</td>
<td>Musician</td>
<td>Cornwall Barracks</td>
<td>Jamaica</td>
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<td>30</td>
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<td>Ghana</td>
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<td>37</td>
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<td>Port Antonio</td>
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</tr>
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<td>38</td>
<td>Herbalist</td>
<td>Port Antonio</td>
<td>Jamaica</td>
</tr>
<tr>
<td>39</td>
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<td>Port Antonio</td>
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</tr>
<tr>
<td>40</td>
<td>Student</td>
<td>Port Antonio</td>
<td>Jamaica</td>
</tr>
</tbody>
</table>
**Participant observation**

My participation in Jamaican society began during my service as a United States Peace Corps volunteer from 1999 to 2001. I was fully immersed in the daily activities of Jamaicans – I lived in the community and gained an appreciation for subtleties of culture that can only be understood as an “insider.” These two years provided the foundation necessary for my role as a participating observer (Bernard 2006) when I returned to Jamaica for dissertation fieldwork. While living in the Windward Maroon community of Cornwall Barracks Jamaica, at the home of Ivelyn Harris, traditional Maroon herbalist in June 2010, I was able to observe and participate in the collection and processing of medicinal plants. Aside from collecting, drying, and preparing bush medicine, I also personally received several different forms of treatment, both internally and externally, providing a first-hand account of indication, preparation method, and intended outcome. In the evenings I recorded my observations in my notebooks and laptop. Participant observations were supplemented using various sampling methods including structured, semi-structured, and unstructured interviews, as well as voucher collections - each described below.

**Interviews and cognitive exercises**

After informed oral consent was provided by each participant, formal semi-structured interviews (Bernard 2006) were conducted in three separate villages of the windward Jamaica Maroon community, as well as in two other villages within the Portland parish (Breastworks and Port Antonio) where two research partners are currently residing. Free-listing exercises, semi-structured interviews, “walk in the woods” interviews, pile-sort tasks, ranking, and written exercises (Alexiades and Sheldon 1996, Quinlan 2005, Bernard 2006) were used to improve understanding about medicinal plant and disease classification concepts. Interviews were recorded primarily with a field notebook and writing implement. In Kumasi, Ghana, one interview was recorded on digital video.

**Written exercises**

To make medicinal plant-use associations amenable to cross-cultural comparisons, I wanted to get a better idea of how Jamaican Maroons define ailments and other
botanical medicine indication terms cited during interviews (e.g., “fresh cold,” “wash out,” etc.). Whenever appropriate, I asked research participants to describe and define such terms and phrases during interviews. To help sort out synonymous terms or phrases, I asked two medicinal plant experts (and key collaborators) to participate in a written exercise. Using a list of such terms and phrases that I compiled from interviews I conducted in 1999-2001, I asked the medicinal plant experts to group related terms, define terms they are familiar with, and rank each term or group of terms according to the frequency they treat patients for said disease term(s). I included a nominal payment as compensation for their time.

**Semi-structured interviews**

I conducted formal interviews using some pre-determined open-ended and direct questions intended to guide the protocol and keep the topic focused (Bernard 2006). Cognitive exercises such as free listing and card-sorting tasks carried out during interviews were followed up with questions regarding the medicinal plants and indications mentioned (see Appendix A for list of interview questions).

**“Walk-in-the-woods” interviews**

Conducting interviews using open-ended questions situated in a natural setting for medicinal plant collection is less constractive than free-listing exercises and therefore may result in a higher quality of data (see Alexiades and Sheldon 1996, Garro 2000). When appropriate, interviews were conducted in the places where people normally find and collect medicinal plants. Sometimes this was in the yard of the participant; other times, I accompanied people on short hikes within the community or into the mountains. Using this technique, I was able to efficiently discuss and identify plants without wasting participants’ time. Also, when appropriate, I was able to observe and record plant harvest, preparation, and administration techniques during these in-field interviews.

**Formal unstructured interviews**

There were several situations during which I felt it was most appropriate to let the research participant lead the interview. Unstructured interviews are often the best approach when the information is sensitive (Bernard 2006), as is the case with medicinal
and spiritual uses of plants in Maroon communities. After informed consent was given for an interview, some participants just started talking about medicinal plants and their personal experiences with plants, and I listened and recorded their comments. During these interviews, I often encouraged the participant to expand on related topics using various non-leading probes (see Bernard 2006:219).

**Free listing**

Independent free-listing tasks (see Alexiades and Sheldon 1996) were carried out with residents of Cornwall Barracks, Comfort Castle, and Moore Town in order to better understand the cultural domain of medicinal plants, and ailments treated with plants, in Jamaican Maroon ethnomedicine. Specifically, I asked participants to name plants in their community that people use for medicine. I then asked participants to name all the ailments they can think of that are treated with plants. Often participants listed plants and ailments together. I wrote down responses in the order they were mentioned.

Field scientists often have to weigh the costs and benefits of increasing sample size, particularly when people are involved. A primary concern for this research was to obtain a large enough sample size (enough interviews) in order to approach a valid, comprehensive understanding of traditional Maroon medicinal ethnobotany, while staying within logistical, budgetary, and ethical boundaries. One way to ascertain whether one has enough interviews is to use the ecological method of rarefaction curves (Begossi 1996). For the free-listing exercises, I generated a rarefaction curve with thirty-two of the interviews using the statistical software program EstimateS (Colwell 2006) (Figure 1.10). A total of 102 unique plant names were recorded during free-list exercises, 57 of which were mentioned by only one person. The curve appears to be approaching asymptote, as indicated by the decreasing steepness of the line, suggesting that sampling size is adequate (Balick 1996); however, the high number of singletons indicate that there are still species in the “sampling universe” that have not yet been recorded (see William et al. 2007).
Card sorting tasks

In order to better understand how plants are classified within a Jamaican Maroon ethnomedicinal context, and to compare Jamaican Maroon ethnotaxonomic systems with analogous classification systems in Ghanaian Akan medicine, medicinal plant names recorded from previous interviews I conducted with Jamaican Maroon healers (1999-2004) were written on 3x5 cards. Research participants were asked to sort a set of cards into groups, according to their own criteria, a technique known as “free pile sorting” (see Bernard 2006). Participants were prompted to explain their classification decisions and to “name” each group.

Plant voucher collection

Pressed and dried plant samples (voucher specimens) were collected during ethnobotanical research to provide a salient link between vernacular and botanical classification systems (Alexiades and Sheldon 1996, Etkin et al. 1999). To collect voucher specimens, I asked participants if they could show me the plants that they mentioned during interviews. I also asked if I could take a small sample of the plant if the species had not been previously collected. I did not take samples in situations where it
would have greatly inconvenienced the participant (e.g., if taking a sample would permanently damage a participant’s only garden specimen, or if the plant was found a great distance from the participant’s home).

I accompanied expert healers on harvesting trips for plants located in more remote areas. When possible, plant samples contained fruiting and/or flowering parts. Samples were pressed in a botanical plant press, and dried mostly in the field using a solar drier provided by Ivelyn Harris in Cornwall Barracks. Voucher specimens were carried to Kingston and collaborative work was conducted in the herbarium at the Institute of Jamaica with head botanist Keron Campbell and Maroon herbalist Ivelyn Harris. In order to identify species, specimens were compared with previously collected vouchers housed at the Institute of Jamaica herbarium, and dichotomous keys published in the Jamaican flora (Adams 1972) were consulted. Voucher specimens are on file at the Institute of Jamaica herbarium in Kingston Jamaica; a subset collected during preliminary research was deposited at the University of Hawai`i herbarium.

A total of 176 species were identified as part of the Jamaican Maroon ethnopharmacopoeia; 168 angiosperms, seven pteridophytes, and one lycophyte. Most of the species collected are herbs, shrubs, and trees (Figure 1.11). At least 138 species (~78%) are classified as native to tropical America, 5 of which are endemic to the island of Jamaica. Twenty-eight species (~15% of Jamaican Maroon ethnopharmacopoeia) are native to tropical Africa, three of which are endemic to tropical West Africa. Select species will be discussed in detail throughout this dissertation, as they relate to the research question.
Figure 1.11. Life form of species in Jamaican Maroon Ethnopharmacopoeia.

Digital photography and video

Digital photographs were taken of most of the plant species collected. Also, in order to provide context for the plant-human relationships in the communities I worked in, I photographed the landscape, plant products, and other natural and developed resources when appropriate and possible. Digital photos and video were used to record some plant preparation and harvesting methods in situ.

Analysis and interpretation

Common themes of plant efficacy and human disease were identified through qualitative and quantitative analysis of interviews, cognitive exercises, and participant observations. Cross-cultural patterns of species selection, preparation, indication, and administration methods were identified using a variety of qualitative and quantitative techniques, and discussed within a context of Jamaican Maroon traditional medicine. Additionally, ethnopharmacopoeia lists, regional flora, and historical records of crop species introductions are compared cross-regionally to explore the research question of whether Jamaican Maroons select and use plants based on knowledge transferred from a West African cultural framework, transformed in part through interactions with indigenous and colonial peoples in the Americas during the trans-Atlantic slave trading
era. Each analytical method used is discussed in more detail in subsequent chapters of this dissertation, in relation to the hypothesis being explored.

**Limitations of research methods**

In order to provide a comprehensive analysis of Jamaican Maroon ethnomedicine, all nine Windward Maroon villages should be sampled, along with Charles Town on the eastern end of Portland, Scots Hall in St. Mary, and the Leeward Maroon communities located in the region known as Cockpit Country. This study focuses on only three communities of windward Jamaica Maroon villages: Moore Town, Comfort Castle, and Cornwall Barracks. Flora, and ethnomedicinal traditions may vary in each Maroon village. Furthermore, research participant selection was purposive (not random) and cannot be viewed as representative of the entire Jamaican Maroon culture. In some analyses, I compare data gathered from fieldwork in Jamaica to previously published research in Ghana and the Caribbean. Since categories of disease and healing are often culturally constructed, perspectives drawn from this type of cross-cultural comparison are limited. Finally, certain aspects of Jamaican Maroon tradition are not described in detail here out of respect for sacrosanct knowledge and intellectual property. I feel the need to also state that, since I am not a Maroon woman, I am inherently naïve to Maroon traditions, and carry a certain amount of unintentional, yet unavoidable, bias from my own American culture. Any errors in interpretation of data, interviews, observations, or literature are entirely my responsibility. I would like to encourage any person in the Jamaican Maroon community to contact me\(^{25}\) if they feel anything I have written here is misrepresentative of the truth.

I hope this work inspires members of the Maroon community to write their own history, for the sake of the future generations. The purpose of this dissertation is not to serve as an authority on Jamaican Maroon customs; it is simply a reflection of observations and a presentation of ethnographic data. There is a saying in the Hawaiian language which I feel is appropriately re-stated here; “nānā i ka kumu;” which means, “look to the source” (see Kanahele 1986). In other words, to truly know Jamaican Maroon culture, one must speak with the elders and hear them with their own ears, see them with their own eyes, be shown the plants and harvest them with their own hands.

\(^{25}\) At the time of this publication I can be reached most easily by email (summermarie@gmail.com).
Dissemination of results

Work with community leaders and local media enables research results to be returned to participating communities in a useful and accessible format. During the field work portion of this study I was able to present aspects of the study such as theoretical framework, methods, and preliminary results to the Jamaican Maroon community during their second annual Maroon Conference\(^\text{26}\) in Charles Town, June 2010. Maroon leaders, elders, herbalists, and Maroon government council members from Moore Town, Charles Town, and Accompong Town were present, as well as Jamaican government officials from the Institute of Jamaica. The presentation was recorded on audio and video by several local media agencies and was scheduled for broadcast on island-wide radio and television shows, as well as over the world-wide web.

Reciprocity

For the field work components of research in Jamaica during the years of 2002, 2003, 2004, and 2010 there was no supportive funding. I relied entirely on the generosity and goodwill of my Jamaican research partners and Maroon community participants whom gave freely of their time, energy, and knowledge. Any recognized success of this endeavor results entirely from their efforts and kindness. Based on local perceptions of reciprocity, I gave people gifts as a show of respect for their time and participation in the research. Gifts varied according to each individual situation and included cash, rum, children’s toys, school supplies, books, cameras, and clothing. Several participants requested that I send a copy of the dissertation to them, and many wished to have their family portraits taken with my digital camera and copies sent in the mail. One participant requested I purchase and send him a particular herb from the Unites States. I obtained the name and mailing address of all participants so that I could send these gifts to them.

My original intent was to conduct this research as wholly collaborative, with organized opportunities for skill and knowledge transfer during the data collection process. Without funding, I made the decision to work largely independently, as I was unable to fairly compensate people for their time as field assistants, and I did not have adequate resources to successfully implement a school that would have necessarily

required a certain amount of training and manpower to ensure the safety of volunteers (particularly young persons) working in the field.

As a way to improve collaboration during future research endeavors, Guy Ragosta, Steve Bogle, and I co-founded the 501(c)3 non-profit organization, Surfing Medicine International (www.surfingmedicine.org). The primary goal of Surfing Medicine International is to investigate plant-based systems for the benefit of human health and water quality. Surfing Medicine International’s all-volunteer staff works to encourage and support traditional healers who wish to design and direct their own studies. Video footage taken by Surfing Medicine International volunteers in both Jamaica and Ghana will be used in the creation of an educational documentary on traditional and sustainable uses of plants in rural tropical areas and how this relates to broader aspects of society such as water quality, human health, and perpetuation of cultural values. It is our intention that this dissertation research will be a launching point for future projects in Jamaican Maroon and Ghanaian Akan communities.
### Appendix A: Examples of some questions asked during interviews

<table>
<thead>
<tr>
<th>Question</th>
</tr>
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<tbody>
<tr>
<td>What are the names of plants used for medicine?</td>
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<tr>
<td>What are some ailments treated with plants?</td>
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<tr>
<td>How did/do you learn about medicinal plants?</td>
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<tr>
<td>Do you prepare medicine from plants yourself? If so, who do you usually give this medicine to?</td>
</tr>
<tr>
<td>Where do you get the plants you use for medicine?</td>
</tr>
<tr>
<td>How do you normally make a medicine from plants?</td>
</tr>
<tr>
<td>What part of the plant do you prefer to use?</td>
</tr>
<tr>
<td>What (type of) ailment do you normally treat?</td>
</tr>
<tr>
<td>What is the capital (most important) plant used for medicine? Why?</td>
</tr>
<tr>
<td>How do you diagnose disease?</td>
</tr>
<tr>
<td>How do you know that the treatment you have given has worked? <em>i.e.</em> How do you know someone with [ailment x] is better?</td>
</tr>
<tr>
<td>How do you know what medicinal plant to use for each disease?</td>
</tr>
<tr>
<td>Are there any kinds of ailments that cannot be treated with plants?</td>
</tr>
<tr>
<td>How do people get sick?</td>
</tr>
<tr>
<td>Tell me more about [name of ailment].</td>
</tr>
<tr>
<td>Have you ever treated someone with [name of ailment]?</td>
</tr>
<tr>
<td>How do you treat [name of ailment]?</td>
</tr>
<tr>
<td>How do you know someone has [name of ailment]?</td>
</tr>
<tr>
<td>How do people get [name of ailment]?</td>
</tr>
</tbody>
</table>
Appendix B: Informed consent document

University of Hawai`i at Manoa
Botany Department
3190 Maile Way Room 101; Honolulu, Hawai`i 96822

Dissertation Research Project: A comparative study of Jamaican Maroon ethnomedical practices and Ghanaian Akan ethnomedical practices

Field work duration: June 4-June 30, 2010

Informed Consent Form

Hello, my name is Summer Austin and I am a student at the University of Hawai`i. I would like to talk with you about my research interests. I am studying the cultural connections between West Africa and Jamaica through the uses of plants for medicine. I am doing this research in Jamaica Maroon communities. My research methods include interviews and plant collections.

If you would like to participate in this research, I will ask you a few questions about the plants used for medicine in your community. You do not have to participate. If, at any time you feel uncomfortable, or would no longer like to participate, please let me know and we will stop the interview.

The information gathered in this research will be used to prepare and submit a dissertation manuscript to the University of Hawai`i for partial fulfillment of my doctoral degree. The information contained in the dissertation will be available for the public to read.

Please let me know if you understand this research and would like to participate. Also, please let me know if you have any questions. Thank you very much for your time.

Sincerely,
Summer Austin, Doctoral Candidate
University of Hawai`i at Manoa
3190 Maile Way Room 101
Honolulu, HI 96822
**Literature Cited**


Dallas, R. C. 1803. *The History of the Maroons, from their Origin to the Establishment of their Chief Tribe at Sierra Leone: including the Expedition to Cuba, for the Purpose of Procuring Spanish Chasseurs; and the State of the Island of Jamaica for the Last Ten Years: with a Succinct History of the Island Previous to that Period, Volumes I & II.* T. N. Longman and O. Rees, Paternoster-Row, London, UK.


Kanahele, G. S. *Ku Kanaka Stand Tall: A Search for Hawaiian Values*. University of Hawaii Press, Honolulu, HI.


Rush, B. 1809. *The Works of Thomas Sydenham, M. D. on Acute and Chronic Disease; with their Histories and Modes of Cure. With Notes, Intended to Accommodate them to the Present State of Medicine, and to the Climate and Diseases of the United States*. Benjamin & Thomas Kite, Philadelphia, PA.


Sloane, H. 1725. *A Voyage to the Islands Madera, Barbados, Nieves, S.Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. II. British Museum Press, London, UK.
Sloane, H. 1707. *A Voyage to the Islands Madera, Barbados, Nieves, S.Christophers and Jamaica*, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c. of the last of those Islands; to which is prefixed an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America, Vol. I. British Museum Press, London, UK.


83:66-78.


Chapter 2.
Historical perspectives in Windward Maroon communities

Just as the Sankofa bird reaches back to groom its feathers before flight, so we must look into our past for the wisdom necessary to move forward.

- Akan Proverb

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IVELYN HARRIS, Traditional Maroon Herbalist, Cornwall Barracks, Jamaica, West Indies, iharrisnom@gmail.com

Abstract
The primary purpose of this chapter is to describe the historical context within which Jamaican Maroon ethnobotanical culture developed. The literature base for the African Diaspora is immense and this review is not exhaustive, nor representative of a complete Jamaican Maroon history. However, through examination of some key authorities and a focus on oral history and ethnography from Jamaican Maroon research participants in the Rio Grande Valley, this chapter provides context to the chief research question; “Did West African Akan27 ethnic groups have significant and recognizable influence in the development of Jamaican Maroon ethnomedicine?”

Introduction
Berry (2005) and Schafer (1974) emphasize the need to include historical review in Caribbean study. Likewise, Trouillot (1998) expressed that an exploration of historical context, and recognition of the complex processes that have been occurring since the beginning of New World European colonization, are critical when studying Caribbean culture. During an interview with the Honorable Colonel Wallace G. Sterling in Moore

27 I use the distinction Akan not arbitrarily, nor based entirely on slave origin records (e.g., Tans-Atlantic slave Trade Database); but because Ghana, Fante, and Ashanti are regions and ethnic distinctions identified specifically by Jamaican Maroon participants as ancestral areas and people. Akan is the dominant language group in Ghana today (see Chapter 4 for map), and Akan encompasses both Ashanti and Fante ethnicities.
Town Jamaica in June of 2010, he articulated his support for this work to me by stating the following:

“It is always important to preserve knowledge, especially knowledge that has been transmitted orally. In the past, people relied heavily on local medicinal plants because there was not much alternative. But in today’s society [some people] want to take the easier route out because there are other alternatives. Sometimes this leads to loss of cultural knowledge that has been handed down from generation to generation.”

Trouillot (1995) cautions writers of history about the ultimate power they wield with the stories they tell. Whose story and how it is told matters. I would like to emphasize here that there are many stories in Jamaican Maroon history. There are also many villages; I worked in only three, and research participants were selected by purposive sampling methods. Therefore, the oral histories presented here cannot be viewed as representative of the entire Jamaican Maroon culture. Furthermore, Akan ethnic groups were not the only ones identified by research participants. Other named Maroon “tribes” and ancestral areas include “Congo,” “Timbambu” (west Central Africa), as well a name associated with Mande ethnic groups, “Mandingo.” It is my sincere hope that Jamaican Maroons take the time to write more of their history, and include versions from each of the distinct Maroon “tribes.” This type of information, when written accurately by members of Maroon communities themselves, is critical for the next generation to hear and read. Children deserve to be proud of whom they are, to know the triumphs of their forebears, and to be inspired to carry on the legacies of their great Maroon ancestors.

**Maroon communities**

Following Christopher Columbus’ 15th century voyage to the new world, Europeans created several colonies in the Greater Antilles. Economies of island settlements were based largely on slave labor for agriculture. Major West Indian social divisions included (1) slave owner, (2) enslaved, and (3) Maroon. Maroons are people whose ancestors fought for and won their freedom from slave-holding plantation systems in the West Indies, as well as in North, Central, and South America. Maroon communities
were established strategically in remote regions, as they were established under threat of genocide. Maroon villages were founded in every major slave practicing region of the Americas (Bateman 2002) (see Figure 2.1).

The distinction between Maroon and enslaved society is important because the daily lives of the people living in these two vastly different environments affected how they were able to maintain tradition, and knowledge of genealogy. For example, in her eloquently written book, *Lose Your Mother*, Hartman (2007) described the journey she took as an African American woman to find her “roots” in West Africa. What she found however, is that the slavery system her ancestors were subjected to in the United States fractured her family line at so many levels that she felt like a foreigner on both sides of the Atlantic. For instance, Hartman tells a painful story of how her lineage can only be traced as far back as her great-great-grandmother, who was enslaved, sold, and forced away from her place of birth in Tennessee to live under the control of a man in Alabama. This forced migration permanently separated Hartman’s great-great grandmother from any family members and traditions she may have had in Tennessee. Unfortunately, Hartman’s story is not unique, and this selling and moving of enslaved people uprooted them again and again. Continuous displacement made keeping track of family heritage difficult for people living as slaves in America. Moreover, the sustained and violent oppression imposed by governments and fellow citizens on African-Americans following emancipation drove the stake of derision and demoralization even further into the heart of many families.

Maroon communities however, are different. As leaders and members of sovereign states within the colonial slave-based system, Maroon people have been able to maintain oral traditions passed down from family member to family member, since the time when the ancestors lived in Africa, until today. To illustrate this difference I will retell the story of a journey taken by Jamaican Maroon herbalist Ivelyn Harris to Ghana in order to find her “roots,” just as Hartman did; but the experiences described contrast greatly. Unlike Hartman (2007), who chose Ghana because “it possessed more dungeons, prisons, and slave pens than any other country in West Africa,” Harris went directly to the place that her father and mother and grandmother always told her was where her ancestors, the first Maroons, came from – a place on the coast of Ghana called
Kormantse. There she met King Kwame, traditional leader of a small Fante fishing village. King Kwame welcomed Harris as a daughter, poured libation to sanctify her return and to include the ancestors in the meeting. He told her that he knew of Prince NaQuan, Harris’ sixth great grandfather. He also told her that, because of this family lineage, Harris was actually considered a princess in his village, and he gave her a new name, Efua (because she was born on a Friday); he told her that her name means “mother of the earth.”

While in Ghana, Harris recognized many of the same plants, including Quaco bush (Mikania micrantha), and noticed similarities in the ways that Ghanaians and Jamaican Maroons use, apply, and prepare medicine and food. For example, she noticed that in Ghana, “rice and peas” is prepared the same way that this common dish is prepared in Jamaica. Also, Harris recognized the medicinal herb balsam (Ocimum gratissimum), and observed it being prepared and prescribed in the same way as she prepares it. Harris noticed that fresh herbs are often administered by squeezing them and dropping the juice directly into the throat (see Chapter 3 for a description of a similar method used in Jamaican Maroon medicine). She also observed that Ghanaians use mortar and pestle just like Jamaican Maroons, as well as prepare medicinal baths. Rather than feeling “like a foreigner,” as Hartman described, Harris felt like she was truly in the land of her people.
Figure 2.1. General Regions where Maroon Settlements were established over the 400 Year duration of the Trans-Atlantic Slave trade (15th-19th centuries) (Yelvington 2001, Bateman 2002, 1990, Weik 1997, Agorsah 1994, Aptheker 1939, Price 1979).

Teasing out the threads of the Middle Passage noose

Africa is the motherland of myriad ethnic groups and tribal associations, many of which had great numbers of their community members captured, shipped to the New World, and sold into slavery. Scholars of the forced African Diaspora (e.g., see Mintz & Price 1992) have argued that, although transference of knowledge and cultural frameworks did occur, trans-Atlantic slave trade operations mixed ethnicities so extensively that continued existence of any single cultural group is unlikely. However, Thornton (1998) asserts that, although people from various traditions were often forced together through slavery, those of a similar culture tended to congregate whenever
possible in order to perpetuate custom and language. Comparative research that integrates a variety of tools such as ethnography, historical documents, and social and environmental histories, can provide evidence to support Thornton’s argument. For example, Carney (1998) combined extensive field work with geographical and historical descriptions of rice cultivation in Senegambia and southeast United States. The results of Carney’s work suggest that West African Mande-speaking people, the indigenous West African rice species *Oryza glaberrima* Steudel, and traditional Upper Guinea coast agricultural technologies were transferred across the Atlantic as a direct result of the slave trade, and are responsible for the success of the pre-Civil War rice-based economies of the southern American states (see Carney 2001, 2003). Heywood & Thornton (2007) also used historical records (*e.g.*, see Curtin 1969) and maps (*e.g.*, Oldenthorp 1760) to identify waves of central West African people who were moved into North America and Brazil, leading to concentrations of ethnic groups and perpetuation of central West African culture in the Americas. Such works, particularly when combined with post-positive collaborative ethnography, and representative oral traditions, can help people in the African Diaspora follow the tracks of their ancestors.

**Methods**

Qualitative data collected through ethnographic techniques (see Chapter 1) are presented along with information gathered from historical archives such as the Trans-Atlantic Slave Trade Database (http://www.slavevoyages.org), published oral traditions, and letters or documents written by explorers, naturalists, ship captains and physicians during the 15th to 18th centuries. Additionally, ethnohistorical literature pertaining to the Atlantic region is reviewed and discussed.

**Results and discussion**

Slave supply, region of trade, and how slaves were obtained appear to have determined which cultural groups were transported to the Americas. For example, Lipski (2005) describes selective differences of various inter-European slave trading networks. Spanish colonies dealt with Portuguese and French traders, and English traded primarily
with Dutch companies. It has also been suggested that plantocracies\textsuperscript{28} developed preferences for specific ethnic groups based on assumed characteristics such as perceived physical or mental attributes, and the economic crop being grown \textit{(e.g., see Carney \& Voeks 2003, Yelvington 2001, Kopytoff 1978). Historians such as Thomas (1997) and Campbell (1988) state that British colonists preferred to buy slaves from their English and Dutch allies on the Gold Coast because people from this region had reputations as being hard working, strong, healthy, and able to endure the harsh labor and challenging conditions of large scale sugarcane production in the West Indies.}

The Trans-Atlantic Slave Trade Database is a compilation of primary and secondary sources, and serves as a useful tool for estimating actual numbers of people from different regions across Africa that endured the Middle Passage (see Table 2.1 and Figure 2.2). However, although the region of origin for slave ships is at times well documented, the ethnicity of the captives on board is still unclear, and shipping manifests that indicate slave heritage are unreliable. For example, Schafer (1974) explains that slave ships often made multiple purchases along the coast of West Africa where people were captured from various regions and brought to coastal ports to be sold, yet many ship documents only list the final port of departure and fail to indicate any previous stops. Therefore, a slave vessel’s origin does not necessarily indicate slave origin. Additionally, terms such as “Cormantine\textsuperscript{29}” \textit{[sic]}, and “Mina” were constructed by slavers to describe people associated with the Gold Coast, regardless of their true ethnicity (Law 2005, Agorsah 1994, Rath 1993).

\textsuperscript{28} Defined here as plantation agriculture-based societies dependent on slave labor

\textsuperscript{29} Other variant misspellings of this word include: Cormanty, Coromantee, Coromontee, Coromantine. The correct spelling for the name of the people from Kormantse, Ghana is Kormanteen; however, as stated in the text, Cormanty is a constructed term that does not correlate to an exact ethno-geographic location.
Table 2.1. Origins of people and estimated number of survivors brought to Jamaica across the Middle Passage from 1607-1840 (The Trans-Atlantic Slave Trade Database Estimates, February 2011)

<table>
<thead>
<tr>
<th>Region of Origin</th>
<th>Symbol on Figure 2</th>
<th>Number of Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bight of Biafra</td>
<td>■</td>
<td>296,599</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>▲</td>
<td>301,577</td>
</tr>
<tr>
<td>West Central Africa and St. Helena</td>
<td>●</td>
<td>179,916</td>
</tr>
<tr>
<td>Bight of Benin</td>
<td>□</td>
<td>128,109</td>
</tr>
<tr>
<td>Windward Coast</td>
<td>♠</td>
<td>41,054</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>♣</td>
<td>34,313</td>
</tr>
<tr>
<td>Senegambia and off-shore Atlantic</td>
<td>♦</td>
<td>29,712</td>
</tr>
<tr>
<td>South-east Africa and Indian Ocean Islands</td>
<td>◙</td>
<td>8,314</td>
</tr>
</tbody>
</table>
Figure 2.2. Map, “Africa” (Arrowsmith 1842) with added symbols indicating general regions where slaves were purchased by Europeans during the trans-Atlantic slave trade.
**Gold Coast slave trading**

Historical trade operations between West African and European nations have left their mark in the physical landscape along the Ghanaian coastline where a multitude of forts remain (*e.g.*, see Figure 2.3). Once controlled by the Portuguese, Danes, English, and Dutch, the Gold Coast was a prominent region of trade between Africa and Europe during a period from 15th to 18th century (Lipski 2005). According to Wilks (1993), the Portuguese were among the first Europeans to set up trading posts here, and one of their most prominent structures is São Jorge da Mina (now known as Elmina Castle), built in 1482. Many Akan-speaking groups traveled from surrounding areas to trade with Portuguese at São Jorge de Mina, including Abrammu, Etsi, Akane, Akrokere, Adanse, and Bron; additionally, the Mandingua from Mali traveled to the coast by way of the Gambia River.

Many of the massive fortifications on Africa’s western coastline were originally built to accommodate large quantities of merchandise, principally gold, for shipment to foreign markets (Ellis 1893). Searing (1993) depicts dank elongated windowless chambers (*e.g.*, see Figure 2.4) that stored not only gold, but food such as grain and root vegetables in order to nourish the Europeans, as well as the African laborers that were used to mine the precious metal. Spices and resins such as gum Arabic (*Acacia* spp.) fetched a high price in European markets, and so were also gathered and stored. With the rise of plantation economies in the New World, human beings became a commodity and the storerooms were thus converted into dungeons, and new prisons were built - all containing only one exit for the enslaved Africans who entered the gates – the door of no return (Kiyaga-Mulindwa 1982) (Figures 2.5 and 2.6).

In 1637, the Dutch captured São Jorge da Mina from the Portuguese (Dickson 1969). Dutch dominance along the Gold Coast was followed by a period of rapid growth in slave trading among West African and European businessmen. In order to support the large number of people involved in the trade, large gardens with various introduced fruits, vegetables and herbs were established at many European outposts in West Africa (Alpern 1992). For example, a description of the garden at Elmina Castle in 1681 lists
“rows of sweet and sour orange, lemon, coco, palm, palma-christi\textsuperscript{30}…also [a] variety of herbs, pulse, and roots from Europe…” (Barbot 1732, in Alpern 1992). These gardens and the produce procured from them were often tended and prepared by local African gardeners and chefs, creating chances for ethnobotanical knowledge associated with the introduced flora to diffuse across the Atlantic – with Africans and Europeans (Alpern 1992, Voeks 2009).

By the end of the 17\textsuperscript{th} century, there were a string of forts along the shoreline of Ghana. According to estimates in the Trans-Atlantic Slave Trade Database, the demand for slaves from the Gold Coast region reached its peak in 1774, with a total of 6,427 people taken to the shores of Jamaica during that year alone. The year 1808\textsuperscript{31} was the last documented slave ship voyage from Gold Coast to Jamaica, with approximately 1,313 Middle Passage survivors (Trans-Atlantic Slave Trade Database, accessed February 2011).

\textsuperscript{30} Palma-christi has been identified as \textit{Ricinus communis} (Alpern 2008, McClure 1982)

\textsuperscript{31} This terminal date is presumably a reflection of the Act for the Abolition of the Slave Trade, passed by British Parliament on March 25\textsuperscript{th}, 1807 (William and Royster 2007).
Figure 2.3. Cape Coast Castle, Ghana, showing some coastal strand species.

Figure 2.4. Dungeon inside the Cape Coast Castle, Ghana.
Figure 2.5. Slave dungeon inside Cape Coast Castle, Ghana.

Figure 2.6. Door of no return
Akan ethnic groups in Ghana

Thornton (1998) credits the relatively high retention of African culture in Maroon communities to a perpetuation of West African Akan traditions. Endurance of Akan language and culture in Jamaica has been supported with both archeological and ethnographic evidence. For example, Meyers (1999) found artifacts that indicate traditional Akan pottery skills were practiced in Jamaica until at least the 18th century.

The broad Akan culture encompasses eight distinct linguistic groups including Akwapim, Akyem, Asante32, Asen-Twifo, Brong, Fante-Agona, Kwahu, and Wasa (Manoukian 1950, Dakubu 1988). Akan language speakers in West Africa include the Fante and Asante ethnic groups, as well as Agni, Baule,33 and Abrun (Ocrisse-Aka and Bossard 2006). Akan is part of the Western Kwa language family and speakers belong to ethnic groups located primarily within the Upper Guinea forests of Ghana (see Figure 5) (Dolphyne 1988). These forests are part of the larger Guinea-Congolian region, divided into three subsections (Upper Guinea, Lower Guinea, and Congolian) (Poorter et al. 2004). The Guinea-Congolian tropical moist forests are bordered by drier savannah vegetation to the north and the Atlantic Ocean to the south. The Upper Guinea rainforests have relatively homogenous flora extending from Senegal to Togo with ~ 2,800 vascular plant species, of which 650 (23%) are endemic (Poorter et al. 2004). This flora and its human resource potential (from Akan as well as other ethnic groups throughout the region) served theoretically as the basis for traditional plant knowledge transferred across the Atlantic to Jamaican Maroon communities.

Dickson (1969) affirms that Asante Akan (also Ashanti) was the dominant culture in Ghana at the time of the trans-Atlantic slave trade, and people belonging to their group maintained political control over a massive portion of the Gold Coast region from the early 1700’s to approximately 1850. Native Asante slave raiders supplied the Dutch with people they captured in or near villages as they expanded their territory outward from their traditional capital of Kumasi34 (see Figure 1.6) into adjacent Akan and other ethnic

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32 Asante is also spelled Ashanti, and older ethnohistoric texts have other variant spellings such as Ashantee.
33 Dakubu (1988) classifies Baule as part of the closely related Bia language group, in the same Kwa family as Akan.
34Kumasi is the present site of West Africa’s largest market. When I traveled to Kumasi in 2005, I met Ntim Gyakari at the National Forestry Commission. Ntim is an Ashanti elder and was the national
states. According to Perbi (1992), the majority of slaves sold to external markets on the Gold Coast originated from war activities in northern Ghana. Ethnic regions to the north of Asante territory include other Akan groups such as Brong, and Baule, as well as non-Akan groups such as the Dagomba. Slaves were also supplied through non-war activities such as kid-napping, debt forgiveness, deception, punishment, and slave raids - especially during times of peace (Perbi 1992). This suggests that large numbers of Akan people (from multiple ethnic groups) were likely sold to European merchants at Gold Coast ports, along with an untold number of non-Akan people (e.g., Mandinka, Dagomba, Gã, Ewe, Yoruba, and others).

South of Kumasi is the coastal Fante ethnic region, where the legendary village of Kormantse is located. Kormantse is home to of the Kormanteen people, ancestors and living relatives of the Jamaican Maroons. The Fante region is characterized by littoral forests, salt ponds, small and large-scale agriculture, abandoned gold mines, and fishing villages. Although they are both Akan, the Fante and Asante are distinct ethnic groups, and historic enemies; people captured in battles between the two groups were sold into slavery (e.g., see Cruickshank 1853).

The Admiral’s legacy…down in Jamaica

The exact origin of the earliest Africans in Jamaica is unclear; however, according to one account, the first African to step foot on the island was a sailor onboard one of

herbarium curator before his retirement in 2007. Ntim told me the story of how the location for Kumasi was chosen by the first chief, Akomfunashi, who once said, “I will plant two trees in two places; the place where the tree grows will be our new town”. The tree grew where the capital city of Kumasi is now established. Although the exact location and variety of the legendary Kum tree is unknown, Ntim suggests it may be the Anacardiaceae forest species known as Kumanini (Lannea welwitschii (Hiern) Engl.).

35 Ntim Gyakari told me the word Kormantse has a treacherous connotation for the Ashanti. He said the full context of the town name is, “I swear by Kormantse Thursday that I will kill you,” a phrase reminiscent of the historical conflict between Asante and Fante. A few miles west of Kormantse is located the town of Anomabu; both villages were once active in the trans-Atlantic slave trade (and both are cited as ancestral homelands of Grande Nanny).

36 Although his account appears to be a boastful attempt at the English man’s redemption for their prominent role in slavery and oppression of African people, Cruickshank (1853) recalls a story of an instance where Fanti were sold into slavery after a battle with Asanti, and so I will repeat it here. According to Cruickshank, the slave castle in Anomabu was governed by Mr. White in 1807 when it came under attack by the “Ashantee.” Mr. White and his men defended the Anomabu fort, and protected “hundreds of women and children” inside the barricaded walls while many hundreds of others retreated in their canoes offshore. Cruickshank estimates that 8,000 Fante and 3,000 Ashantee were killed during this battle. Mr. Swanzee, then governor of Accra, took a canoe to Cape Coast to try and save the captured people from being sold off in slavery. Unfortunately, he was only able to save some; the rest had already been taken to Kumasi by the “Ashantee,” or had already been sold to slavers destined for the New World.
Christopher Columbus’ ships. Allegedly, this person was so taken by the beauty of Jamaica that he decided to stay. This traditional story is corroborated by historical accounts that Columbus was in fact shipwrecked on the island of Jamaica in 1503 (some nine years after Columbus’ initial visit to the island in 1494), and purportedly was made to wait eight months before receiving any provisions or a new ship from Spain, during which time some of his crew apparently mutinied (Webster 1823, Abbott 1904).

By 1509, Jamaica was occupied by Spanish settlers (Robinson 1969). According to Robinson (1969), Spain used her colony in Jamaica primarily as a source of supplies for larger colonies, such as Cuba. Robinson (1969) and Collard (1971) describe Spanish occupation in the West Indies as one of rape, pillage, and tyranny. The indigenous Greater Antillean Islanders (whose true name is elusive, but have been called Taíno by European historians) are portrayed as victims that were brutalized, murdered, enslaved by the Spanish (Collard1971). Both Sloane (1707) and Robinson (1969) stated that many indigenous Jamaican people resorted to suicide by poisoning themselves through the ingestion of unprocessed cassava juice. However, reports that Amerindians in Jamaica were completely eradicated (e.g., Dallas 1803) are refuted by both archeological evidence (Agorsah 1994) and Jamaican oral tradition (e.g., see Wright 1994). Untold numbers of indigenous people fled to the mountainous regions of Jamaica, and together with people of African ancestry, built free societies, protected from European oppressors by the natural landscape as well as their own traditional knowledge, ingenuity, and skill. Several similarities between West African and indigenous West Indian ethnic groups have been documented in the literature, including a deep reverence for the ancestors (with whom the living still communicate through ceremony), as well as overlaps in agriculture and hunting practices (Keegan and Carlson 2008, Manouian 1950).

In response to decreasing numbers of native people to exploit for labor, the Spanish brought more Africans to Jamaica. How many Africans, and where they came from, is not clear due to discrepancies between oral and written histories, and this is likely a reflection of the diversity of African ethnic groups brought to the West Indies. For example, according to former Maroon Colonel C. L. G. Harris (1994), the ancestors of Jamaican Maroons came to the island during the Spanish occupation and were mostly “Ashanti.” Ivelyn Harris (see also Harris 2004) also stated that the Maroons of Jamaica
were brought to the island by the Spaniards c.1575-1595, and confirmed that they were of Akan origin - from the Fante region of West Africa’s Gold Coast - specifically, Kormantse,\(^{37}\) Ghana. Both of these histories differ from Campbell (1998), who claims that the Spanish transported not Akan from the Gold Coast, but Angolans (Bantu culture) from West Central Africa in 1589 to harvest timber and raise cattle, goat, and swine. According to the Trans-Atlantic Slave Trade Database, accessed February 2011, the earliest documented boatload of enslaved people brought to Jamaica was in 1607 with a total of 97 souls from West Central Africa and St. Helena Island. There were no other documented\(^{38}\) slave ship voyages to Jamaica during the Spanish occupation. The first acknowledged slave trade voyage between the Gold Coast and Jamaica did not occur until 1674 - nearly 20 years after the British had occupied the island.

According to Higman (1976), approximately 50\% of people brought to Jamaica as slaves in 17\(^{th}\) century were taken from Akan and Ga-Adangme ethnic groups located in the Gold Coast region. However, Higman’s numbers do not match the Trans-Atlantic Slave Trade Database estimates for ports of embarkment during this time period when an estimated 9\% of slaves were purchased from Gold Coast in 17\(^{th}\) century.\(^{39}\) Acknowledging this quantitative evidence, Kouwenberg (2008, 2009) posits that the

\(^{37}\) A traditional Jamaican Maroon song recorded by Bilby (2005:73) recognizes Anabo as a place of ancestral origin. Anabo is possibly a reference to the Fante town of Anomabo, located only a few miles west of Kormantse:

\textit{Where him (Nanny) come from? Anabo...Africa. Anabo him come from, Africa – a part in Africa, on de west! (sings):}
\begin{itemize}
  \item \textit{Me bin a Anabo}
  \item \textit{Me come pon Toni Riba-ee}\(^{\dagger}\)
  \item \textit{Me bring gyal, me bring bwai}
  \item \textit{A me come from Hanobo-ee}\(^{*}\)
\end{itemize}

\(^{\dagger}\) Toni Riba is a Jamaican place name, correlating to Toney (also Stony) River, located deep in the Rio Grande Valley, Jamaica.

\(^{*}\)Kelly and Dickinson (1985) list a plant in the Blue and John Crow Mountains called \textit{hanabo} (\textit{Omphalea triandra} L.).

\(^{38}\) Just because slave ship voyages were not documented does not mean that they did not occur. Furthermore, the period of 1660-1671 was the height of privateering activities in Jamaica, particularly at Port Royal (Hamilton 1984), suggesting that numerous undocumented ships travelled from Africa to Jamaica during the 17\(^{th}\) century, some of which may have been carrying people from Gold Coast regions of West Africa.

\(^{39}\) This discrepancy may be due to missing data such as incomplete, inaccurate, or ambiguous ship manifest entries pertaining to origin of slaves; also, as stated above, undocumented sale of slaves may have occurred frequently during 17\(^{th}\) century Jamaica, due to the intense privateering activities occurring in the region at that time.
major influences of Akan culture in Jamaica\textsuperscript{40} occurred not in the “early formative era” as some suggest (\textit{e.g.}, Kopytoff 1978), but later during the so-called “post-formative” 18\textsuperscript{th} century, when the percentage of people destined for Jamaica who originated from the Gold Coast was at least 32\% (Trans-Atlantic slave trade database, accessed February 2011). In fact, the only sustained dip in demand for slaves from the Gold Coast to Jamaica during the 18\textsuperscript{th} century occurred between 1733 to 1747, with an average of 1,498 people purchased from the region each year, compared to an average of \textasciitilde 4,000 people purchased annually during the previous and following 15 year periods. According to Harris (2004), this mid-18\textsuperscript{th} century decrease in Gold Coast persons commerce followed the first major Maroon War from 1728-1732, and continues after the peace treaty signing in 1741 between the Maroon and British colonial governments in Moore Town, Jamaica.

Although estimates and historical accounts vary, The Trans-Atlantic Slave Trade Database figures (accessed February 2011) show that from 1607 to 1840 approximately 1,212,351 people were purchased in Africa and taken aboard slave ships across the Middle Passage; a journey during which approximately 192,755 people died. The two largest groups of forced immigrants embarked at the region known as Bight of Biafra\textsuperscript{41} and Gulf of Guinea Islands (\textasciitilde 29\%), and the Gold Coast (\textasciitilde 29\%). Together, these two historic regions sourced approximately 58\% of the total number of people taken from Africa on ships headed for Jamaica. This broad area is situated within one of the most ethnically diverse regions in the world, encompassing approximately 22\% of all the languages in the world (Ocrisse-Aka 2006). This diversity and the potential impact from non-Akan groups on Maroon culture cannot be denied, and should be explored further; however, evidence from Jamaican Maroon language and oral traditions (\textit{e.g.}, see Harris 1994, 2004) suggest that Akan had a major influential impact on the development of Jamaican Maroon societal development.

\textsuperscript{40}When Akan influence was most prevalent in greater Jamaica is rather irrelevant to Maroon society development; oral tradition states that it was a core group of Akan people who formed the nucleus of Maroon society in Jamaica.

\textsuperscript{41}The Bight of Biafra region includes the bay stretching across the coastline of modern-day Nigeria, Cameroon, Equatorial Guinea, and Gabon.
An African majority in Jamaica: out of many, one people

“I don’t care where you come from, as long as you’re a black man, you’re an African”
- Peter Tosh, Jamaican songwriter (1944-1987)

Today, the general population of Jamaica represents a varied cultural heritage. For example, people identify with several ethnic groups including African (e.g., Asante, Bantu, Fante, Igbo, Mende, Yoruba), European (e.g., English, Irish, Scottish, German), Asian (Chinese, Indian), and Mediterranean (Jewish, Syrian) (see Payne-Jackson & Alleyne 2004, Riley 2005). As early as 1611 however, the various African groups and their descendants were the adult majority. A census\textsuperscript{42} taken during that year showed that of 1,510 total persons living in Jamaica there were 523 Spaniards, 173 “children,” 107 “free Negroes,” 74 native Arawak, 558 slaves, and 75 “foreigners” (Robinson 1969). Subsequently, the African majority increased to 75\% of the population by 1690 and 92\% by 1746 (Rickford 2000).

Increased demands for manual labor, and certain colonial practices, were causal factors for the African population majority that expanded over time in Jamaica. When Spain relinquished the island in defeat to Britain in 1655 and retreated to Cuba, many people who were once forced to work for the Spanish fled to freedom in the mountainous Jamaican interior (Dallas 1803). Then, under British rule, the primary export commodities changed from timber and meat to agricultural cash crops such as sugar cane (\textit{Saccharum officinarum} L.), spices (e.g., \textit{Pimenta dioica} (L.) Merr., \textit{Myristica fragrans} Houtt., \textit{Bixa orellana} L., etc.), and rum (utilizing the local sugar cane production). The switch to large-scale mono-crop farming necessitated great numbers of laborers, which led to a large increase in the African slave trade. According to the Trans-Atlantic Slave Trade Database, from 1659 to 1840 British entrepreneur colonists forced approximately 1,019,499 people to come to Jamaica from Africa (of which at least 301,577 were from

\textsuperscript{42}This tally would not have included the African and Arawak Maroons living in the mountains, indicating the African majority was even higher.
the Gold Coast). According to Genovese (1988), plantation owners often did not reside in the West Indies; rather they preferred to live in Europe, leaving management duties to an overseer, a manager, and a designated group of people they trusted and held as slaves. Case in point is Jamaica, where as much as 75% of the land and enslaved people were owned by persons who lived in Britain.

Plantation owner absenteeism likely contributed to a more independent lifestyle for some enslaved people. For example, Asprey and Thornton (1953) state that enslaved persons in 17th century Jamaica were given land to cultivate. The plots were often in peripheral terrain unsuitable for large scale planting. Watts (1984) and Payne-Jackson & Alleyne (2004) point out that enslaved people with access to land were probably expected to be rather self-sufficient by growing their own food (and medicine), and likely had opportunities to explore and experiment with local as well as consciously and accidentally introduced flora.

A population majority of Africans and their descendants may have reduced, even minimized the overall impact of British culture in Jamaica, allowing various African ethnic groups to have a marked influence on the transformation and development of a range of traditional practices such as agriculture, language, medicine, and music (Payne-Jackson & Alleyne 2004, Rath 1993). According to Rath (1993), planters separated themselves from the cultural life of enslaved people, a situation that allowed processes of ethnogenesis and creolization [as well as medicinal practices] to develop relatively independently. This led to the emergence of self-determined African regional identities in the Americas that distinguished themselves with traditions such as ethnic song, melody, and dance. Music in the African Diaspora was redesigned to address the needs of people living under the oppressive constraints of slave-society; performed using accessible instruments and materials, and practiced for purposes other than just entertainment. For

43Contrarily, enslaved persons on smaller islands such as Barbados were given weekly allotments of food (including meat, flour, sugar, and rum) and theoretically had less time away from the plantation; this lifestyle fostered dependence of the enslaved on slave “owners” for basic needs (Payne-Jackson and Alleyne 2004).

44Several species of food crops were introduced to Jamaica specifically to improve nutritional options for slaves. Some species are native to Africa (e.g., *Blighia sapida* Koenig), and some are native to the Pacific Islands (e.g., *Artocarpus altilis* (Parkinson) Fosberg). Novel uses associated with plants brought from Tahiti on Captain Bligh’s infamous voyage indicate innovation in Jamaican Maroon ethnopharmacopoeia with flora from exotic regions unknown in Africa (at least on a large scale) at that time.
example, rhythms and tones produced from various implements such as drums, fiddles, and cow horns were (and still are) used to communicate secretly over long distances, plan revolts, organize meetings, and ultimately to increase liberty and life.

**Walking with Yonkonkon**

"*Remember, a no one tribe of Maroon, you know... But all of dem correspond to one. Every bit correspond to one.***"

Charles Bernard, December 18, 1982 (Bilby 2005: 83)

In Charles Town and Scots Hall, Schafer (1974) observed a prominence of Akan elements in Jamaican Maroon customs; including language, religion, music, dance, and medicine. According to Obasare (2006), common spiritual beliefs and practices in Jamaican Maroon, Surinam Maroon, and Ghanaian Fante Akan groups (e.g., the recognition of all societal members including the deceased, the living, and the unborn) demonstrate the common connection between these three groups, and provide evidence for the Akan influence on Jamaican Maroon tradition.

During my interviews in windward Jamaica Maroon villages, people mentioned Ghana as one of the places where first-time Maroons came from. Many non-English words were expressed to me during formal interviews and conversations with Maroon research participants, including Yonkonkon, abroni, esah, and nanka, translating to Maroon, white person, rum, and snake, respectively. All four words are Akan Twi in origin. Yonkonkon could be a cognate of the Twi oyònko, which means “friend” (Christaller 1875). The word abroni is a cognate of Obûrôni, which means “European” (Christaller 1875), esah is a cognate of the Twi nsa meaning alcohol, liquor, or ale (Kotey 1998), and the word nanka is a cognate of the Fanti-Twi Onanka, the name for a python in Ghana (Field 1937).

One research participant told me that there is more than one “tribe” of Maroons. During another interview, respected community elder and spiritual healer Isaac Bernard

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45 One research participant said, “Different tribes were here, so they started to talk in their original language from Ghana, or Congo.”
explained to me that there are four “tribes” in the Rio Grande Valley, each associated with Maroon family names (names mentioned include Bernard, Gray, and Harris) and various West African ethnic groups; Chankofi (associated with Bernard), Dokose (from Ghana; associated with Harris), Timbambu, and Wendandu. Others in the community made additional distinctions, naming Mandingo, Ashanti, and “Kromanti – the drummers.”

Akan naming patterns of Jamaican Maroon originators (first-time leaders) suggest influence from Akan heritage. For example, the apppellate Nana is applied to high ranking figures such as chiefs in Akan tradition (see also Zips 1998). One of the most well-known and respected figures in Jamaican Maroon history is the honorable Nanny, who is described by Harris (2009) as a “chieftaness.” Also, according to Isaac Bernard, Grande Nanny’s family and colleagues had Akan names; for example, her sisters were Ma Ashanti (sp.) and Mesaboquashee (sp.), her brothers Cudjo and Oppong (sp.), as well as Quaco (one of her soldiers), and the Charles Town leader Quao.

According to Ivelyn Harris, the original Maroons played drums and other instruments as a form of entertainment and ceremony; there are different things the drums are played for...and similar types of drums are played in Kormantse, Ghana. Another Jamaican Maroon research participant, David Gray explained it to me, “Drums is a music...a martial law music. Drum and rum keep you high. True the work tough, [you] jump and dance and you nuh feel no way.” Jamaican Maroon herbalist and roots man Lloyd Harris said, “Kramanti is spiritual medicine...like church; a Maroon thing. When

46 Acknowledgement of this diversity is important. There are nine distinct Maroon villages in the Rio Grande Valley; therefore, interviews must be sampled from all areas in order to get the full story. For this dissertation, I talked with only 38 people in three Maroon villages, and so it must be emphasized that I only sampled a portion of the knowledge, and a piece of the history – there is certainly much more to be told, more roads to follow, and longer journeys to be taken.
48 The apppellate “Mandingo” was also cited as the name for a medicinal plant during an interview with one “scientist” Jamaican Maroon herbalist, and was identified to be *Nepsera aquatica* (Aubl.) Naud., a small herb in the Melastomataceae family native to the West Indies, Central and South America (Adams 1972).
49 Key collaborator and Jamaican Maroon herbalist and roots man, Lloyd Harris also stated that Kromanti is “a Maroon tribe.”
50 Kojo is a Fante name for males born on Monday (Agyekum 2006). According to Ivelyn Harris, Jamaican Maroon herbalist, Cudjoe signed the treaty with the British.
51 Oppong is a common name in Ghana, and Akyampon is a traditional Akan name (Agyekum 2006) also correlating to the leeward Jamaica Maroon village, Accompong.
52 Kweku or Kwaku is a Fanti Twi name for males born on Wednesday (Agyekum 2006).
enemy come up on them they play Kramanti drum – a spiritual drumming to ward evil spell away; [it] can do good and bad…like a knife.”

**Grande Nanny, leader of the peaceful warriors**

“*Maroon people are defenders of our own freedom, not murderers…we were kings and queens, princes and princesses – not sorcerers.*”

–Ivelyn Harris 2010

Oral histories are an important component in ethnobotanical research, and can provide empirical evidence to establish cultural links between groups separated over time and space by indicating influential people, places, and things. Furthermore, and perhaps most importantly, oral traditions provide indigenous perspectives of events which are often disregarded in externally written versions (Bilby 1984). In the following section, I will briefly introduce one of the most respected leaders in Jamaican Maroon history, Grande Nanny, a woman of Akan heritage who used her knowledge of the landscape, combined with the traditions of her ancestors, to gain power and political control of land during 18th century Jamaica.

Jamaican Maroon oral tradition describes Grande Nanny as a woman of strength and integrity. Revered as “mystical” with awesome abilities, Nanny was most certainly a flesh and blood human being. Born in the eastern mountains of Jamaica, Nanny had children, and her lineage is traceable to both her ancestors and her descendants that live today. Nanny was a Jamaican princess - a defender of life and liberty. According to Colonel Sterling, Grande Nanny was leader of both Moore Town and Charles Town. As one research participant phrased it, “*Grande Nanny a di head for all a di Maroon.*”

I was told by one elder that Grande Nanny’s name decrees her native land - the Rio Grande Valley Jamaica - where her legacy lives on in the places associated with her life. According to Ivelyn Harris, some people think she came out of the Rio Grande River itself. Nanny has many areas, some sacred and some strategic. For example, Nanny Town, Dinnertime Peak, Pumpkin Hill, Nanny Falls, Portland River, and Toney

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53 Like this element of Jamaican Maroon culture, Akan tradition also recognizes the creative power of rivers and associates them with the birthplace of mystical beings (see Lystad 1968).
River, are revered places. The importance of rivers is a trait common to both Jamaican Maroon and Ghanaian Akan culture. For example, in western Ghana, there is a river called Tano (Boateng 1966). According to Lystad (1968), the Tano River is significant in Ashanti culture, and often associated with deities. The first creation of the supreme Akan god Nyame was the fertility goddess Asase Yaa, through whom all life on earth that humans need to survive was born, (e.g., rocks, mountains, springs, rivers, plants, and animals). Asase Yaa created the Tano River, from which other gods have manifest themselves.

According to one research participant, Grande Nanny is from Toney River; Cudjoe\(^{54}\) and Oppong were her brothers, and Quaco\(^{55}\) was one of her soldiers. There are tactical places in the Blue Mountain region that tell the story of how Nanny won battles, such as Watch Hill, the place where she tracked the movements of Spanish and English troops. Grande Nanny is particularly associated with Moore Town. According to Ivelyn Harris, Moore Town refers to Nanny’s negotiations with the British for “more town area” when she filed for a land grant in 1731. Nanny provided more than just land and security for her people, she also provided sustenance through her skill with growing food, such as pumpkin (\textit{Cucurbita pepo} L.).

According to one Jamaican Maroon research participant, “Most of the Maroon settlement people come from Ghana.” One account of Grande Nanny’s lineage was told to me by Ivelyn Harris of Cornwall Barracks, one of Nanny’s direct descendants. She expressed that the oral history she knows about Grande Nanny and Prince NaQuan is tradition that has been passed down in her family; and, she added, she is not familiar with the other Maroon tribe heritage(s).

According to Ivelyn Harris, Grande Nanny’s mother’s name was Quasheba, and her father was Prince NaQuan from Kormantse, Ghana. In the early to mid seventeenth century, Prince NaQuan and his people boarded a ship destined for Jamaica. Spanish merchants came to Kormantse and told Prince NaQuan that they had copper in their country of Jamaica, claiming that it is so abundant there that it is “growing on trees like bark.” They told Prince NaQuan that they would trade this copper for gold mined from

\(^{54}\) For a more in-depth discussion of Cudjoe see McFarlane (1977).
\(^{55}\) This proper name is also associated with the salient medicinal vine, \textit{Mikania micrantha} Kunth; and, according to Bilby (2005), Quaco (also Kwaku) symbolizes resistance in Jamaican Maroon society.
the Kingdom of Kormantse. Copper was a highly valued metal in Fante culture for construction of armbands and anklets, so naturally Prince NaQuan was interested in this proposition. Prince NaQuan was asked to gather a number of strong men and a quantity of gold. Approximately 165 to 185 Kormanteen people boarded the Spaniard’s ship that day, under the pretext that they were going on a journey to trade gold for copper. When they finally came to Jamaica after many months on the sea, as many as 80 people had died along the way. Prince NaQuan and other survivors were very hungry; to their great dismay, however, they soon discovered that they had been betrayed - not only was there no copper in Jamaica, the Spaniards wanted to enslave them.

The Kormanteens were a people of principle; it was part of their culture to be truthful and not to put up with being lied to by other people. So they were especially devastated when they realized the extent of the Spaniard’s deception. Prince NaQuan and his people were tortured by the Spaniards and forced to remain on the plantation. This is when Prince NaQuan started to communicate with the people on the plantation who had been previously enslaved. Prince NaQuan and his people, together with some slaves from the plantation, fled to the Blue and John Crow Mountain region of Portland, Jamaica and built the first free Maroon community - now known as the Windward Maroons of Jamaica. Prince NaQuan was their first leader.

Oral tradition deems that by the time the British seized colonial control of Jamaica from Spaniards in 1655, Prince NaQuan had four children, all born in Moore Town. Their names were Cudjo (the eldest), Accompong, Johnny, and Nanny - the second eldest. Nanny was born and grown in the seclusion of the Rio Grande Valley. Raised in the tradition of her Kormanteen heritage, she was as a princess, and groomed in such a manner. With Grande Nanny’s leadership and valor, the Jamaican Maroon population grew to about 5,000 by the year 1720, and had spread across the island in several villages including Moore Town, Nanny Town, Scots Hall, and Charles Town, as well as leeward Accompong Town.

Summary and ethnobotanic influences

Jamaican Maroons recognize West African origins and perpetuate specific West African ethnic traditions, including ones associated with Akan regions of Ghana, while
maintaining an autochthonous identity and an intimate knowledge of indigenous Amerindian traditions - a distinctiveness that strengthens their solidarity and sovereign status as a nation within a nation. In this chapter Akan language and history congruencies in Jamaican Maroon tradition were emphasized; Chapter 4 identifies specific ethnomedicinal parallels. Jamaican Maroon associations with indigenous Jamaican Islander tradition presented in this chapter include self-identified autochthony as well as sacred connections to natural places in the Rio Grande Valley landscape; overlaps in Arawak and Jamaican Maroon medicinal and food plant selection and use will be outlined in Chapter 5.

While specific ethnicities vary, and multiple Maroon tribes acknowledged, Jamaican Maroons clearly identify ancestral connections to Akan groups of Ghana. The matriarch of all Jamaican Maroon people, Grande Nanny, is of Akan decent, and she personifies Maroons’ lineage as one with both indigenous and West African roots. Hailing from the heart of the Blue Mountain region of Jamaica and raised by a father who was a West African-born member of aristocracy, Grande Nanny was groomed in Akan tradition. Using personal knowledge of her native island landscape, combined with the West African arts taught to her by her elders, she successfully guided an entire population of people to sovereignty through skillful acts of defense and leadership.

Early plant introductions from Europe, America, and Asia into West Africa allowed for an expansion of ethnobotanical knowledge acquisition in an African cultural landscape. During the 400 year extent of the trans-Atlantic slave trade, large numbers of West African ethnic groups were transported to the West Indies, resulting in transference of Old World ethnobotanical knowledge and plant species to the New World. Intense external pressures during the early formative years of Jamaican Maroon community establishment continued throughout the eighteenth century, including almost constant warfare and the threat of slavery or genocide. Also, intimate interactions between Africans and indigenous peoples had a lasting influence on Maroon plant species selection and use. In the following chapters of this dissertation, I will present botanical evidence exemplifying the relatively homogenous ethnoflora of coastal African Atlantic areas and the perpetuation of African and Arawak ethnobotanical knowledge in
windward Jamaica Maroon society through empirical evidence in the form of Jamaican Maroon, West African Akan, and Amerindian plant use.
Literature cited


Aptheker, H. 1939. Maroons within the present limits of the United States. *Journal of Negro History* 24:167-84


Berry, V. 2005. Exploring potential contributions of Amerindians to West Indian folk medicine. *Southeastern Geographer*


Dallas, R. C. 1803. *The History of the Maroons, from their Origin to the Establishment of their Chief Tribe at Sierra Leone: including the Expedition to Cuba, for the Purpose of Procuring Spanish Chasseurs; and the State of the Island of Jamaica for the Last Ten Years: with a Succinct History of the Island Previous to that Period, Volumes I & II*. T. N. Longman and O. Rees, Paternoster-Row, London, UK.


Gottlieb, K. 2000. *A History of Queen Nanny Leader of the Windward Jamaican
Maroons the Mother of Us All. Africa World Press, Inc., Trenton, NJ.

Halberstein, R. A. Medicinal Plants: Historical and Cross-Cultural Usage Patterns. 


Hoffman, B. 2007. *Comparative Ethnobotanical Knowledge of an Amerindian and Maroon community in Suriname, South America.* Oral presentation at the annual Society for Economic Botany meeting, Chicago, IL.


Rush, B. 1809. *The Works of Thomas Sydenham, M. D. on Acute and Chronic Disease; with their Histories and Modes of Cure. With Notes, Intended to Accommodate them to the Present State of Medicine, and to the Climate and Diseases of the United States*. Benjamin & Thomas Kite, Philadelphia, PA.


Sloane, H. 1725. *A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. II. British Museum Press, London, UK.

Sloane, H. 1707. *A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. I. British Museum Press, London, UK.


The Trans-Atlantic Slave Trade Database. Voyages Database. 2009.  

The Trans-Atlantic Slave Trade Database. Estimates. 2009. 


Webster, N., Esq. 1823. Letters to a Young Gentleman Commencing his Education: to which is subjoined a Brief History of the United States. S. Converse, New Haven, CN.


Chapter 3
Ethnomedicinal concepts, ethnotaxonomy, most salient medicinal plants, and most frequently mentioned indications for botanical remedies among Jamaican Maroon research participants in the parish of Portland, Jamaica

“Number Eleven went and plucked medicine, rolled it between his palms, and sprinkled it on his brothers, and they rose up.”

- Excerpt from, “How Abosom, the lesser gods, came into the world” (Rattray 1930:197)

Abstract
I conducted ethnographic interviews with Jamaican Maroon research participants focused on the traditional treatment of illness with plant-based remedies. My main research question explored in this paper asks if botanical species Jamaican Maroons commonly recognize as medicinal are also documented as part of the tropical West African ethnopharmacopoeia. Additionally, I explore common ethnomedicinal concepts and indications for medicinal plants in Jamaican Maroon, West African, and other traditions. To provide context and a basis for qualitative comparisons in subsequent chapters, I discuss Jamaican Maroon ethnotaxonomy and how it compares with classification of medicinal plants in Ghanaian Akan tradition. Results suggest that the most salient plant in the Jamaican Maroon communities I worked in is *Gliricidia sepium* (Fabaceae), and at least eight of the top 15 most salient plants (53%) are also present in West African ethnopharmacopoeia. Also, culturally constructed definitions and descriptions of frequently mentioned Jamaican Maroon ethnomedicinal indications, as well as ethnotaxonomic structure appear similar to analogous terms and systems in Ghanaian Akan ethnomedicine.
Introduction and background

Descriptive presentations of botanical remedy use and efficacy, such as the one here from my research with Jamaican Maroon research participants, provide the context within which ethnomedicine is situated - a necessary precursor to cross-cultural comparisons. Ethnomedicine and healing processes are complex, multidimensional, and often focused on procedure (Etkin 1988); therefore, ethnomedicinal studies need to be multidisciplinary in order to encompass the breadth of knowledge within the cultural domain of medicinal plants (Etkin 2001). Free-listing exercises are a good place to start for the identification of commonly used species and the ailments they are used to treat in a community (Borgatti 1996, 1999).

Understanding what species people are most familiar with, and perhaps using most often, is important for designing studies of an ethnotaxonomic and/or ethnoecological nature. Furthermore, identifying medicinal plant species salience within a community can guide interview questions and increase the amount of analytical tools the researcher can use in future studies, as well as help design and implement community initiated health-care projects in support of traditional medical practices. Traditional medicine often serves as a primary source of health care for residents in rural areas. In Rio Grande Valley Jamaica for example, the closest conventional clinic is approximately nine miles north in the town of Fellowship - about a 35 minute drive in a motorized vehicle.

In my research, the most frequently mentioned and most salient items from free list interviews were identified to obtain a cultural consensus of species and terminology within the cognitive domain of Jamaican Maroon “bush medicine” (see also Quinlan 2005). A workable group of “most salient” species was demarcated visually by plotting free-list items on a scree plot. The primary hypothesis explored in this chapter is, “the most salient species in Jamaican Maroon society are also documented as part of the tropical West African ethnopharmacopoeia.”

Understandings of wellness and treatment efficacy vary within and across ethnic groups (Etkin 1988, Kleinman 1978), making comparative ethnomedicinal study difficult. Furthermore, categorization of emic disease and treatment terms into broad categories is problematic because some illness concepts may be wholly culturally constructed and
therefore not easily explained using biomedical characterizations. According to Kleinman (1978), in order to make ethnomedicinal studies comparable, descriptions of folk terminology that are relatable to biomedicine, as well as to other healing traditions, must be included in the research presentation. In this chapter, I discuss information gathered through structured and semi-structured interviews with 38 research participants (including nine medicinal plant experts), as well as interpretations from participant observation, in order to describe and define ailment and indication terms used within the cognitive domain of Jamaican Maroon ethnomedicine. Association of emic disease terms with ethnographically derived descriptions of etiology, biological symptoms and systems, and treatment procedures can improve understandings of ethnomedicinal contexts, and therefore facilitate cross-cultural comparisons (Berlin & Berlin 2005, Etkin 1988, Browner et al. 2007).

Studies of classification systems in various cultures around the world have revealed certain “universals” (Berlin 1992). For example, people tend to classify the natural world into groups according to shared characteristics. According to Berlin (1992), these universal groupings are based on the similarity of the taxa to one another, and are independent of their actual use in society. However, Hunn and French (1984) argue that hierarchical classification systems based on shared biological characteristics may not be the primary way people tend group their natural world. Instead, how organisms are used within a society may play a prominent role in folk ethnotaxonomy. For example, according to Halberstein (2005), many healers in various cultures organize traditional medicine according to its potential biological effect on the body. Likewise, the Jamaican Maroon research participants I worked with tended to classify medicinal plants according to their use and preparation in remedies prescribed to improve health, heal physical ailments, or prevent disease.

Methods

After informed consent was provided by each participant, sixty-three independent structured and semi-structured interviews were conducted with 38

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56 This number includes only interviews conducted in 2010 and does not count the considerable number of participant observation events that occurred over the approximate ten year extent of the entire study.
57 Over course of entire study, 40 research participants were interviewed.
windward Jamaica Maroons in three separate Maroon territorial villages, Cornwall Barracks, Moore Town, and Comfort Castle, as well as in the neighboring towns of Pleasant Hill and Port Antonio where two expert Maroon healers now live. Average age of participants interviewed in Jamaica was 54 (Table 3.1). Participant selection was purposive and included recommendations from key collaborators, snowball, and convenience sampling (Bernard 2006). The interviews were semi-structured and included free-listing exercises (Quinlan 2005), card sorting exercises, as well as some predetermined questions in order to keep the interview topic focused (see Chapter 1 for more detailed description of methods). During free-listing exercises, I asked each participant to please name plants that are used for medicine. I did not place any time constraints or restrictions on how many plants could be named. When the participant had stopped naming plants I politely asked if there were any other plants they could think of. After free-listing plants, I asked participants to show me the species they mentioned. If I had not previously collected the plant I took a sample at that time. Plant samples were pressed in a plant press and dried in the field using a solar drier available in Cornwall Barracks. After many specimens were dried I boxed them up and carried them to Kingston to verify the botanical identification of each species at the Institute of Jamaica herbarium. I worked with Keron Campbell, head botanist at the institute, and Ivelyn Harris, Maroon herbalist. Together we looked at each dried plant, and used previously identified vouchers at the herbarium for comparison, as well as dichotomous keys published in the Jamaica flora (Adams 1972) in order to identify each specimen. By working with both a local botanist and a Jamaican Maroon herbalist during the identification process, synonymous vernacular names, and accurate identification of each species was accomplished efficiently.

The frequency and “Smith’s Salience” for plant species mentioned in free-list exercises, and frequency of disease terms mentioned during interviews, were calculated using ANTHROPACK 4.0 statistical software (Borgatti 1996). A scree plot was

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58 Some free-list exercises could not be considered independent due to participation from more than one person; others were not included in the salience calculation because participants showed me plants as they listed them, rather than compiling a list from memory first; therefore, only 32 free-list exercises were used in salience calculations.

59 The steep part of the line, before it begins to level out, represents species which can be considered part of a cultural domain.
generated to visually demarcate the cognitive domain of plants used as medicine (Borgatti 1996, 1999). Indications for botanical remedies mentioned during interviews were clarified with open-ended and direct questions. Specifically, research participants were asked to describe and/or define the terms cited. Synonymous terms and definitions were further explained through follow-up interviews, participant observation, and written exercises with expert Maroon healers.

I will provide a few brief narratives to describe my role as participant observer in Jamaican communities. My time in Jamaica as a Peace Corps volunteer from 1999-2001 helped to establish my presence as a participating part of the community. I worked at a local non-profit office and traveled across the parish to support the efforts of science teachers in primary and secondary schools. This position allowed me to become familiar with communities throughout the north-east region, from the seaside to remote areas in the mountains. I frequently attended public meetings, organized and presented at community events, and basically became a visible and active member of society. Furthermore, walking to and from work almost every day, interacting with all types of people - from taxi drivers to shop owners to higglers on the street - as well as other, perhaps mundane, activities that just happen in everyday life such as waiting for and getting “squeezed up” in public transport, running to the nearest tree or porch during rainstorms to avoid getting “wet up,” trying to make my last dollar stretch at the Saturday market, and preparing food and drinks with friends and neighbors, are all things that, over time, helped me to “move,” and be perceived, as a Jamaican. Because of these experiences and times I was able to actively participate in situations that helped me to better understand Jamaican Maroon ethnomedicine and culture. For example, when I was staying with Ivelyn Harris in Cornwall Barracks, I was often given tasks to do, as part of the household chores, such as fetch things at the market or shop, do the washing, and prepare tea and breakfast in the morning. These simple activities gave me first hand experience with daily life in Maroon communities, including working with the common plants and practicing different ways of making medicine - knowledge that I could have never gained as a non-active observer. Also, as a member of the Jamaican community, I was advised and treated by people with various botanical remedies during times of sickness. For example, I remember my first experience with Stachytarpheta was when I
got dengue fever in 1999. I was very sick and started to lose a lot of weight. Someone in
the community showed me “vervine,” a humble looking herb growing on the side of the
road with a pretty spike inflorescence. I was told that I must pick it and “boil tea.” After
doing this, I soon recovered; and because of my personal experience with the plant, I now
know the effectiveness and outcome of a vervine remedy. Also, there was one time I
traveled way up into the Blue Mountains to visit a very remote camp located on a friend’s
farm. In order to reach the camp we had to hike deep into regions of the Blue Mountains
that many people rarely go. During this journey I got very ill - quite suddenly. It was like
no other sickness I had experienced before. I was treated accordingly; the abrupt onset of
my symptoms called for a rub-down with rum over my face, neck, and shoulder areas.
Straightaway after application of this remedy I felt better…like something that was
causinng me pain just left me. This experience taught me the importance and use of rum
for healing sickness, and when/how this type of treatment is used within a Jamaican
ethnomedicinal context. Another time, during my most recent stay in the Rio Grande
Valley, I was treated for a migraine with a plant that was tied onto my head in a very
particular way. The specific method with which this plant was applied, and the
(immediate) relief I felt from it, could not have been told (or shown) to me; I only know
from participation what it means to be healed in this way.

Nine medicinal plant experts (part of the 38 research participants), two women
and seven men ages ~ 55 to 82, were identified by referral. In other words, these experts
were named by members of the community and recommended as highly knowledgeable
in the realm of medicinal plants and the traditions associated with using medicinal plants
in Jamaican Maroon culture. I interviewed all of these experts, several on multiple
occasions, using open-ended and direct questions in order to better understand medicinal
plant classification within the Jamaican Maroon ethnomedicinal context. These
interviews were also designed to identify the role of specific types of medicinal plants in
disease treatment, the healing process, and botanical treatment types and how they are
applied, as well as diagnostic procedures, and specialty areas in Jamaican Maroon
ethnomedicine. Some experts described themselves to be herbalists, one man is known as
a “roots doctor” and herbalist, one stated he is a “spiritual man,” one is a respected
traditional drummer, and one told me he is a “scientist.” Definitions and descriptions of
some diseases and treatments elicited during free-listing exercises were defined and
described through semi-structured and unstructured interviews, and/or written exercises,
situational probes (e.g., “walk in the woods” interviews (Alexiades and Sheldon 1996, De
Leon and Cohen 2005), and participant observations (Bernard 2006) with these Jamaican
Maroon medicinal plant experts.
Table 3.1. Maroon research participants in Portland, Jamaica

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Residence</th>
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<tbody>
<tr>
<td>Colonel</td>
<td>Moore Town</td>
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<td>craft artisan</td>
<td>Cornwall Barracks</td>
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<tr>
<td>domestic work</td>
<td>Cornwall Barracks</td>
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<tr>
<td>Electrician</td>
<td>Cornwall Barracks</td>
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<tr>
<td>Farmer</td>
<td>Comfort Castle</td>
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<td>Farmer</td>
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<td>Farmer</td>
<td>Cornwall Barracks</td>
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<tr>
<td>Farmer, drummer</td>
<td>Moore Town</td>
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<tr>
<td>farmer, evangelist</td>
<td>Moore Town</td>
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<tr>
<td>Farmer</td>
<td>Comfort Castle</td>
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<td>Forester</td>
<td>Moore Town</td>
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<td>Grandmother</td>
<td>Port Antonio</td>
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<td>Healer</td>
<td>Comfort Castle</td>
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<td>Port Antonio</td>
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<td>Cornwall Barracks</td>
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<tr>
<td>mother of 8 children</td>
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<td>Student</td>
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</tr>
<tr>
<td>Student</td>
<td>Port Antonio</td>
</tr>
<tr>
<td>taxi driver</td>
<td>Moore Town</td>
</tr>
<tr>
<td>Unemployed</td>
<td>Cornwall Barracks</td>
</tr>
<tr>
<td>Unknown</td>
<td>Cornwall Barracks</td>
</tr>
</tbody>
</table>
Results

A total of 102 unique plant names were recorded during free-list exercises, 57 of which were mentioned by only one person. The most frequently mentioned plant in free-list exercises was growstake (*Gliricidia sepium* (Fabaceae)). Other frequently mentioned species include Mary gool (*Sphagneticola trilobata* (Asteraceae), tree of life (*Kalanchoe pinnata* (Crassulaceae)), cerasee (*Momordica balsamina* (Cucurbitaceae), and Joseph coat (*Acalypha amentacea* ssp. wilkesiana (Euphorbiaceae)) (in order of decreasing salience, Table 3.2). At least 53% of the most salient medicinal plants cited by Jamaican Maroon participants are also present in West African ethnopharmacopoeia. A significantly negative correlation ($r = -0.348; p=0.019$) exists between the frequency and average rank of species mentioned by at least two people in free-list exercises (Figure 3.2), indicating that more frequently mentioned items were also mentioned earlier in lists of medicinal plant species (Borgatti 1996, 1999). Additionally, I calculated the frequency of all ailments treated by, or indications for, botanical medicine mentioned during interviews with Jamaican Maroon research participants using information from all interviews conducted in June, 2010. This resulted in a total of 111 unique terms or phrases used to describe botanical remedy indications, 64 of which were mentioned by only one person. The top 20 most frequently mentioned terms are presented in Table 3.2. The disease and treatment terms defined and/or described by research participants are presented in Appendices A and B.

Ethnotaxonomic groupings of medicinal plants, and concepts of health and healing elicited during card-sorting exercises and interviews with Jamaican Maroon participants appear similar to analogous classification systems in Ghanaian Akan ethnomedicine. Jamaican Maroon research participants tended to group plants according to how they are used in remedy preparations. Participants also emphasized the importance of how plants are compounded together, the number of plants used in remedies, and they also identified different plant “genders” and “types.”

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[60] Each unique term or phrase was counted only once per interview, although it may have been mentioned more than once by the research participant during the interview period.
Figure 3.1. Scree plot of most frequently mentioned medicinal plant species
Figure 3.2. Relationship between frequency and average rank of medicinal plant species mentioned during free-list exercises.

$r = -0.348; p = 0.019$
**Table 3.2. Most frequently mentioned medicinal plant species (in order of salience) recorded from free-list exercise with 32 Jamaican Maroon research participants in June, 2010**

<table>
<thead>
<tr>
<th>Common name</th>
<th>Family</th>
<th>Latin binomial</th>
<th>Native range</th>
<th>Coll. no.</th>
<th>Freq.</th>
<th>Avg. rank</th>
<th>Smith's S</th>
<th>Present in West African flora* / c. date introduced**</th>
<th>Present in West African ethnomedicinal pharmacopoeia††?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growstake</td>
<td>Fabaceae</td>
<td><em>Gliricidia sepium</em> (Jacq.) Kunth ex Walp.</td>
<td>Tropical America</td>
<td>SA026, SA370</td>
<td>16</td>
<td>3.563</td>
<td>0.302</td>
<td>yes†† / 1937</td>
<td>no</td>
</tr>
<tr>
<td>Mary Gool</td>
<td>Asteraceae</td>
<td><em>Sphagnetica trilobata</em> (L.C. Rich.) Pruski</td>
<td>Tropical America</td>
<td>SA132, SA385, SA409</td>
<td>12</td>
<td>2.75</td>
<td>0.272</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>Tree of life</td>
<td>Crassulaceae</td>
<td><em>Kalanchoe pinnata</em> (Lam.) Pers.</td>
<td>Africa</td>
<td>SA053, SA128</td>
<td>11</td>
<td>2.909</td>
<td>0.252</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Cerasee</td>
<td>Cucurbitaceae</td>
<td><em>Momordica balsamina</em> L.</td>
<td>Africa, Asia, Australasia</td>
<td>SA102, SA354</td>
<td>7</td>
<td>1.714</td>
<td>0.19</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Joseph coat</td>
<td>Euphorbiaceae</td>
<td><em>Acalypha amentacea</em> ssp. wilkesiana (Muell.-Arg.) Fosberg</td>
<td>Oceania</td>
<td>SA105, SA164, SA301, SA310</td>
<td>9</td>
<td>3.222</td>
<td>0.175</td>
<td>yes / unknown</td>
<td>yes</td>
</tr>
<tr>
<td>Single bible</td>
<td>Asphodeliaceae</td>
<td><em>Aloe vera</em> (L.) Burm. f.</td>
<td>Africa</td>
<td>SA123</td>
<td>6</td>
<td>3.5</td>
<td>0.122</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Susumber</td>
<td>Solanaceae</td>
<td><em>Solanum torvum</em> Sw.</td>
<td>Tropical America</td>
<td>SA460</td>
<td>6</td>
<td>4.833</td>
<td>0.101</td>
<td>yes / unknown</td>
<td>yes</td>
</tr>
</tbody>
</table>

* Based on Jamaican flora (Adams 1972), and USDA, ARS, National Genetic Resources Program (2011) [http://www.ars-grin.gov].
† The average place (i.e. 1st, 2nd, 3rd, etc.) a plant name was mentioned across all free-lists.
‡ A measure that takes into account both frequency and rank (Smith et al. 2008).
** Estimated time of introduction based on earliest collected specimen documented in JSTOR Plant Science [http://plants.jstor.org]; accessed March 2011.
†† Dalziel (1937), Abbiw (1990), and Burkill (1985) were used as references for medicinal plant use in West Africa.
‡‡ Although not cited in the tropical West African flora (Hutchinson and Dalziel 1958), *G. sepium* has been introduced and is now naturalized in West Africa (ICRAF 2011); the earliest documented voucher in West Africa was in 1937 in Ghana, with notes indicating its use as a shade tree for cacao (JSTOR Plant Science 2011).
Table 3.2. Most frequently mentioned medicinal plant species (in order of salience) recorded from free-list exercise with 32 Jamaican Maroon research participants in June, 2010 (CONTINUED)

<table>
<thead>
<tr>
<th>Guaco bush</th>
<th>Asteraceae</th>
<th>Mikania micrantha Kunth</th>
<th>Tropical America</th>
<th>SA050, SA072, SA351, SA382</th>
<th>4</th>
<th>2.75</th>
<th>0.095</th>
<th>no</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man back</td>
<td>Fabaceae</td>
<td>Desmodium incanum var. incanum DC.</td>
<td>Tropical America</td>
<td>SA144, SA363</td>
<td>5</td>
<td>4.6</td>
<td>0.079</td>
<td>yes (D. incanum) / unknown</td>
<td>yes</td>
</tr>
<tr>
<td>Fever grass</td>
<td>Poaceae</td>
<td>Cymbopogon citratus (DC. Ex Nees) Stapf</td>
<td>India</td>
<td>SA112</td>
<td>5</td>
<td>5.4</td>
<td>0.076</td>
<td>yes / unknown</td>
<td>yes</td>
</tr>
<tr>
<td>Puddin wis</td>
<td>Vitaceae</td>
<td>Cissus verticillata (L.) D. H. Nicols &amp; Jarvis</td>
<td>Tropical America</td>
<td>SA375</td>
<td>4</td>
<td>3.5</td>
<td>0.07</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>Banana</td>
<td>Musaceae</td>
<td>Musa sp.</td>
<td>Tropical Asia</td>
<td>SA197</td>
<td>6</td>
<td>9.5</td>
<td>0.058</td>
<td>yes / c. 7th century§§</td>
<td>yes</td>
</tr>
<tr>
<td>Tuna</td>
<td>Cactaceae</td>
<td>Opuntia tuna (L.) Miller</td>
<td>Tropical America</td>
<td>SA173</td>
<td>4</td>
<td>5.5</td>
<td>0.056</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>Chainy Root</td>
<td>Smilacaceae</td>
<td>Smilax balbisiana Kunth</td>
<td>Tropical America</td>
<td>SA151, SA175, SA368, SA420</td>
<td>4</td>
<td>8.5</td>
<td>0.041</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>Chocolate</td>
<td>Malvaceae</td>
<td>Theobroma cacao L.</td>
<td>South America</td>
<td>identified in field (photos only)</td>
<td>4</td>
<td>6.5</td>
<td>0.036</td>
<td>yes / 18th century***</td>
<td>yes</td>
</tr>
</tbody>
</table>

§§ According to Murdock (1959) the Bantu were in Zimbabwe by at least 7th century A.D., enabling the diffusion of south-east Asian plants back into West Africa during this time.

*** Chocolate was introduced as a cash crop to Ghana during the mid-18th century (Opoku et al. 2007)
Table 3.3. Top twenty most frequently cited ethnomedicinal terms for medicinal plant indication (what botanical remedies are used for) in interviews with windward Jamaican Maroon research participants, June 2010

<table>
<thead>
<tr>
<th>Indication</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold</td>
<td>24</td>
</tr>
<tr>
<td>Bellyache</td>
<td>20</td>
</tr>
<tr>
<td>Gas</td>
<td>9</td>
</tr>
<tr>
<td>Cut</td>
<td>9</td>
</tr>
<tr>
<td>Backache</td>
<td>9</td>
</tr>
<tr>
<td>Asthma</td>
<td>8</td>
</tr>
<tr>
<td>Pain</td>
<td>8</td>
</tr>
<tr>
<td>Headache</td>
<td>8</td>
</tr>
<tr>
<td>Tea</td>
<td>8</td>
</tr>
<tr>
<td>Poison</td>
<td>7</td>
</tr>
<tr>
<td>Wash out</td>
<td>7</td>
</tr>
<tr>
<td>Fever</td>
<td>6</td>
</tr>
<tr>
<td>Fresh cold</td>
<td>6</td>
</tr>
<tr>
<td>Strength</td>
<td>5</td>
</tr>
<tr>
<td>Liver spots</td>
<td>5</td>
</tr>
<tr>
<td>Pressure</td>
<td>5</td>
</tr>
<tr>
<td>Sugar</td>
<td>5</td>
</tr>
<tr>
<td>Blood purgative</td>
<td>5</td>
</tr>
<tr>
<td>Sore eye</td>
<td>4</td>
</tr>
<tr>
<td>Tonic</td>
<td>4</td>
</tr>
</tbody>
</table>

Concepts of health, sickness, and healing expressed by Jamaican Maroon participants

The most mentioned indication for botanical remedies was “cold,” with 24 out of 38 Jamaican Maroon participants citing this ethnomedicinal term (Table 3.3; see Appendix B for definitions of terms). Purging “cold” from the system was often described as a necessary first course of treatment during the healing process. One research participant emphasized this by stating, “If you take medicine without getting rid of the cold first, it will not work – you must get rid of cold in the body.” “Cold” was also cited as a causative factor for specific pain and illness. For instance, according to one medicinal plant expert, “bad heart” is caused by cold in the heart.

I asked one research participant how people get sick; his response indicated an understanding of the individual immune response. He replied,
“Some people body can resist many things. Some people go out in a rain and they get fresh cold, or pain. [But] like me…na do me nuttin. But some people delicate. Some people die with teeth, some people lose them. Some strong, some not strong... [there are] all different kinds of sickness.”

Other participants also cited environmental exposure as a way that illness can enter the body. For example, one “roots man” and herbalist said, “If rain wet you when the time is hot, you will get a fresh cold.” Additionally, diet and lifestyle were associated with health and illness, particularly digestive and circulatory system function. According to one Maroon herbalist, “food gives you power, strength; and [so do] fruits and herbs.” Another expert Maroon healer said, “Hurtin' people causes sickness. Sickness comes from the heart, what you do in life...people cause themselves to be sick by the way they eat, the way that they think, the way that they live, and the way that they operate...people may be hurtin' from somethin' that happened to them in life, and that situation can cause sickness; [for example] hypertension.” “Strokes” were also cited as an ailment caused from “lots of stress and not living right.” In addition, “bellyache,” the accumulation of “gas” in the body, and “sweet blood” were described by research participants as ailments caused by improper eating habits. One research participant stated that people can get “gas” if they miss a meal or if they don't eat on time. Another said, “If you eat bad food, you get sick [and need to] take wash out to get rid of gas and cold in the belly.”

“Old” or “stagnant” blood in the body is another cause of disease. For example, after childbirth, or some type of trauma such as a car accident, blood can “become loose and settle in the body,” causing “inside sores,” or “bruising.” This is called “bruise blood.” I was told that “bruise blood” must be removed from the body or it can lead to cancer.

My interviews and observations with healers in Jamaican Maroon communities indicated that the epidemiological landscape may be changing, at least with the

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70 During my field research in June, 2010 I was frequently chided by members of the Jamaican Maroon community, especially the Maroon herbalist I was living with, for missing meals. Due to my limited time and resources, I would rise early, eat quickly, and go out into the villages to conduct interviews and collect plant specimens, often staying out the whole day. My cash supply was reserved for participant compensation, so on several days I skipped lunch. I was told that this was very dangerous, and people expressed true and deep concern for my health if I told them I had not eaten from morning.
recognition of disease-symptom associations. For example, what was formally known primarily by symptoms (e.g., “stoppage of water”), and referred to generally as “man sick,” is now recognized to be a more specific disease, “prostate problems.”

Often, medicinal plant experts specifically indicated that plants needed to be dried before they are used for medicine. According to one Jamaican Maroon healer, “If bush is green (fresh), they are heavy with gas. When you dry it the gas comes out [and] you can keep it long when it dry. Green bush is not the best; dry is better.” Another research participant said, “Every bush has to dry first - draw it in hot water, put it in water, cover it down, get the strength.” The importance of medicinal plant preparation (who prepares it and how) was further emphasized when one Jamaican Maroon herbalist stated, “herbs don’t always work if Maroon doesn’t boil it.”

Observations of Jamaican Maroon ethnomedicinal knowledge structure and transmission

Common ailments (e.g., “cold” and “bellyache”) are often treated at home by the average person (people who are not professional herbalists or healers). Even children in the community are often familiar with “cold bush” and plants used for “bellyache.” For example, when I asked three children (ages 5-7) from Charles Town what was the name of their favorite “bush,” they replied “cerasee” (Momordica balsamina). They were able to identify the plant by pointing it out to me (it happened to be growing nearby); they told me that cerasee is “bitter,” good to drink with milk and sugar, and that it is used to treat “bellyache” and “worms.” Plants used for common ailments are often found in and around the yard, or along the roadside. According to Ivelyn Harris, professional herbalist, “most people use plants in their own backyard; if they can’t find something, they come to me.”

People are more likely to seek the services of a professional herbalist or healer if they need medicine for a less-common ailment (e.g., cancer), or when the remedies they have tried at home do not work, and/or if the cause of sickness is of some unknown or mystic origin. Also, some remedies (e.g., seasonal “tonics”) require a combination of more than one plant. Professional herbalists are familiar with where plants used in multi-species “medicine” and “tonic” preparations are found, and how to harvest, prepare, and apply them. Which species, and (especially) the way plants are combined (matched
together), is a special skill known by only certain people in the community. According to one Jamaican Maroon herbalist, “the most important thing in herbal medicine is the recipe and the application.”

Six of the medicinal plant experts I interviewed described particular ailments that they commonly treat, indicating that they are specialists in one or more areas of health care (see Chapter 1 for biographies of medicinal plant experts and their specialties). Specialists provide a valuable service to Jamaican Maroon residents by treating ailments that cannot be remedied with generalist knowledge. For example, an older woman and medicinal plant expert in Cornwall Barracks said she treats mostly high blood pressure, “short circulation,” and cataracts. This specialization of Jamaican Maroon traditional medicine knowledge supports natural resource conservation measures. Herbalists might have private locations and trails where they continue to harvest plants for their remedies; they have incentive to protect less-common plant species (and medicine-making skills), because they are critical to the effectiveness of their remedies - and their remedies are valuable sources of income.

Traditional knowledge specialization also highlights the importance of community continuity in order to maintain opportunities for knowledge transmission – expert mentoring, where specific knowledge is passed down to the next generation and practiced in a way that honors the ancestors. According to one healer, “people are not herbalists anymore.” This suggests that, although many people may have general knowledge about plants used to treat common ailments, specialist knowledge is held by a select few members of the community. Advanced medicinal plant knowledge, and the skills associated with it, needs to be taught to youth by the experts, “the older heads,” the ones with knowledge from the ancestors.

The process of mentoring and specialized knowledge transmission is not taken lightly by Jamaican Maroon expert healers. Young people must demonstrate maturity, a virtuous nature, and a special interest in learning Maroon traditions; otherwise, medicinal plant and healing skills will not be revealed. This is done primarily for their (the youth’s) protection, and the protection of others - due to the level of power that certain knowledge can wield. In other words, it must be ensured that the knowledge will be used for only good intentions. Persons are not selected arbitrarily for mentoring; they are “chosen” or
“called” to the art of healing by the ancestors, and this calling is evident in their actions and circumstances.

**Categories and types of medicinal plants** and botanical remedies cited in interviews with Jamaican Maroon research participants

Common ways of how plants are related to one another within a Jamaican Maroon ethnomedicinal context emerged during interviews and card sorting exercises with research participants. Several participants expressed that each plant needs to be considered independently (one by one), according to what each is used for. According to Maroon herbalist Ivelyn Harris, “All plants have different characteristics.”

Research participants discussed medicinal plants in terms of how they are combined and used in treatment remedies. Most people named at least two broad categories of medicinal plants, “inside plants” (plants with parts administered internally) and “outside plants” (plants with parts administered externally). Some also identified a related group, a sort of combined category, called “inside and outside plants” (plants that can be applied externally and work internally, or vice-versa). I was told that “bath” needs to be considered as a separate category because of the special types of sickness treated with baths. Plant species can be in more than one category, depending on what it is being used for and how it is applied; therefore indicating a primarily utilitarian way of classification, rather than according to the physical characteristics of taxa. Information from unstructured and semi-structured interviews with all 38 research participants (representing various sectors of the community; see Table 3.1), as well as follow up interviews with key collaborator and expert Maroon herbalist, Ivelyn Harris helped to verify the groupings elicited during card sorting exercises.

**“Inside plants”**

“Inside plants” work inside the body or in the blood to treat “internal sores,” “clean the blood,” and to “cure the system of disease” such as “stomach ulcer,” “gonorrhea,” “stoppage of water,” or “cold.” According to one research participant,

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71 If not listed in Table 1, species authority and voucher collection number are included after each Latin binomial mentioned in the text.
72 One research participant grouped medicinal species first by life form (“big trees” and “small shrubs”), and then by use (“plants for insides” and “in and out plants”).
plants that work inside the body “pull the cold straight through.” Plants in this category include some of the most salient species; for example, *Cissus verticillata*, *Cymbopogon citratus*, and *Acalypha amentacea* ssp. *wilkesiana* (Table 3.2).

Plant-based remedies categorized as “inside plants” are further classified into three main groups: “purgatives,” “medicines,” and “tonics.” A fourth category, “tea bush,” includes remedies taken not to treat illness, but to prevent it. Research participants often described internal healing as a process, and emphasized the order of remedy types given.

“Purgatives”

“Purgatives” are often prescribed first, and their function is to remove the root cause of sickness, such as “cold,” “bruise blood,” or poison. For example, it is deemed necessary to “purge the blood” with “bitters” when it is “sweet.” According to one expert healer, “When people are sick, the first thing you have to do is to clean [or purge] the bloodstream. Once you clean the bloodstream of impurities and toxins, then your body will be pure, or clean.” An example of a species used in “blood purgative” remedies is *Neurolaena lobata* (L.) Cass. (SA078, 364, 428). There are different types of “purgatives,” including “bitters” and “wash out.”

“Bitters”

Bitter tasting plants (“bitters”) are taken to “purge out sweetness from the blood and make it run freely,” to “eliminate cold from the body,” or to “remove harmful bruise blood that has settled in the body cavity” (see Appendices A and B for definitions of terms). “Bitters” are always used to treat “bad belly” and “bellyache.” “Bitters” include species such as *Aloe vera*, *Aristolochia trilobata* L. (SA005, 358), and *Neurolaena lobata*. According to medicinal plant expert Lee Henry, any “bitter” can be used alone.

“Wash out”

A “washout” is a type of “purgative” remedy given to “cleanse the body,” or to “get rid of gas and cold in the belly.” If someone has particular symptoms such as “sweet” and/or “thick blood,” they may be given a “wash out.” “Wash outs” are

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73 The term “bush” is applied as a generic word to all plants in Jamaican vernacular.
traditionally taken seasonally to remove “impurities from the colon,” which are thought to cause disease. Expert herbal healer, Ivelyn Harris, described “wash out” as something that is traditionally taken twice a year, “after Christmas and after summer holidays before you go back to school.” “Wash out” causes a person to go to the toilet (defecate) with increased frequency over a relatively short period of time, and so is often taken in the evening before retiring to bed. When I was given a “wash out” remedy (a single cup of lukewarm tea) I was told not to go very far from the house for at least the following one or two days.

“Medicines”

Plant remedies specified as “medicine” are given to treat a specific illness (e.g., herpes or dengue fever). “Medicines” give you “strength,” “work in the blood (in the vein),” and are always taken internally. Plants classified as “medicine” include “cold bush” species, or plants used to treat “cold.” “Medicines” must not be sweetened (unlike “tea bush” or “tonics,” which are often sweetened). Plants used in this category vary widely and include both “roots and herbs” that may also be selected for “tonic” formulas (see Appendix A for definition of “roots” and “herbs”). According to “roots doctor” and herbalist Lloyd Harris, “Roots and herbs flush out the whole system. Water is good too - working on the whole body, bones, and blood. [You can make] a combination all-purpose tonic, or can make specific medicine.” In reference to the importance of correct timing of medicinal plant part collection, another Jamaican Maroon herbalist said, “When I am going to collect roots [roots and barks] for tonic and medicine, I like to collect them when they are mostly ripe in the fall, and not in the spring. Roots are mostly collected in August to September in the full moon; that is when the bark and roots are ripe and full…some people reap at other times during the spring.” Another research participant described specifically how bark from a certain tree most be harvested “when the moon is full…peel it on the other side where the moon is not shining.”

74 This combination of “roots” and “herbs” (two superlative groupings of medicinal plants based on the habitat they are harvested from, their physical morphology, as well as what they are used for; see Appendix A for definitions). This method compounding these types of plants in medicinal remedies appears similar to how Konadu (2004) described the Bono Akan tradition of combining “forest and savannah” plants in medicinal preparations.
“**Tonics**”

“Tonics” are taken “when you do not feel proper” to “build and strengthen” the body – essentially to restore health by acting on your entire system. “Tonics” “make all dead cells come alive,” “tone up the system,” “stir you up,” “make the body feel fit and alive,” help or “promote the blood to circulate” (move freely through the veins), and “strengthen the bones.” A person may be prescribed a “tonic” if he or she is “listless” or “tired.” “Tonics” are often taken seasonally and many of the species used in “tonics” are gathered from mountain forests (e.g., Smilax spp. (SA151, 175, 368, 420, 186). There are different types of “tonics,” according to the indication (e.g., “roots tonics,” “nerves tonic,” and “tonics” for aphrodisiac effects). According to one Jamaican Maroon herbalist, the greatest demand for “roots tonics” is in the in the fall and winter (October to May).

“**Tea bush**”

“Tea bush” refers to plants used to make herbal beverages. Such drinks are often taken in the morning with breakfast and they are considered to be preventative medicine. As one medicinal plant expert said, “Prevention is better than cure; so can drink bush for prevention.” According to another research participant, “We use the herbs to drink; it's like you make tea in the morning and they are good for medicine too.” Some of the same species selected for “tea” are also selected for medicinal preparations, but many “medicine” species would not be selected for use as “tea” because they are not considered pleasant to drink. Common “tea bush” beverages include parts of Momordica balsamina, Cymbopogon citratus, and Acalypha amentacea ssp. wilkesiana.

“**Outside plants**”

According to one research participant, “outside plants” “show the effect on the outside.” Another expert healer stated, “What you use outside your body don’t work inside – it work outside.” Plants in this category treat ailments affecting the outside of the body, such as “outside sores,” cuts, scratches on the skin, measles, mumps, or goiter. “Outside plants” are applied externally in various ways such as in salves or ointments for “skin problems,” in poultices for measles or “mumps,” or infused in water for washing the affected area (see Appendix A). An example of an “outside plant,” when used to treat
“outside sores,” is *Gliricidia sepium*, the most salient medicinal plant in the windward Jamaica Maroon villages in which I worked.

**“Inside and outside plants”**

Plants considered “inside and outside plants” are species that can work both inside and outside of the body to treat both internal and external ailments. For example, *Musa* sp. (banana) was cited as an inside and outside plant. Banana leaves are tied around the head to treat headache, the green fruit can be scraped and placed onto wounds, and the ripe fruit can be eaten to treat cancer. Also, “bitters” include an entire category of plants that can be applied externally, as well as taken internally, to treat the same ailment in the same way. For example, bitters are taken internally, as well as applied topically, to treat cuts.

**“Bath”**

“Baths” are administered to treat a wide variety of complaints, including as a treatment for rash and measles, sores on the skin, pain, and “cold.” According to one medicinal plant expert, “baths” are also used for certain esoteric purposes such as a “spiritual bath to feel powerful” and “to ward off evil spell.” Plant species cited as ingredients in “baths” include *Crescentia cujete* L. (SA165), *Gliricidia sepium*, *Guazuma ulmifolia* Lam. (SA025), and *Musa* sp. (banana).

“Baths” are prepared in more than one way in Maroon ethnomedicine. Two ways described to me by expert Jamaican Maroon herbalists are as follows: (1) Water is warmed over a wood fire. Plants are placed into a pot and the water is allowed to reach a boil. When the water starts to boil, the fire is lowered. Simmer for about 5 minutes. Often, the person is made to drink the tea of this herbal infusion as well as bathing in it. Bath water is placed in a basin and two boards are placed over the basin so that a person can sit over the bath water while covered with a towel. (2) The person strips naked, stands in the water and baths. After the bath the person covers themselves with calico cloth to draw out the sickness.
The importance of numbers in compounding

I asked expert Maroon healer Lloyd Harris why he always uses odd numbers of plants in his combinations. He answered, “It is traditional. One can use, but three is stronger. All the herbs are excellent to build a team. [You can] have a combination of this one and that one, in any combination of three, five, seven, nine…21 is the highest amount of herbs a tonic can have.” Another respected Maroon elder and healer, Isaac Bernard, stated, “You cannot use one herb; you have to use three - always in odds (three, five, seven); you have to compound them together…I know the plants by my ancestors; they bring it to me as a gift and teach me to compound them together.” Colonel Sterling explained it to me by saying, “[we] generally boil them together in odd numbers because even numbers would cancel or balance out the other.”

Plant matches, male and female plants, and two types

Research participants indicated that “all plants have a match,” and boiling them together helps them work together. For example, Kalanchoe pinnata can match with either Cymbopogon citratus or Peperomia pellucida (L.) Kunth (SA374). Matching plants work together when they are boiled together. Also, each plant is said to have a “male or female counterpart.” According to expert healer Isaac Bernard, “Every herb have a man and woman, but woman used more than the man for the body; man herbs are used for control, because the men control it.” One example of a “man” and “woman” herb is two varieties of Lepianthes peltata (L.) Raf. (SA016, 303). Each variety is recognized as “male” or “female,” according to leaf shape (Figures 3.3 and 3.4). Additionally, there are some plants that are recognized as having more than one “kind” – both having similar properties. Some are in the same genera, such as Stachytarpheta, or the same family, such as Commelina diffusa and Tradescantia zebrina; the two different types of the same ethnospecies are given the same name and used interchangeably. Some examples of plant mates and types are provided in Table 3.4.
### Table 3.4. Plant matches indicated in interviews with Jamaican Maroon research participants

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name(s)</th>
<th>Type</th>
<th>Botanical description indicating differences</th>
<th>Collection no.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Piper murrayanum</em> C. DC.</td>
<td>black Betty, man Betty</td>
<td>male</td>
<td>darker leaves, inflorescence erect</td>
<td>SA302, 410, 417, 434</td>
</tr>
<tr>
<td><em>Piper aduncum</em> L.</td>
<td>white Betty, woman Betty</td>
<td>female</td>
<td>lighter leaves, inflorescence curved, adaxial side of leaves scabrid</td>
<td>SA129, 415, 431, 432</td>
</tr>
<tr>
<td><em>Chamaesyce hyssopifolia</em> (L.) Small</td>
<td>man milkweed</td>
<td>male</td>
<td>erect, branching</td>
<td>SA189</td>
</tr>
<tr>
<td><em>Chamaesyce hirta</em> (L.) Millsp.</td>
<td>woman milkweed</td>
<td>female</td>
<td>prostrate, inflorescence, densely spaced, fatter leaves</td>
<td>SA101</td>
</tr>
<tr>
<td><em>Commelina diffusa</em> Burm. f.</td>
<td>white water grass</td>
<td>water</td>
<td>light green colored trailing herb</td>
<td>SA437</td>
</tr>
<tr>
<td><em>Tradescantia zebrina</em> hort. ex Bosse</td>
<td>red water grass</td>
<td>water</td>
<td>purple-red striped trailing herb</td>
<td>SA191</td>
</tr>
<tr>
<td><em>Lantana camara</em> L.</td>
<td>red sage</td>
<td>sage</td>
<td>orange and yellow flowers</td>
<td>SA127, 124</td>
</tr>
<tr>
<td><em>Lantana urticifolia</em> P. Mill.</td>
<td>black sage</td>
<td>sage</td>
<td>purple and yellow flowers</td>
<td>SA153</td>
</tr>
<tr>
<td><em>Stachytarpheta jamaicensis</em> (L.) Vahl</td>
<td>purple vervine</td>
<td>vervine</td>
<td>purple flowers</td>
<td>SA027, 119</td>
</tr>
<tr>
<td><em>Stachytarpheta cayenensis</em> (Rich.) Vahl</td>
<td>blue vervine</td>
<td>vervine</td>
<td>blue flowers</td>
<td>SA425, 449</td>
</tr>
</tbody>
</table>
**Figure 3.3.** Male cowfoot – leaves are rounded-cordate (not notched at the top). Formerly classified as Pothomorphe peltata (L.) Miq. (Adams 1972).

**Figure 3.4.** Female cowfoot – leaves are cordate with a notch. Formerly classified as Pothomorphe umbellata (L.) Miq. (Adams 1972).
**Summary and discussion**

Jamaican Maroon ethnomedicine is complex and difficult to deconstruct into simplified lists. Out the entire Jamaican Maroon ethnopharmacopoeia that I sampled, approximately 59% of the species present in tropical West Africa are also present in the West African ethnopharmacopoeia (Dalziel 1937). Out of the entire Ghanaian ethnopharmacopoeia (Abbiw 1990), approximately 41% of the species present in Jamaica are also present in the Jamaican Maroon ethnopharmacopoeia that I sampled during my fieldwork in the Rio Grande Valley. West African medicinal plants present in Jamaica but not selected for inclusion in ethnopharmacopoeia could be due to a variety of factors. For example, the environment in the windward regions of the north-facing Blue and John Crow Mountains is much wetter than other areas of Jamaica, and this distinctive climate supports different vegetation types than are found across the island, as well as many unique species. Additionally, some plants indigenous to West Africa are only present in Jamaica in isolated areas, or under cultivation. Therefore, certain plants, although present in the Jamaican flora, may have never been present in the regions where Jamaican Maroons live (e.g., *Adansonia digitata* L.). Also, some species, although present in both West Africa and Jamaica, may not be selected for medicine in both places (e.g., *Aloe vera*; Table 3.2). This may be due to time of introduction, or the presence of other (perhaps more potent) congeneric species in the region of origin. For example, in Africa there are several species of *Aloe*, whereas in Jamaica there is less variety of the *Aloe* taxa available.

Identifying the most salient medicinal plants in Jamaican Maroon villages, through cognitive exercises such as free-listing exercises, helps to narrow the focus of extensive ethnopharmacopoeia and enables a differentiation between common and expert knowledge. When I looked at just the most common salient plants, I found that 53% are also present in the West African ethnopharmacopoeia.

The most salient medicinal plants identified from interviews with 32 Jamaican Maroon research participants include both native and introduced species that are prevalent and conspicuous components of the Rio Grande Valley Maroon village landscape. These plants are readily accessible to most windward Jamaica Maroon residents; many are planted in people’s gardens or found growing naturally along roads.
and trails in the community. Most research participants described these and other medicinal plants as ingredients in recipes, and some indicated that plants have a “match,” with one designated as the “man” and the other as the “woman.” Medicinal plant experts place emphasis on how many plants are combined for medicine, indicating that only odd numbers are effective. Also, harvesting of medicinal plants, as well as intake of botanical medicine is done according to natural cycles such as monthly moon phases and yearly seasons.

Many research participants did not place plant name cards into groups; rather they preferred to treat each plant individually. Still, common themes of plant categorization emerged from interviews and some pile sorting activities. For example, there was a general distinction between “inside plants,” “outside plants,” and plants used in “baths.” Species can (and often do) overlap in one or more categories. The type of botanical treatment prescribed appears to depend on the ailment being treated, the deemed cause of sickness, who is being treated, and/or what stage of the treatment the patient is currently in. Research participants often emphasized that healing is a process, and “cleansing” or “purification” of the body and/or the blood is an important first step. Common themes of healing include a focus on the blood, the value of “purging,” importance of drying medicinal plants before taking them internally, the use of water for extraction, and the recognition that each plant is unique and useful. Additionally, diet and lifestyle are generally understood to play a direct role in a person’s health.

Most people in the community know a least some of the herbs for common ailments, but generally professional herbalists or healers are more familiar with “roots” and “herbs” found primarily in the higher mountain areas, as well as how to combine them for “tonics” and “medicines.” Aside from providing a valuable medical service, I observed that traditional health care practitioners in Maroon communities also afford economic support to many people in the community. For example, local farmers are sometimes hired to harvest certain species from remote parts of the mountains, or to care for medicinal herb gardens. Additionally, when practitioners make herbal remedies they often purchase plastic bags and bottles, or glass bottles, from local shops to fill with botanical medicine preparations.
Cross-cultural comparisons of ethnomedicinal concepts

There appears to be many overlaps in Jamaican Maroon and Ghanaian Akan ethnomedicinal knowledge structure and transmission, medicinal plant classification, and disease conceptualization. For example, similar to my observations with Jamaican Maroon participants, Asante healers are “called to the profession,” and trained under an expert who selects students because of their “interest in healing” (Abel and Busia 2005). According to Konadu (2004), Bono Akan healers understand that medicine works by “diffusing into the veins,” and some medicines are prescribed to “strengthen the bones” to treat arthritis. Similar descriptions of botanical medicine outcome and purpose were described to me by Jamaican Maroon ethnomedicine practitioners (see also Appendices A and B). Furthermore, Konadu states that Akan Bono healers identified medicinal plants that can be applied outside yet work inside (analogous to the Jamaican Maroon ethnotaxonomic grouping of “inside and outside plants”). Additionally, Akan Bono and Jamaican Maroon healers’ ascertainment of medicine efficacy appears similar, as it is based largely on reports of improvement from the patient, the cessation of symptoms, and/or a “return to normal” state of being. Other ethnomedicinal concepts described by Jamaican Maroon participants appear to overlap with analogous Akan ethnomedicinal; for instance, Konadu (2004) states that “life circumstances,” “cleanliness,” and diet are key elements in maintaining health and preventing disease. Also according to Konadu, Akan Bono medicines are generally administered by baths, oral ingestion, and enemas; and herbal bath water is given both as an external wash and as a drink taken internally (a practice also common in Jamaican Maroon ethnomedicine). Additionally, Akan Bono healers combine ingredients together in remedies to “enable the medicine to work more effectively” and some are identified as “complimentary,” meaning that they work “synergistically [when] combined to produce a greater medicine” (Konadu 2004) – a concept that correlates to the Jamaican Maroon practice of “matching” plants and boiling them together to “make them work better.”

According to Appiah-Kubi (1981), “bitters” are applied externally to treat skin ailments in Ghanaian Akan medicine; the same technique is used with “bitters” in Jamaican Maroon medicine to “purge” and heal cuts. According to Field (1937), the traditional ways in which medicine is applied in Ghana are very similar to how some
applications were described to me in Jamaican Maroon ethnomedicine, including preparation of medicinal baths by placing a pot of steaming liquid under the patient while they are wrapped in a cloth, mixing plant material with rum and applying to the patient, heating and/or beating leaves for poultice, and taking hot or cold aqueous infusions of plant material as beverages, baths, or wash. Also, according to Konadu (2004), the most common ways of taking medicine in Bono Akan tradition are bath and tea.

“Spiritual baths” are a component of healing in both Jamaican Maroon and Ghanaian Akan ethnomedicinal tradition. For example, Opokuwaa (2005) states that traditional Akan “spiritual baths” are used for a variety of treatments, such as “for protection,” “for spiritual clarity,” “for cleansing,” “for healing,” and “for fortification.” Similarly, in Jamaican Maroon ethnomedicine “baths” are used for a variety of things including healing internal and external sickness, to “make good vibes,” “ward off evil spell,” and “make you feel powerful.” Also apparently similar between Jamaican Maroon and Akan ethnomedicine is a focus on the blood during healing practices. According to Ventevogel (199), Ghanaian Akan healers often describe disease as some type of change in the blood, and medicine can act on the blood. Also, Warren (1974) found that the frequently mentioned sources of illness in Akan Bono ethnomedicine include impure and dirty blood, and Konadu (2004) stated that Bono Akan cite “dirty blood” and “poor circulation” as causative factors of disease.

Warren (1974) found that Akan Bono healers consider all plants to have a disease which it can cure. This appears similar to what most Jamaican Maroon research participants expressed during card sorting activities - that each species needs to be considered individually, and “every plant has a use; but you have to know it.” Also, like Jamaican Maroon healers, Akan Bono healers consider the active components of plants as something that can be extracted with water, which then becomes medicinal. According to Warren (1974), Akan Bono healers believe that the active constituent of plants is “something like nku (shea butter) and when the plants are boiled, this material melts in the water and is what cures the diseases.” Finally, most frequently mentioned ways to prevent illness in Akan society are similar to the ways mentioned in Jamaican Maroon society; for example, eating good food, drinking medicine, and the avoidance of cold (Warren 1974).
Some aspects of ethnomedicine common to Jamaican Maroon and Ghanaian Akan tradition are found in other cultures as well, including South American Arawak and Maroon groups. For example, according to Valadeau et al. 2010, Peruvian Yanesha medicinal plant experts learn from family or other specialists. Arawak Amerindian groups also appear to place a special emphasis on blood cleansing and baths in their ethnomedicine (see Chapter 5, Valadeau et al. 2010). Other Maroon groups outside of Jamaica use baths for esoteric healing purposes as well. For example, according to Ruysschaert et al. (2009), Saramaccan Maroons in Suriname commonly bathe infants to protect them from illness, evil, and to impart health and strength. It should be acknowledged that baths (for strength and healing) are also a form of medicine in other (non-West African or Arawak) traditions; for example, parts of plants are used in therapeutic baths in ethnomedicine of Turkey (Yeşilada et al. 1995), Tanzania (Chhabra et al. 1987), and in North American Chippewa culture (Densmore 1974).

**Conclusions**

Jamaican Maroon ethnomedicine is highly developed, complex, and advanced in both treatment methodology and plant classification. Traditional medical practitioners, considered to be experts in their community, are sophisticated in their knowledge of plant species and remedies for both common and specific ailments. Jamaica Maroon ethnomedicine serves as an accessible and viable source of health care to residents living in the remote Blue and John Crow Mountains of windward Jamaica, and is an important part of the community’s livelihood and culture.

Utilitarian classification systems appear to dominate in Jamaican Maroon ethnomedical systems. The research participants I worked with discussed and described medicinal plants according to how they are used in therapeutic remedies. Hierarchical systems based on taxa morphology are also present, for example in the recognition of “kinds” of ethnospecies.

Many of the most salient species in Jamaican Maroon society are also documented as part of the tropical West African ethnopharmacopoeia. Medicinal plants and medicinal plant knowledge appear to be classified, transmitted, and applied in similar ways in Jamaican Maroon, Ghanaian Akan, as well as Arawak ethnomedicine. Additional
comparative studies are needed to further sort out ethnomedicinal practices that may be fairly universal, from those that are rather anomalous - and therefore strongly indicative of knowledge transfer.

**Limitations of methods and call for further research**

It would be beneficial to conduct a representative sample of interviews in each of the nine windward Maroon villages, as well as Charles Town, Scots Hall, and leeward Accompong villages, as medicinal plant salience and treatment terminology may differ in each area. Additional field work in West Africa, other Caribbean regions, and elsewhere will allow for similar protocol at the community level in order to test for a significant difference between cognitive salience of species used for medicine in separated cultures.
Appendix A: Descriptions of terms used in Jamaican Maroon Ethnomedicine based on interviews with research participants

Boil
Plant material is boiled for a period of time in water.

Draw
Hot, warm, or cold infusion; the water will draw the strength out of the plant.
For hot infusion, plant material is placed in a pot of water over a fire. The water is allowed to reach a boil, and then the pot is removed from heat source. Alternatively, the plant material is placed into already hot water and set to draw.
Cold infusions are macerations made by placing the fresh plant part (woody stem/stick or leaf) in cool or room temperature water and allowing it to sit for a period of time (possibly overnight); the water is then taken internally or used as an external wash. Also, grated seed can be mixed with water and taken internally.

Herbs
Leafy parts of plants and herbaceous species. According to one medicinal plant expert, most herbs are collected from in and around the yard and need to be planted - like fever grass (C. citratus); some grow wild - like black Betty (P. murrayanum). Herbs are used to cleanse the blood and purge out the system.
Roots man and herbalist Lloyd Harris stated that he mostly collects his herbs in the mountains. When I asked him how he knows where to find them he replied, “When I go I know exactly where me a go. I mark the trail and find it back again. I mark the water - wait by the sea - mark your track.” During collections trips with Mr. Harris, he showed me what he means by this. When you are way up in the Blue Mountains, you can look down through clearings and check for landmarks on the shoreline. This way, you can keep track of where you are on the mountain trail – by watching and marking the sea.

Ointment/Salve
Plant material is infused into lard or petroleum jelly and applied externally.

Plaster
Flour is mixed with water, placed onto stiff material like denim and wrapped onto affected area.

Poultice
Plant material pounded or mashed and placed onto affected area (usually tied on with a piece of cloth).
Purge/Clean Blood/
Purify Blood/Cleanse
the Bloodstream
Rid body of dead cells; treatment for sickness such as diabetes; treat blood borne pathogens such as dengue.

Purgative
1) a blood purifier; something used to purify the blood. According to one Maroon herbalist, people need blood purging and purification whether they are sick or not.
2) Something given to "purge you out" if you "are bilious" and "want a washout."

Roots
Barky plants with large stems, tuberous roots, or rhizomes (e.g., lianas, trees, and aroids); mostly found in the mountains. For general treatments, roots are combined together; for specific complaints, can use just one. According to one roots man and herbalists, roots “clean the whole system and build it at the same time;” and roots must be harvested “when the moon is full.” Another research participant described how he harvests plants “in the hills when the moon is full. Follow the moon; when the moon is full, there is more strength in it; when the moon is young the tree gets weaker.”

Roots Tonic
Indicated for healing the body, getting rid of cold, and strengthening the bones.

Rub Up
Plant is picked fresh, rubbed between the palms of the hands until the juice can be squeezed out which is then taken internally (with or without salt), or used to rub onto a person (Figures 3.5 and 3.6).

Scrape
Plant epidermis is scraped off and applied to affected area (see Figure 3.7).

Wash
Plant material allowed to infuse in hot or cool water, and used to wash body or affected area. One research participant described it in the following way, “[put] fresh herbs in water; the water will turn green and can be used as a wash for scratches on the skin.”
Figure 3.5. Jamaican Maroon medicinal plant expert demonstrating how plants are rubbed up in the hands to extract juice.

Figure 3.6. Jamaican Maroon medicinal plant expert demonstrating how plants are rubbed up in the hands to extract juice.
Figure 3.7. Method of applying plant medicine by scraping: stem epidermis is scraped off with a knife blade and placed onto affected area of skin.
### Appendix B: Descriptions of indications for the use of botanical remedies in Windward Jamaica Maroon ethnomedicine based on interviews with Jamaican Maroon research participants

<table>
<thead>
<tr>
<th>Ethnomedical Term (including synonyms)</th>
<th>Description</th>
<th>Cause(s)</th>
<th>Specified Symptoms</th>
<th>Sign of Medicine Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anemia</strong></td>
<td>when blood is watery and will not clot</td>
<td></td>
<td>joints weak, cannot walk, hands cannot hold onto anything, cannot grasp with strength, pain is in foot, moving around is difficult, your hand, ankle, shoulder, wrist - your joints, joints weak, person cries for pain</td>
<td>person says they are OK; there is a heat that drives out the cold</td>
</tr>
<tr>
<td><strong>Arthritis</strong></td>
<td>joint pain and swelling that hurts a lot</td>
<td>cold in joints</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>mucus in and around the lungs and chest with shortness of breath</td>
<td>stress; born with it</td>
<td>shortness of breath, breathing is difficult; person cannot walk long distances</td>
<td></td>
</tr>
<tr>
<td><strong>Baby gripe</strong></td>
<td>when baby 1 day old to 6 months has violent tummy ache; from 6 months old to 2 years with chest cold or head cold</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Back pain, back ache, backache, back a hurt you</strong></td>
<td>pain in the Back</td>
<td>sore muscles or slipped disc; sleep in a bed that is not flat enough; when the bed slats are not straight; or get a blow to the back (something hits you on the back); or a disease</td>
<td>people complain about back; When you sleep and wake up, sometimes cannot get out of bed because pain is so bad in back</td>
<td></td>
</tr>
<tr>
<td><strong>Bad belly</strong></td>
<td>when belly pain all day and doesn't stop</td>
<td>wearing wet shorts</td>
<td>cramp, colic, belching, sourness</td>
<td></td>
</tr>
<tr>
<td><strong>Belly hurt, belly pain, bellyache, stomachache</strong></td>
<td>when belly a hurt you</td>
<td>from a cold or something you eat go against you</td>
<td>pain in belly</td>
<td></td>
</tr>
<tr>
<td><strong>Belly problems, for belly, stomach problems, bowel problems</strong></td>
<td>cold in belly; gas</td>
<td>can be caused by many things such as eating bad food; cold in the stomach; cold in the belly</td>
<td>pain and cramping in the belly; running belly</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Description</td>
<td>Related Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biliousness</td>
<td>when the body is filled up with mucus</td>
<td>a yellow substance will pass out in the feces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boils</td>
<td>a big hard bump on any part of the body with pus and is painful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruise blood</td>
<td>loose blood that has settled in the body cavity</td>
<td>trauma, car accident, childbirth, Bruising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruising</td>
<td></td>
<td>blood will come out in urine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>sores in the organs of the body</td>
<td>can be caused by not removing bruise blood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cataracts</td>
<td>cloudy growth over eyes; e.g., iris and pupil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest congestion</td>
<td>having heavy cold, cough, and tightness in the chest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chills</td>
<td>when the body temperature drops way below normal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold, sickness</td>
<td>something that can enter your body and your blood; something that you catch; cold can be in your throat and cause coughing, cold can be in your joints and cause pain and weakness, cold can be in your belly and cause pain, cramping, running belly</td>
<td>hotness and cold give it to you; cross cold water and then put shoes back on; from walking barefoot; from staying too long in the water; exposure - if you wake up and approach outside and get cold breeze or cold air and water, you can get mucus or a cold; if you are in a dry place and the sun is hot then rain wet you, wet up your clothes and you wear them all wet and cold; if shoe is wet you can catch cold on foot; numbness, pain; blood cannot circulate (run) freely; if you drink water and your belly hurt, then you know you have cold down there</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colon cancer</td>
<td>sores in the colon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation</td>
<td>when the stool is very hard and hard to pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramps</td>
<td>cramps in the body</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuts</td>
<td>bleeding wounds</td>
<td>knife, machete, or sharp object, the skin is cut open</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>low feelings</td>
<td>fretting or worrying, low feelings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess menstruation</td>
<td>When women bleed hard during their monthly cycles.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye problems</td>
<td>When the eyes are itchy and red.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>A heat that takes over your whole body exposure to germs; could be caused from the flu.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fits</td>
<td>Convulsions epilepsy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flu</td>
<td>When one has fever and cold with weakness in the body a rise in body temperature.</td>
<td></td>
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<tr>
<td>Fresh cold</td>
<td>Cold in the head. At germs; getting wet up in the rain.</td>
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<tr>
<td>Gallstone, kidney stone, bladder stone</td>
<td>A stone in your body from not straining things properly, anything that has dregs in it; also from chlorinated water, from not chewing food properly.</td>
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<tr>
<td>Gas, gas in the stomach and bowel</td>
<td>Wind in the stomach; wind running over your body when you skip a meal; when you do not eat on time; when you go out from morning without eating.</td>
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<tr>
<td>Goiter</td>
<td>Big growth under the neck blocked urinary passage the stone will pass through.</td>
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<tr>
<td>Gonorrhea</td>
<td>A sexually transmitted disease.</td>
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<tr>
<td>Gout</td>
<td>When small joints swollen and painful; e.g., finger joint heavy yellow pus coming from the genitals.</td>
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<tr>
<td>Headache, pain in a head</td>
<td>Throbbing pain in the head throbbing pain in the head.</td>
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<tr>
<td>Heart palpitations</td>
<td>When the heart rate is more rapid than normal the heart is beating fast.</td>
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<tr>
<td>Herpes/cold sores</td>
<td>When cold sore is on face or genital cold sore is on face or genital</td>
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<tr>
<td>Hypertension</td>
<td>People who cannot sit still; e.g., bouncing off the wall.</td>
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<tr>
<td>Irregular menstrual cycle/irregular periods</td>
<td>When menstruation does not come every 28 days</td>
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<tr>
<td>Irritability</td>
<td>Stress or menopause or the symptoms of menopause hot flashes.</td>
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<td>Condition</td>
<td>Description</td>
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<tr>
<td>Liver spots</td>
<td>fungus on skin</td>
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<td></td>
<td>dirty water or using the same rag and soap for the whole family</td>
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<tr>
<td>Menopause</td>
<td>when the period stops and the woman stops producing children</td>
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<tr>
<td>Menstrual cramps/menstrual disorders/pain/menstrual problems/relieve menstrual stress, period pain</td>
<td>regarding to pain, cramps, excess bleeding, etc.</td>
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<td></td>
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<tr>
<td>Menstrual cramps/menstrual disorders/pain/menstrual problems/relieve menstrual stress, period pain</td>
<td>mucus is like a cold, but different - it is a thick slime</td>
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<tr>
<td></td>
<td>exposure - if you wake up and approach outside and get cold breeze or cold air and water, you can get mucus or a cold; mucus forming foods are milk, eggs, cheese, and butter</td>
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<tr>
<td></td>
<td>cold inside the stomach</td>
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<tr>
<td>Mucus</td>
<td>mucus is like a cold, but different - it is a thick slime</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>exposure - if you wake up and approach outside and get cold breeze or cold air and water, you can get mucus or a cold; mucus forming foods are milk, eggs, cheese, and butter</td>
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<tr>
<td></td>
<td>cold inside the stomach</td>
<td></td>
<td></td>
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<tr>
<td>Nausea</td>
<td>upset stomach that produces vomit</td>
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<td></td>
<td>trembling, cannot sleep, shaking, can't hold anything firm, jolt awake in bed, jumping in your sleep, sudden twitching, if you hold on to anything your hand will shake</td>
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<tr>
<td>Nerves</td>
<td>problem with the nerves; nerves automatically get weak</td>
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<td></td>
<td>poor diet, lack of exercise</td>
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<td></td>
<td>trembling, cannot sleep, shaking, can't hold anything firm, jolt awake in bed, jumping in your sleep, sudden twitching, if you hold on to anything your hand will shake</td>
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<tr>
<td>Obesity</td>
<td>when some have excess fat in body tissue</td>
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<td></td>
<td>working the body or limbs too hard</td>
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<tr>
<td></td>
<td>when you are feeling pain</td>
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<tr>
<td>Overexertion</td>
<td>pain in the body</td>
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<tr>
<td></td>
<td>pus, inflammation, cold</td>
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<td></td>
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<tr>
<td></td>
<td>when you are feeling pain</td>
<td></td>
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<tr>
<td>Pain</td>
<td>feeling sick and sore in the body before menstrual flow</td>
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<tr>
<td></td>
<td>feeling sick and sore in the body before menstrual flow</td>
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<tr>
<td></td>
<td>when you are feeling pain</td>
<td></td>
<td></td>
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<tr>
<td>PMS</td>
<td>poisoning, blood poison; can be man made (chemicals, like Gramaxone), or from plants or animals like some type of fish</td>
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<tr>
<td></td>
<td>something you eat, insect bite, something lance you</td>
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<tr>
<td></td>
<td>something you eat, insect bite, something lance you</td>
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<td></td>
<td>dropping, weak, eye dim, sick</td>
<td></td>
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<tr>
<td>Poison</td>
<td>high blood pressure</td>
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<tr>
<td></td>
<td>eating excess salt</td>
<td></td>
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<tr>
<td></td>
<td>when you are feeling pain</td>
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<td></td>
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<tr>
<td>Condition</td>
<td>Description</td>
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<tr>
<td>Promote circulation of the blood</td>
<td>help the blood to pass freely through the veins</td>
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<tr>
<td>Respiratory problems</td>
<td>shortness of breath</td>
<td></td>
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<tr>
<td>Ringworm</td>
<td>spots on the skin with tiny bumps that itch</td>
<td></td>
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<tr>
<td>Running belly</td>
<td>Diarrhea</td>
<td></td>
<td></td>
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<tr>
<td>Scabies</td>
<td>fungus with bumps that turns into sores if not treated</td>
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<tr>
<td>Short circulation</td>
<td>when blood is not circulating properly</td>
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<td></td>
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<tr>
<td>Shortness of breath</td>
<td>when the lungs are clogged up</td>
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<tr>
<td>Skin ulcers/ ulcers of the skin</td>
<td>festering sores</td>
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<tr>
<td>Sleeplessness</td>
<td>when someone can’t sleep at night</td>
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<tr>
<td>Sore Eye</td>
<td>pink eye</td>
<td></td>
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<tr>
<td>Sore throat</td>
<td>soreness in the throat</td>
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<tr>
<td>Sprains</td>
<td>fractured joint or tendon</td>
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<tr>
<td>STD</td>
<td>gonorrhea is an STD</td>
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<tr>
<td>Stoppage of water</td>
<td>kidney problems, bladder problems blocked tubes</td>
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<tr>
<td>Strength, health &amp; strength</td>
<td>when the whole body is in progress - everything is working; When the body is healthy inside and out and oozing with strength</td>
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<tr>
<td>Strengthen bones</td>
<td>herbs or roots that help to harden bones</td>
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<tr>
<td>Stress</td>
<td>caused by fretting or worrying over life</td>
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<td></td>
<td>can’t walk long distances</td>
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<td></td>
<td>spots on the skin with tiny bumps that itch</td>
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<tr>
<td></td>
<td>constant passing of watery stool</td>
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<tr>
<td></td>
<td>spots on the skin with tiny bumps that itch</td>
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</tr>
<tr>
<td></td>
<td>constant passing of watery stool</td>
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<tr>
<td></td>
<td>breathing is difficult.</td>
<td></td>
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<td></td>
<td>red eye, itchy eye, sore eye</td>
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<tr>
<td></td>
<td>swallowing saliva is painful</td>
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<td>a person who needs remedy for &quot;health &amp; Strength&quot; is a working man who needs vigor- lifts weight, and works; when a person doesn't feel strength, he knows his body needs something</td>
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<tr>
<td>Condition</td>
<td>Description</td>
<td>Example</td>
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<tr>
<td>Sugar</td>
<td>Diabetes</td>
<td>unhealthy eating, lots of starchy food and sweets; eating sugar, milk, sweet drinks, and starch; part inside your body that controls your sugar is not functioning well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet blood, weak blood</td>
<td>Blood is sweet and thick and does not flow freely</td>
<td>impurities in the blood; eating sugar, milk, sweet drinks, and starch</td>
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<td></td>
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<td>person has mosquito bites, scratches and bumps on skin; bumps on the face; dizziness, person is scratching skin often</td>
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<tr>
<td>Tardy menstruation / tardy period</td>
<td>When the period or menstruation come slow and later, with cramps and pain</td>
<td>cramps and pain</td>
<td></td>
<td></td>
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<tr>
<td>Upset stomach</td>
<td>If you eat something and want to vomit</td>
<td></td>
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<tr>
<td>Worms</td>
<td>Tape worm or thread worm that lives in some people intestine</td>
<td></td>
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<tr>
<td>Yeast Infection</td>
<td>Thick, heavy discharge that itches and smells</td>
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</tbody>
</table>
Literature Cited


Quinlan, M. 2005. Considerations for collecting freelists in the field: examples from ethnobotany. *Field Methods* 17(3)1-10.


Chapter 4.
Diffusions of knowledge and plant species between West Africa and Jamaica: historical biogeography of Jamaican Maroon ethnoflora

Abstract

In this chapter I analyze the historical biogeography of the Jamaican Maroon and tropical West African ethnopharmacopoeia. The focus of this comparative study is on the medicinal plant species used in both areas by using ethnography, voucher collections, historical documents, and early descriptions of the Jamaican and Gold Coast landscape and culture. Unless otherwise indicated, all descriptions of modern Jamaican Maroon and Ghanaian ethnobotany are based on observations during ethnobotanical field work (see Chapter 1 for methods). Evidence suggesting that many species in Jamaican Maroon ethnopharmacopoeia were established in the Caribbean and/or West Africa prior to or around the time of the massive trans-Atlantic forced migration events is presented here, along with a critical discussion of congeneric species substitutions in Maroon ethnopharmacopoeia within a context of the documented West African ethnoflora. It is hypothesized that traditional ethnobotanical knowledge was transferred from West Africa to the Caribbean during the trans-Atlantic slave trade and has been perpetuated in Jamaican Maroon ethnomedicine. In addition, it is hypothesized that tropical West African ethnomedicinal species not available to Jamaican Maroons have been substituted with botanically related species. These hypotheses are supported by the identification of several species, or related congeneric species, utilized medicinally in both Jamaican Maroon and various West African ethnopharmacopoeia, including Akan and Yoruba, implying that Maroon ethnomedicine developed at least to some degree under influence from West African Akan traditional knowledge.

Introduction

The movement of people, plants, and traditional knowledge in the Atlantic region is the primary focus of this analysis. Trouillot (1992) emphasized the need to provide historical perspectives to Caribbean discourse for a better understanding of the cohesive
nature of diverse West Indian societies. By documenting and recognizing introductions of plant species that occurred before, during, and as a direct result of the trans-Atlantic slave trade, the role Africans played in their transportation, propagation, and perpetuation of associated traditional botanical knowledge can be honored. Also, qualitative comparisons of medicinal plant use mitigates problems associated with placing culture-bound medical terms into biomedical categories, and allows the uses for each species to be described within the context of each culture.

Several of the genera used by Maroon societies include species that are indigenous to tropical West Africa and used in West African traditional medicine. For example, Paul (2002, cited in Palmer 2004) estimates 40% of medicinal species used by Haitians belong to genera with similar uses in West Africa. This suggests that plant species belonging to natural75 groupings at the generic level were recognized by forced African migrants as suitable substitutes for native West African ethnopharmacopoeia species that were unavailable in the New World.

The need for medical care in the remote and often bellicose atmosphere of early Maroon society must have been great. Did self-liberated Africans purposefully introduce useful plants into their new communities? How much of the American flora was familiar to them from early introductions into Africa; or at least recognized as species related to African ethnopharmacopoeia plants? In order to address these questions we must look at when and how plants were introduced into West Africa and the Americas. The hypothesis states that West African Akan ethnomedicinal knowledge was transferred to Jamaican Maroon culture, and plant species that are not present in the Jamaican flora are substituted with available related species.

One of the inherent problems of attempting to reconstruct past floras is that many archeobotanical records do not accurately describe the movement of the weedy species that often make up the bulk of ethnopharmacopoeia. Furthermore, many of the plant species selected for use as medicine by Jamaican Maroons have a pantropical distribution, which can make pinpointing an exact origin difficult. In this analysis, I draw primarily from works that propose approximate dates of introduction of Jamaican

75 Based on evolutionary relationships (shared common ancestors), and reflected by similar morphological and biochemical characteristics.
ethnopharmacopoeia species (both weedy and economic) into Africa and the Caribbean. Historical voucher collections of species were accessed from online databases by botanical authorities including the Natural History Museum of London’s Hans Sloane Herbarium, African Plants Database, JStor Plant Science, and Missouri Botanical Garden 2011. If it can be determined when plants were present in a regional flora, it can be assumed that those plants were available for collection, growth, and experimentation. Historical documents from early naturalists and explorers (e.g., Sir Hans Sloane, Henry Meredith, John Duncan), missionary groups (e.g., the Basle Mission), botanical gardens (e.g., Kew Collections, Bath Gardens), ship manifests, and oral histories are also analyzed for the presence or absence of plants in different environments throughout time.

In the following introductory paragraphs, early food crop introductions to West Africa are described. The overlap of food and medicinal species has been well documented (e.g., see Etkin 1998). Moreover, many food plants, when introduced to a new culture, are sometimes accepted as an additional source of medicine rather than as a primary source of food (Prance and Plana 1998).

Ethnomedical information published by Agbovie et al. (2002), Abbiw (1990), Ayensu (1978), and Dalziel (1937) is compared with original ethnographic data collected with research participants from windward Jamaica Maroon communities (see Chapter 1 for description of methods). Similarities and differences between the Jamaican Maroon and West African ethnopharmacopoeia are analyzed and discussed in light of the hypotheses.

**Domestic trade and agricultural diffusions in Africa**

Internal trans-continental commerce has been on-going in western Africa for centuries. Ethnic groups living in the tropical forested Guinea zone (e.g., Akan, Ewe, Gã, Bantu) have been trading plants and knowledge with eastern and northern African ethnic groups living in the Sudan and Sahel ecological zones (e.g., Cushites, Moors, Berbers, Mande, Hausa) since ancient times (as early as 2,000 B.C. (Ocrisse-Aka and Bossard 2006), with the most renowned centers of exchange just north (Timbuctu) and east (Kano) of Kwa-land (Fage 1961, Dickson 1969). According to Garrard (1982), the trans-Saharan gold trade facilitated interactions between North African and southern West African ethnic groups since at least 4th century A.D.
Thriving markets in the ancient Ghana Kingdom (a rather large area straddling the Niger River just southwest of Timbuctu) were meeting places for Arab merchants who traveled south across the Sahara from Mediterranean regions to trade items such as cotton cloth, gum Arabic (Acacia spp.), and salt for goods found in the southern coastal forested areas of tropical West Africa such as gold, kola nut (Cola spp.), and slaves (Fage 1961, Dickson 1969). Additionally, according to Fage (1961), there were major trade routes along the east-west axis of the Sudan region in West Africa between Akan, Mande, and Hausa peoples in pre-historic times. Kwa-speaking Akan peoples emigrated west from the Niger Valley into the northern region of modern day Ghana (a district now known as Gonja) sometime in the 12th century. By the mid-15th century, there was a thriving kola nut trade between Gonja and the easterly Hausaland region of Kano. The Akan continued their expansion from the northwest south towards the Gold Coast to establish the impressive Ashanti territory that expands throughout most of the sub-Saharan forested area in Ghana.

Many species of Asian origin, including Cannabis sativa L., Melissa officinalis L., Ocimum basilicum L., and Solanum melongena L., are thought to have been introduced into tropical West Africa well before the arrival of Europeans in the region.

76 Modern-day Ghana was named after the ancient Ghana Kingdom, but is otherwise unrelated in terms of both geographical boundaries and culture (ancient Ghana was a Sudanese state of Mande-speaking people and modern-day Ghana lies to the south within the primarily forested region formerly known as the Gold Coast with a dominant Akan culture) (Fage 1961).
77 Dickson (1969) states that Mande were trading for slaves at Elmina into the 1480s.
78 According to Fage (1961), the modern Mande presence in Gonja is relatively recent (as late as the 17th century), and therefore limited in comparison to the Akan impact in Ghana. Mande are known as superlative agriculturists and are credited with the development of major crops including Oryza glaberrima Steud., Blighia sapida Koenig, Tamarindus indica L., Citrullus lanatus var. lanatus (Thunb.) Matsumara & Nakai, Cola acuminata (P. Beauv.) Schott & Endl., Cola nitida (Vent.) A. Chev., Sesamum orientale L., Vitellaria paradoxa Gaertner f., Abelmoschus esculentus (L.) Moench, and Lagenaria siceraria (Molina) Standl. (Murdock 1959).
79 It is unclear exactly how or when Cannabis sativa was introduced to Africa, but according to Murdock (1959) it likely diffused to West Africa from the east with the Bantu via the Cushites who immigrated to Uganda from Sidamo, Ethiopia. The Bantu met up with the Cushites in Uganda during their easterly migrations. Support for an early introduction of C. sativa with the Bantu comes from Benet’s (1975) descriptions of early African explorers Pogge and Wissman’s observations of large C. sativa plots in the Congo near Bashilenge towns in the Luba province in 1881. A Bantu ethnic group living there called themselves Bene-Riamba, or “the Sons of Hemp”. The Bene-Riamba considered C. sativa a powerful and sacred plant, and they brought it with them wherever they traveled (ibid). This suggests that C. sativa had a long-standing presence in Bene-Riamba culture. Another possibility is that C. sativa was spread along a trans-Saharan route into West Africa via Arab traders since 19th century descriptions indicate that the Libyan Senusi were growing large amounts of the plant there for religious ceremonial purposes (Benet 1975).
(Voeks 1993, Harris 1976, Murdock 1959); however, their exact dates of establishment are uncertain. At least two Malaysian crops, *Colocasia esculenta* (L.) Schott and *Musa* spp. (banana and plantain), have an undisputed presence in pre-historic West African societies (see Williamson 1993, Harris 1976, Murdock 1959). The Bantu could have acquired knowledge and propagules of useful plants in eastern Africa as early as the seventh century; this ethnobotanical information probably diffused back towards the west quite rapidly (Murdock 1959).

**Self-determined diffusions of West African ethnobotany in the Diaspora**

It has been suggested by some social anthropologists (*e.g.* Cohen 1974, Mintz 1996) that African societies in the Americas can only be understood within a context of the New World environment in which they developed. Such scholars maintain that African-American culture is essentially a product of colonialism which demoralized slaves and their descendants through oppression and violence; and therefore members of this African-American culture are lacking salient cognizance of their ancestral Old World traditions. Mintz (1996) goes so far as to use the phrase “erasure of the institutional underpinnings of their past,” in reference to the experiences and cultural development of Africans in the Caribbean. Mintz also describes Rastafarianism and other Afrocentric movements (*e.g.*, UNIA81) as essentially ineffective endeavors rejected by the intellectual community. Not only are such statements offensive, they are no longer supported by more recent scholarship. Armstrong and Kelly (2000), Thornton (1998), and Voeks (2009) have all argued against the idea that creolization is an externally driven force that happens to people; through presentations of historical and ethnographic evidence, they identify the occurrence of deliberate movements and selections of people, plants, and traditions associated with the trans-Atlantic slave trade. For example, Armstrong and Kelly (2000) used archeological reconstructions of Jamaican slave communities in St. Ann’s Bay to demonstrate that forcefully migrated Africans exerted control over their living arrangements and space dynamics to increase freedom of movement and life even within the confined structure of a slave plantation. Houses were consciously located and

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80 Radiocarbon dating indicates that the Bantu were in Zimbabwe in the 7th century (Murdock 1959:273).
81 Jamaica born revolutionary Marcus Garvey spearheaded a back-to-Africa movement and founded the Universal Negro Improvement Association (UNIA), whose primary objective is to encourage Africans in the Diaspora to lift up themselves and take control of their own destiny. The group’s motto iterates their overall message of Afro-American unity, “One God, One Aim, One Destiny”. 

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oriented to maximize relatively unrestricted access to surrounding upland wilderness areas; and it was in these areas that provision grounds were established, thus affording a situation where food and artifact production, as well as social and cultural development, was “internally defined.”

**Geography, ecology, and vegetation in West Africa and the Caribbean**

To better understand interactions between people and plants over time, we should first study a region’s geological and biological history (Rosen 1985). Although Africa and the Caribbean are on the whole vastly different in both physical geography and ecological zonation, there are principle areas of overlap in the Atlantic region of the African Diaspora. To illustrate, it was primarily the western regions of the African continent which served as the source areas for the majority of people brought to the Caribbean during the trans-Atlantic slave trade (Thomas 1997), areas with deep biogeographical connections to tropical America (see Meggser al. 1973). By the time the massive forced migration event reached its peak in 1792-1830 (Voyages Database 2009), plant and animal species dispersals within and between West Africa, tropical America, and the Caribbean had been ongoing for thousands of years; and this process was accelerated tremendously starting in the 15th and 16th centuries, resulting in a somewhat homogenous flora in coastal areas of the tropical Atlantic.

**West Africa**

Sowunmi (1986) and Rosen (1985) cite taxa overlaps in the biota of North America, South America, and Africa as evidence that they were once a single land mass, with Africa breaking away from the super-continent Gondwanaland approximately 65 million years ago. As vicariance is a primary method of dispersal on large continents such as Africa, one might expect lower numbers of endemic species compared with island flora. The forests of West Africa however, have experienced relatively high endemism due to historical and present regional isolating factors such as continental uplift, glaciations, precipitation gradients, and varying soil fertility (Poorter et al. 2004, Holmgren et al. 2004). For instance, approximately 22% of the Upper Guinea Forest plant species are endemic to that area (Jongkind 2004 in Holmgren et al. 2004).
West Africa encompasses an area of approximately 6,000,000 km², spanning latitudes 2°-13° N, with a western Atlantic Ocean border and a southern Gulf of Guinea border (Figures 4.1 and 4.2). The region has been above water for at least 200 million years (Sowunmi 1986), with the highest elevation 2,419 m at Nigeria’s Chappal Waddi. Most of West Africa though, is less than 300 m above mean sea level (CIA 2006). West Africa can be divided into three general vegetation zones: the Guinea, the Sudan, and the Sahel (Figures 4.1 and 4.2). The relatively large area of disturbed forests in tropical West Africa (Table 4.1) can be explained by the region’s long history of human settlement and development (Poorter et al. 2004). According to Sanford and Isichei (1986) anthropogenic modification in the Sudan Zone is largely the result of annual fires for agriculture and hunting practices. This type of frequent disturbance has led to fire-adapted species with thick bark and the capability of reproducing vegetatively from underground organs (roots or stems). According to Lawson (1986), the human population in the Guinea zone was highly impacted during the slave trade, resulting in less agriculture and development compared with the northern Sudan Zone. The vegetation in the forested Guinea region is characterized by small woody rhizomatous plants and weedy species. There are four recognized ecological types in the Guinea Zone: lowland moist forest, lowland wet forest, lowland sub-dry forest, and lowland moist forest with a long dry season (Table 4.2). The two most important bodies of water in the area are Lakes Buyo and Koussou in Côte d’Ivoire, and Lake Volta in Ghana (Poorter et al. 2004).

West African agricultural differentiations, e.g., raising grains and grazing in the savannah areas as opposed to root and palm cultivation in the forest areas (see Sowunmi 1985, Sheridan 1972, Watts 1987) are demarcated by a combination of latitudinal ecological zones and ethnic borders. Becker and Diallo (1996) refer to the “rice zone” of West Africa as an area that extends from Senegal to the Bandama River in Côte d’Ivoire. East of the Bandama River are the Akan, whose nation extends into Ghana with borders that coincide with the “yam zone.” This abrupt shift from rice to yam cultivation cannot be explained by environmental factors alone since the transition occurs along a longitudinal gradient primarily within the Guinea Zone; rather, it appears to be indicative of crop selection according to cultural preference. Carney (2001) was able to use this
cultural association with crop species to help trace the heritage of descendants of the forced African Diaspora living in the southeastern United States; e.g., she studied the rice cultivation technologies that diffused, along with the people, from the Senegambia region of West Africa – the heart of the traditional African rice zone – to the southeastern central zone of North America.

Ghana

The current political boundary of Ghana encompasses almost the entire region formerly known as the Gold Coast; today it is largely occupied by Akan speaking cultures. The highest point in Ghana is within the Guinea zone at Mount Afadjato, with a summit elevation of 880 m. The majority of Akan ethnic groups reside in areas classified as moist broadleaf forest. Ghana’s climate is tropical - warm and dry along the southeast coast, hot and humid in the southwest, and hot and dry in the north. Most of the terrain is covered by low-lying plains with a large plateau in the south-central area (CIA 2006). The average annual precipitation in Ghana is approximately 1.23 m (Jenness et al. 2007).

According to Lawson (1986), the Upper Guinea tropical rainforest extends from most of Ghana’s 539 km long coastline to approximately 300 km inland and is characterized by two rainy seasons. The region encompassing the capital of Accra is much drier and classified as a coastal plain. Northern Ghana is within the Sudan Zone and has only one rainy season. Ghana’s great River Volta supports miles of riparian forest in the drier savanna areas of the Guinea Zone.
Figure 4.1. Africa. The map shades from brown to green indicate the general latitudinal vegetation gradient, with northern Sahel, transitional savannah in the Sudan Zone, and the wetter coastal forests of the equatorial Guinea Zone (green areas) – home to a diverse number of ethnic groups associated with seven major language groups in the Niger-Congo family (Ocrisse-Aka and Bossard 2006).
The Caribbean

The islands of the Caribbean (Figure 4.3) are spread out over roughly 370,000 km², forming an arc-shaped archipelago consisting of roughly 7,000 islands, islets, reefs, and cayes, from 10°N latitude to the Tropic of Cancer. Often described as a “hotspot” of diversity, there are 14 different types of forests in the West Indies (UNEP-WCMC 2010).

Rosen (1985) describes Caribbean geohistory as multifarious and contentious. There is agreement, however, that some West Indian islands were historically connected to the North and South American continent via a proto-Greater Antilles land bridge. Also, most scholars agree that longitudinal displacement of the islands occurred sometime...
during the Cenozoic era. The first areas in the Caribbean to emerge above water permanently were Puerto Rico, the Dominican Republic, and the Virgin Islands about 100-110 million years ago. Hispaniola’s Pico Duarte is the highest peak in the region, at 3,175 meters above sea level.

Periodic land hybridization and fragmentation, open-water dispersal barriers, and mountainous landscapes have strongly affected speciation and biodiversity development in the Caribbean (Hedges 2001). Jamaica epitomizes this phenomenon with her 3,308 vascular plant species, of which approximately 28% are endemic (Earth Trends 2004).

**Jamaica**

Jamaica is the third largest island in the Greater Antilles with a coastline of 1,022 km (CIA 2006). Although it is still debated whether Jamaica was formerly connected to Cuba and Hispaniola through the Yucatan, it is certain that it has remained an isolated fragment for most of Caribbean geohistory (Rosen 1985). The karst topography, resulting from limestone deposition during its submarine formation, supports vast areas of moist broadleaf forest (FAO 2006).

Jamaica’s climate is typical of tropical oceanic islands, with rainy windward coasts, dry leeward coasts, and cool central montane regions (Asprey and Robbins 1953). The main mountain ranges are the eastern Blue and John Crow, with the highest point at Blue Mountain peak (2,256m). The climate is hot and humid with a temperate upland interior. The terrain is mostly mountainous with a narrow, discontinuous coastal plain (CIA 2006). Average annual rainfall is approximately 1.96 m (Asprey and Robbins 1953).

According to Asprey and Robbins (1953), Jamaica's flora can be grouped into four broad categories; cosmopolitan, West Indian, endemic, and continental. The cosmopolitan element in Jamaica consists of mostly pan-tropical coastal strand and lowland agricultural weedy plants. The West Indian element includes species common to all of the West Indies, or to the Greater Antilles. The endemic element in Jamaica is relatively high for the West Indies, likely due to the island's unique geohistory and the
fact that it lies outside the main dispersal path of the archipelago. Finally, the continental element consists of primarily Central and South American species, indicating vicariant plant migrations from the west over ancient continental land bridges, as well as over water from a southeasterly direction.

Jamaican Maroon communities are located on both the windward and leeward sides of the island in the remote interior of lower and upper montane moist broadleaf forests. The total area in Jamaica which is considered to be Maroon territory is difficult to determine; however, Maroon villages adjoin protected forest land that spans over 1,250 km² (The Nature Conservancy 2008).

The Rio Grande Valley Maroon districts are located on the windward side of Jamaica, nestled in the foothills of the Blue and John Crow Mountains, within the premontane moist ecological zone (Iremonger et al. 1997) (Figure 4.4). This region is characterized by the Rio Grande River and its tributaries which support lush riparian vegetation (Shreve 1914). According to Proctor (1986), the lower reaches of the Blue and John Crow Mountain ranges are characterized by montane rain forest dominated by *Calophyllum antillanum* Britt. and *Matayba apetala* (Macfad.) Radlk. Asprey and Robbins (1953) associate the vegetation in the Blue Mountains with the shale soil type, which can be classified into two major series: carbonaceous (black and course limestone and sandstone), and cretaceous (red and purple tuffs, breccias, and fossiliferous limestone). The shale soils of the Blue Mountains support montane sclerophyll up to c. 762 meters on leeward slopes, lower montane rainforest up to c. 1,067 meters on the windward slopes, montane mist forests above 1,372 meters, and elfin woodland on exposed summits and northern ridges over 1,524 meters. The porosity of the Blue Mountain shale, coupled with the area's high precipitation, makes this region well-suited for cultivation. Expectantly, tree crops are common, including *Mangifera indica* L., *Cola acuminata* (P. Beauv.) Schott & Endl., *Cocos nucifera* L., *Tamarindus indica* L., and *Annona reticulata* L. (Asprey and Robbins 1953).

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82This may also explain the high number of disjunct species in the Jamaican flora, such as *Podocarpus urbanii* Pilg., *Ocotea martincensis* Mez, *Protium attenuatum* (Rose) Urb., *Crataeva tapia* L., *Zygia latifolia* (L.) Fawc. & Rendle, and *Sterculia caribaea* R. Br. (Asprey and Robbins 1953).
83 The vernacular for *M. apetala* is “Coromantee Tree” (Proctor 1986), alluding to its association with the Blue and John Crown Mountain Maroons.
The largest continuous stretch of moist broadleaf forest in Jamaica is on the leeward side of the island, within which is located the Maroon region known as Cockpit Country as noted above. Leeward Jamaica is generally drier than the windward side, and the elevation is not as high, with most areas less than 750 m above sea level (Proctor 1986). The leeward forest canopy is dominated by *Terminalia latifolia* Sw. and *Cedrela odorata* L., and the undergrowth includes epiphytes, lianas, tree ferns, and herbs. Cockpit country is in a “lowland very moist” zone (Table 4.2).

Figure 4.3. The Caribbean Region.
Figure 4.4. Jamaica showing eastern Blue and John Crow Mountain ranges.
Tropical West African Akan regions (Ghana) and Jamaica - compared

The vegetation structure of West African Upper Guinea Forests is similar to Jamaica with multi-layered canopies and climbing life forms (Lawson 1986, Richards 1973). Some plant families are poorly represented or absent in tropical West Africa and Jamaica, such as Myristicaceae and Fagaceae (Richards 1973). On the other hand, 12 spermatophyte families, 74 genera, and 108 species are limited only to tropical Africa and America (Thorne 1973), with at least 350 species indigenous to both regions (Duvall 2006).

Unlike some regions of the Blue and John Crow Mountains of Jamaica, where there is no significant dry season (Proctor 1986), just about every area of Africa has a dry season (Richards 1973). Generally speaking, Jamaica is wetter and higher than most areas of tropical West Africa, including Ghana; thereby supporting more diverse forest types (Table 4.1). Still, broadleaf moist and wet forests are the most frequently occurring undisturbed natural vegetation type in both Ghana and Jamaica. In Ghana, the Asante and Fante regions are located in lowland evergreen broadleaf forests. Similarly, lower and upper montane broadleaf forests are the vegetation type most accessible to Maroons in Jamaica.

The warm tropical and subtropical West Indian climate favors year-round cultivation and the soils are particularly suited for tropical root-crop production (Newsom and Pearsall 2003). Watts (1984) characterizes Amerindian agriculture as a multi-species small-scale system known as conuco (see Chapter 5), and many of the plants cultivated in Maroon gardens are traditional Amerindian crops (see Appendix C); however, their long-standing presence in West Africa indicates that these useful species may have been selected by Maroons based on African tradition, rather than knowledge they were exposed to in the New World. Early descriptions of traditional\textsuperscript{84} Akan agriculture (\textit{e.g.}, see Wilks 1993) correspond to both crop and tool selection in Jamaican Maroon communities. For example, Duncan (1847) describes a small village about 8 miles from Cape Coast in Ghana, called \textit{Eyau Awkwano}, that was growing corn, manioc, yams, bananas, plantains, oranges, limes, and pineapples in the mid-19\textsuperscript{th} century. Like Jamaican

\textsuperscript{84} By traditional I mean prior to the introduction of \textit{Theobroma cacao} L. as cash crop yet subsequent to other introductions \textit{(i.e. corn and cassava).}
Maroons, West African farmers use simple tools primarily such as the axe, hoe, and cutlass, and grow a variety of high-yielding nutrient dense cultigens mixed with perennial fruit crops (Figure 4.5). Furthermore, ethnomedicinal and culinary practices suggest that African traditional knowledge was applied to American species in Jamaica by Maroons. For example, many Jamaican recipes, although adapted for American food plants, appear to be based on African tradition (e.g., see the recipe for dukunu presented later in this chapter).

Figure 4.5. Section of a typical Jamaican Maroon subsistence garden/farm with nutrient dense corm and tuber crops (see Colocasia and Dioscorea in forefront), fruiting herbs (see Musa in background), mixed with woody perennial trees such as Cocos nucifera (not shown).
Table 4.1. Presence of major forest types in the West African Upper Guinea Region and Jamaica (estimated forest zone area is only shown for Ghana and Jamaica) (Iremonger, Ravilious, Quinton 1997)

<table>
<thead>
<tr>
<th>Forest Zones</th>
<th>Upper Guinea Region</th>
<th>Jamaica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deciduous/semi-deciduous broadleaf forest</td>
<td>Ghana (4,011 km²), Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Togo</td>
<td>672 km²</td>
</tr>
<tr>
<td>Fresh Water Swamp</td>
<td>-</td>
<td>33 km²</td>
</tr>
<tr>
<td>Lower Montane Forest</td>
<td>-</td>
<td>145 km²</td>
</tr>
<tr>
<td>Lowland Evergreen Broadleaf rain forest</td>
<td>Ghana (12,932 km²), Senegal-Bissau, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Togo</td>
<td>0</td>
</tr>
<tr>
<td>Mangrove</td>
<td>Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone</td>
<td>86 km²</td>
</tr>
<tr>
<td>Semi-evergreen moist broadleaf forest</td>
<td>Senegal, Gambia</td>
<td>2,598 km²</td>
</tr>
<tr>
<td>Thorn forest</td>
<td>-</td>
<td>388 km²</td>
</tr>
<tr>
<td>Upper Montane forest</td>
<td>-</td>
<td>152 km²</td>
</tr>
<tr>
<td>Disturbed Natural Forest</td>
<td>Ghana (39,409 km²), Senegal, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Togo</td>
<td>129 km²</td>
</tr>
<tr>
<td>Sparse Trees/ Parkland</td>
<td>Ghana (3,360 km²), Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Togo</td>
<td>0</td>
</tr>
<tr>
<td>Exotic Species Plantations</td>
<td>-</td>
<td>98 km²</td>
</tr>
<tr>
<td>Native Species Plantations</td>
<td>-</td>
<td>1 km²</td>
</tr>
</tbody>
</table>

Table 4.2. Presence and general location of major ecological zones in Ghana and Jamaica (Iremonger, Ravilious, Quinton 1997)

<table>
<thead>
<tr>
<th>Ecological Zones</th>
<th>Ghana</th>
<th>Jamaica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowland moist with short dry season</td>
<td>Asante / Fante regions</td>
<td></td>
</tr>
<tr>
<td>Lowland very moist</td>
<td></td>
<td>Cockpit Country</td>
</tr>
<tr>
<td>Lowland sub-dry</td>
<td>Accra Plains</td>
<td></td>
</tr>
<tr>
<td>Lowland moist with long dry season</td>
<td>Northern Territories</td>
<td>Coastal Plains</td>
</tr>
<tr>
<td>Premontane moist</td>
<td></td>
<td>Blue and John Crow Mountains</td>
</tr>
</tbody>
</table>
The common Atlantic ethnoflora

Native Atlantic and pantropical flora contribute to common biota in coastal American and tropical African places. Many species have successfully colonized both tropical Africa and tropical America without the aid of humans, including *Ceiba pentandra* (L.) Gaertn., *Desmodium tortuosum* (Sw.) DC. (Sloane ID270), *Fleischmannia microstemon* (Cass.) King & H.E., *Mucuna sloanei* Fawcett & Rendle (Sloane ID245), and *Spondias mombin* (Adams 1972, Duvall 2006). Thorne (1973) identified 108 species native only in the tropics of Africa and America, at least 20 of which are the result of successful chance dispersal, including herbs and trees that can be transported by birds or float over long distance in salt water (see also Duvall 2006). However, the only major cultivated plants present on both new and old world coasts before 1492 were certain *Dioscorea* spp., *Ipomoea batatas* (L.) Lam., and *Lagenaria siceraria* (Molina) Standl., as well as possibly coconut (*C. nucifera*) and African diploid cotton (*Gossypium* spp.) (see e.g., Purseglove 1976).

The West Indian flora has been shaped by anthropogenic selective pressure since pre-historic times (see Chapter 5 for details). Saladoid, Carib, and Arawak Taíno were among the first people to transport plants into the West Indies from Central and South America (Wilson 2001). After Europe established contact with the New World, there was intensive trans-Atlantic movement of economic and weedy species, particularly into and out of colonial and coastal regions of tropical America and Africa. For example, as early as his second voyage to the Caribbean, Christopher Columbus introduced many species, including onion (*Allium cepa* L.), chickpea (*Cicer arietinum* L.), sweet orange (*Citrus sinensis* (L.) Osbeck), citron (*C. medica* L.), lemon (*C. limon* (L.) Burm. f.), melon (*cf. Cucumis melo* L.), fig (*Ficus carica* L.), banana (*cf. Musa balbisiana*), pomegranate (*Punica granatum* L.), radish (*Raphanus sativus* L.), sugarcane (*Saccharum officinarum* L.), seeds and cuttings of wheat (*Triticum aestivum* L.), grape vines (*Vitis* sp.), and seeds of various other fruit trees (Crosby 1972, Cunningham 1997). Such sustained biological and intellectual diffusions into America may have provided a familiar backdrop that

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85 Latin binomial taxa listed here are conjectural, since Crosby (1972) and Cunningham (1997) only list common names.
included species already well-known to members of succeeding Diaspora societies (see also Carney 2003, Voeks 1990).

Following Columbus were waves of Old World immigrants to the New World - a massive movement of people and plants that eventually caused enduring changes to the landscape on both sides of the Atlantic (Voeks 2004). According to Voeks (2004, 1993), nearly 20% of West Indian species are of Old World origin, mostly arriving during the colonial era. Useful crops intentionally introduced to the New World in conjunction with European immigration include Asian yam (**Dioscorea alata** L.), sesame (**Sesamum orientale** L.), grain sorghum (**Sorghum bicolor** ssp. **bicolor** (L.) Moench, and watermelon **Citrullus lanatus** (Thunb.) Matsum. & Naka. Later, with the swell of the trans-Atlantic slave trade, more plants of Old World origin were conveyed to American soil. According to Carney (2003), a practical cornucopia of plants traveled aboard slave ships, including okra, (**Abelmoschus esculentus** Moench.), rosary pea (**Abras precatorius** L.), baobab (**Adansonia digitata** L.), melegueta pepper (**Aframomum melegueta** Schumann), pigweed amaranth (**Amaranthus hybridus** L.), ackee (**Blighia sapida**), mustards (**Brassica** spp.), pigeon pea (**Cajanus cajan** (L.) Millsp.), hemp (**Cannabis sativa**), silver cock’s comb (**Celosia argentea** L.), lime (**Citrus aurantiifolia**), kola nut (**Cola acuminata and CA. nitida** (Vent.) A. Chev.), taro (**C. esculenta**), jute (**Corchorus** spp.), African yams (**Dioscorea cayenensis** Lam. and **D. rotundata** Poir.), oil palms (**Elaeis guineensis** Jacq. and **E. coracana** (L.) Gaerth.), sorrel (**Hibiscus sabdariffa** L.), life plant (**Kalanchoe integr** (Medik.) Kuntze), catnip (**Leonotis nepetifolia** (L.) Ait.f.), luffa sponge (**Luffa** spp.), balsam pear (**Momordica charantia** L.), cowitch (**Mucuna pruriens** (L.) DC.), African rice (**Oryza glaberrima** Steudel), pearl millet (**Pennisetum glaucum** (L.) R.Br.), carry me seed (**Phyllanthus amarus**), castor oil bean (**Ricinus communis**), broom corn (**Sorghum bicolor** (L.) Moench), tamarind (**T. indica**), Guinea grass (**Urochloa maxima** (Jacq.)R.Webster), California grass (**U. mutica** (Forsk.) T.Q. Nguyen), ironweeds (**Vernonia** spp.), groundnut (**Vigna subterranea** (L.) Verdc.), and black eye pea (**Vigna unguiculata** (L.) Walp.). Evidence that many of these plant transfers were accompanied or subsequently supplemented by African traditions, is provided by the similar ways that these plants are used in African and Caribbean communities – testimony that cultural knowledge survived the Middle Passage, and beyond (Voeks 1993). For example, Voeks
(1997) cites synonymous uses of *Kalanchoe* species and *Scoparia dulcis* as evidence to suggest trans-Atlantic ethnomedical knowledge transfer from Nigerian Yoruba to Brazilian Maroon culture. Also, McClure (1982) studied the movement of both plants and knowledge during the trans-Atlantic slave trade and found ethnomedicinal parallels in West African and West Indian uses of *Citrus aurantifolia*, *Abrus precatorius*, and *Ricinus communis*. The evidence McClure found suggests that species of magico-religious importance, such as *A. precatorius* (Figure 4.6), could have been introduced intentionally and covertly to the Americas by slaves themselves - in the form of amulet seed necklaces.

Commerce associated with the trans-Atlantic slave trade is also responsible for unintentional introduction of many species throughout the Americas. For example, in Dallas’ (1803) description of goods imported to Jamaica in 1802, there were tens of thousands of barrels and bushels of flour, rice, peas, and corn from continental America and Britain – possibly carrying agricultural weed seeds that were then inadvertently dispensed across the island (see also Schiebinger 2004). Furthermore, according to Sloane (1707), Guinea sheep were brought to Jamaica during the slave trade. Weedy West African plant species likely traveled with these sheep in their bellies, their wool, and in their feed. This global conscious and unwittingly organic dispersal phenomenon undoubtedly presented a familiar scene to new arrivants in the Americas - a condition that surely helped to sustain ethnobotanical knowledge transmission over time (see Voeks 1997, 2009).
Plant species origins and records of dispersal

Aphonse de Candolle’s seminal work, The Origin of Cultivated Plants (1885), used a multidisciplinary approach from which the science of historical biogeography burgeoned. Although he neglected Africa as a primary region of origin, de Candolle provided a systematic methodology that facilitated future studies. As a student of Darwinian theory, Nikolaï Vavilov (1887-1943) introduced evolutionary concepts to plant biogeography, and emphasized that the biological diversity of crops and their wild ancestors can be used as a key indicator of species origin (e.g., see Vavilov 1992). Unfortunately, Vavilov was imprisoned and killed in a Soviet labor camp under the Stalin regime (Pringle 2008), but his substantial contributions to science have survived and are incorporated into the research of many scientists and scholars, such as Smith (1968), who includes archeological evidence to suggest precise areas where American food plants were first cultivated. More recently, scholars are incorporating cytogenetics and comparative biochemistry (e.g., Sauer 1993), as well as molecular marker evidence (e.g., Hancock 2004) to definitively pinpoint the origin of domesticated crop species.
Searing (1993) points out that overseas movement of perishable goods has not been adequately addressed in the Diaspora literature. Much of what has been written mirrors the focus of primary biogeography scholarship on economic crops. For example, Alpern (2008, 1992) provides a historical timeline of food crop introduction into West Africa. Also, Harlan et al. (1976) give a comprehensive overview of the evidence for origins of domesticated plants in Africa. Besides economic and food crops, weedy species are a major component of ethnopharmacopoeia (e.g., see Stepp and Moerman 2001). Species characterized as weedy can establish naturally in human-disturbed environments, and are often selected for medicinal uses (Stepp 2002). For example, in Hausaland Nigeria, Etkin (2002) found that 89% of ethnomedicinal food plants are actually semi-wild species that are not cultivated, but are established by natural means in village gardens, and are then encouraged to persist.

For some major crop species, including *Allium cepa* L., *Citrus* spp., *Saccharum officinarum*, and *Zingiber officinale*, the exact time and means of establishment in tropical West Africa is unclear (Harris 1976), particularly because the massive Bantu expansion was coupled with the east to west diffusion of Asian crop species. Furthermore, the archeobotanical record in tropical West Africa is presently limited, even in areas where there has been relatively more work (e.g., East Africa); therefore, it is difficult to accurately represent past diets strictly from excavated remains because processing and cooking techniques often destroy any evidence of a species existence in an area (Wetterstrom 1993). This is particularly true for root crops. Therefore, historical descriptions from early explorers are often the best sources for determining what species were present in pre-colonial West Africa.

**Historical descriptions of the colonial Gold Coast**

Many early narratives of tropical West Africa refer to extensive gardens established in and near the European outposts on the Gold Coast. Some of these gardens were first established by the Portuguese in the 15th century, and most (if not all) of them were maintained by African farmers; several even remained productive during the
subsequent Dutch and English occupation.\(^8\) For example, Dickson (1969) states that almost every European castle in West Africa had a kitchen garden - some were fairly large and included temperate as well as local crops. The Christiansborg castle in Accra, Ghana reportedly had a garden over two and one-quarter miles long, with citrus trees, herbs, vegetables, salad greens, and grape vines (Alpern 1992). The largest reported European gardens on the Gold Coast were at Elmina and Mouri (Dickson 1969). Lawrence (1969 cited in Alpern 1992) stated that in 1672, the orchard at Elmina Castle was growing fig, pomegranate, orange, lemon, lime, and citron trees, as well as Portuguese grape vines.

These large gardens on West Africa’s Gold Coast served not only as a food source for the castle residents, slaves, and captives in transit, but also as agricultural experiment stations and sources of biological escapes into the local environment (Alpern 1992, Dickson 1969). They were continuously replenished through seed bartering with ship captains, who were given fresh produce in exchange (Römer 1989 in Alpern 1992). Dickson (1969) states that caretaking duties of the gardens were often designated to local slaves and servants, a situation that surely facilitated the diffusion of knowledge (as well as plant material) into the surrounding communities.

Many cash crops were grown by European traders during this time as well, some at a scale large enough for industrial use. For example, according to Dickson (1969), the Dutch were growing sugar cane, indigo, tobacco, and cotton near Pra River in Ghana at Shama fort in 1689. By at least 1700, cotton and fowl were raised in enough abundance for export to Holland.

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\(^8\) When the political and emotional environment in Europe and America was moving towards abolition of the trans-Atlantic slave trade in early 19\(^{th}\) century, a furor ensued in the West African economy as external forces pressed transition from a slave-based to a capitalistic society (Lovejoy 2000). During this time, many of the European-established gardens apparently fell into ruin, as evidenced by later descriptions of the Gold Coast by explorers such as Duncan (1847), who reports seeing no extensive areas under cultivation during his travels there in 1845-46.

\(^8\) A local youth gave me a private tour of Elmina castle when I was there in 2005. After climbing hundreds of old stone steps located on the back entrance of the menacing structure, the fort’s protective and massive walls open up onto an interior courtyard in which were plants such as tomato were growing in what appeared to be an abandoned garden.
Christian missionaries in West Africa

Christian missions active during the trans-Atlantic slave trade period provided an intimate medium for knowledge transfer. Often, it was missionaries who were among the first to write translation dictionaries, not just in West Africa (e.g., Christaller 1881), but many other places as well (e.g. in Hawai`i - see Sato 1985, and Nicaragua - see Berckenhagen 1906, Freeland 1995). Missionaries have, at times, served as a link between disparate cultures and have acted as human rights advocates for oppressed peoples worldwide (e.g., Bartolomé de las Casas 1484-1566 and Jeremiah Evarts 1781-1831). In the hilly region of Akwapim, Ghana (north of Accra), a Basle mission was established at Akropong in 1828 by Mr. Riis of the Basle Evangelical Society of Denmark (Macdonald 1898). The Basle Mission acted in the repatriation of ex-slaves from the West Indies, including 24 “liberated Christian Africans” from Jamaica. After a few years, some of the people returned to the West Indies. During their time at the Mission, many useful species were grown, including Coffea spp., Brosimum alicastrum Sw., Colocasia esculenta, Mangifera indica, Maranta arundinacea L., and Xanthosoma sagittifolium (L.) Schott (Macdonald 1898, Alpern 1992).

Sir Hans Sloane

Voucher collections and descriptions by early naturalists such as Sir Hans Sloane provide a sampling of the species available to West Indian inhabitants in the late 17th century. Sloane collected over 800 species in Jamaica, and brought them back to England in 1689 (Sloane 1707, 1725). The Natural History Museum of London created a searchable database of Sloane’s collection, the Missouri Botanical Garden 2011 digitized the text, and the Biodiversity and Heritage Library made the text available at http://www.biodiversitylibrary.org/item/11242 (vol. 1), and http://www.biodiversitylibrary.org/page/188148 (vol. 2).

In his introduction, Sloane (1707) briefly discusses the argument that past scholars have put forth against comparative phytogeography,\(^{88}\) referring to the claim

\(^{88}\) The theoretical framework presented by Sloane in his introduction is reminiscent of Berlin’s (1992) commentary on folk systematics. Berlin distinguishes between relativist and comparativist views of the natural world, views which he describes as contrasting essentially in the recognition of quantifiable and explainable differences and similarities in various ethnoflora.
there is no point to such endeavors because every place has unique plants. But Sloane counters, arguing that even in the remote island of Jamaica he found many plants that also grow wild in England and southern France. Sloane also stated that he “found a great many plants common to Spain, Portugal, and Jamaica, more common to Jamaica and the east Indies, and most of all common to Jamaica and Guinea.” According to Sloane, Dutch and English settlers in Jamaica who had been living in Brazil and Suriname, noticed the same plants growing on the island as they had seen in South America. Sloane goes on to say that his natural history is a portrait not only of botanical landscapes, but also of the traditional botanical knowledge held by the people living in those places.

Sloane’s unprecedented and invaluable botanical record provides a snapshot of European impact on Jamaican ecosystems in 1688. He collected plants from a range of habitats across the island, including the Blue Mountains, allowing for a better understanding of when plants were introduced to Jamaica. For example, the following Old World species (Adams 1972) included in Sloane’s collection, document their presence in Jamaica at least since late 17th century: *Acacia farnesiana* (L.) Willd. (Sloane ID764), *Gnaphalium luteo-album* L. (Slone ID40-42), *Indigofera tinctoria* L. (Sloane ID708, 709), *Lablab purpureus* (L.) Sweet (Sloane ID239), *Tamarindus indica* (Sloane ID729), *Sporobolus tenuissimus* (Mart. Ex Schrank) Kuntze (Sloane ID577), and *Acacia polyacantha* Willd. (Sloane ID771).

Botanical explorations in the New World (like Sloane’s) were commissioned primarily to bring useful species back to Europe (Schiebinger 2004), at times stimulating a domino effect that encouraged additional biological dispersions. For example, the Jamaican flora sampled in Sloane’s voucher collection so impressed Sir Arthur Rawdon of England that he hired James Harlow to return to Jamaica and collect viable propagules of each species. The plants were said to be all grown successfully in Rawdon’s garden in Moyra, Ireland (Sloane 1707).

Sloane’s descriptions of Jamaica include not only the native and naturalized vegetation, but the cultivated species as well. For example, based on Sloane’s work, we know that the following European species were being grown in Liguanea, Jamaica in the late 17th to early 18th century: parsley, wormwood, mugwort, *Melissa hortensis*,

89 Names are written here in the same format as in Sloane’s text.

Sloane also talks about goods that were exported to Europe from Jamaica, including “sugar, avocado, indigo, cotton wool, ginger, pimento (all spice), fustic wood, prince wood, lignum vitae, annatto, logwood, sarsaparilla, cacao nuts, and cochineal.” Sloane stated that rice was planted in Jamaica by “some Negros in their own plantations, and thrives well, but because it requires much beating, and a particular art to separate the grain from the husk, ‘tis thought too troublesome for its price, and so neglected by most planters.”

Sloane’s collections were concentrated in the southeastern coastal plain areas and the cultivated montane regions, thereby failing to include many endemic species found only in higher elevation forests and dry leeward slopes. For example, endemic genera such as *Portlandia* were excluded, as were many lianas and sclerophyllous species in *Forsteronia*, *Dodonea*, or *Baccharis* - even though these last genera are abundant on leeward-facing slopes (Asprey and Robbins 1953). Furthermore, Sloane did not collect locally common submontane tree species such as *Cyrilla racemiflora* L. and *Chaetocarpus globosus* (Sw.) F. & R., both found in the parishes of St. Andrew, Clarendon, and Portland (Adams 1972). However Sloane does include other types of species characteristic of lower montane forests such as climbing vines in *Marcgravia* (Sloane ID 1155-1158), *Smilax balbisiana* Kunth. (Sloane ID 467), and shrubs such as *Piper* (Sloane ID 636-642), and *Psychotria* (Sloane ID 784, 876-879, 881, 899) - genera that include several Jamaican Maroon ethnopharmacopoeia species.

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90 Again, plants names are the vernacular given by Sloane.
91 This description sounds like it could be the African variety of rice, *O. glaberrima* Steud. that was selected and grown by slaves. Today, according to my research participants, there is still some rice grown in “swampy places” of the Rio Grande Valley Maroon communities. The tradition of including rice during meals is widespread in Jamaica and is cooked in a manner indicative of West African tradition (in a way that results in individual, as opposed to clumped, grains) (see Carney 2001). During an interview with Ivelyn Harris, traditional Maroon herbalist, she described how her mother always preferred to have her wash the rice, because “when she wash it, it swell up and fill the pot.”
In the New World, colonists planted large gardens as botanical repositories, for produce export, and for local use. It can be assumed that many Old World weed species were also introduced (unintentionally) in conjunction with these horticultural plants.

Fawcett (1897) describes large-scale gardens established by private landowners in Jamaica, such as Hinton East who owned Bath Gardens in the eastern parish of St. Thomas. In 1779, Bath Gardens hired Dr. Thomas Clarke as head botanist, who introduced many species to Jamaica including *Cycas circinalis* L. (now included on checklist of CITES species (UNEP-WCMC 2011), and *Codariocalyx motorius* (Houtt.) H. Ohashi, native in East Asia (Adams 1972). Several plants first brought to Jamaica via Mr. East’s gardens later became important economic crops (*i.e.* cinnamon (*Cinnamomum verum* J. Presl)), jackfruit (*Artocarpus heterophyllus* Lam.), mango (*Mangifera indica*), and clove (*Syzygium aromaticum* (L.) Merr. & Perry). By the year 1780, Mr. East is credited with introducing over 400 species to Jamaica (Voeks 1993).


Etkin (2002) describes a prominent food-medicine continuum in West African ethnobotany. Some of these plants are not native to West Africa, but have been established there for centuries. For example, the massive Bantu expansion towards the east in Africa provided a route for Asian crops to spread into several areas of tropical West Africa in prehistoric times (Diamond 1997, Murdock 1959).

One crop known to be in West Africa prior to European contact is *Colocasia esculenta*. According to Dickson (1969), *C. esculenta* was grown extensively in forested areas of the Gold Coast during 18th and 19th centuries (see also Bosman 1705).
Southeast Asian and tropical Pacific staple has apparently been in the Gold Coast region for so long that there are native varieties; however during the 20th century people preferred to grow *Xanthosoma* instead (Dalziel 1937). One variety, known as *eddoes* (also *edwo* or *eddas*) was likely developed by Ibo in the Niger-Congo region (Dalziel 1937). According to Price (1979), *eddoes* were commonly grown in some Maroon communities throughout America. In Jamaica, Sloane (1707) also mentions *eddoes* as the variety of *C. esculenta* that was “only eaten by blacks because they make the throat scratchy.” I have never recorded the vernacular *eddoes* in Jamaica. Rather, all research participants that I have worked with refer to *C. esculenta* as *dasheen*, which is supposedly a variety of Chinese origin (Dalziel 1937). During my fieldwork in June, 2010, one research participant in Moore Town showed me different varieties of *dasheen* growing there including one called *badu dasheen* that “humans can’t eat”, and at least one other edible variety.

Many economically valuable plants from America were introduced to tropical West Africa relatively early, during the establishment of Portuguese trading c. 15th century (Voeks 2004, 1993). Thornton (1998) and Voeks (2009) suggest that knowledge associated with American crop species diffused to Africa by way of Europeans, and then moved back to America by way of Africans - after being transformed in an African landscape. By the time the major Atlantic slave trading operations commenced, roughly 100 years after Europeans began commerce in the region, many American crop species had already been accepted into African culture and cuisine. Then, when some of these plants were carried back across the Atlantic with slaves and cargo, they likely came in with associated African customary uses. One example is “corn” (*Zea mays* L.) Alpern (1992) states that corn 92 was growing along the Guinea coast by at least 1502, and was adopted by West Africans before it was even known in England, likely being the first New World crop to have ever crossed the Atlantic. Meredith (1812) states that people on the Gold Coast made bread from “Indian corn called *cankey.*” Also, according to Duncan

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92 The earliest presence of *Zea mays* in tropical West Africa is difficult to pinpoint, in part because of the ambiguous use of common names in original descriptions, and the fact that the word corn is the English term for grain crops. For example, Dickson (1969:78) states that “corn” has been used in historical literature to refer to maize (*Z. mays*), millet (*Pennisetum cinerum* Stapf & C. E. Hubbard), and guinea corn (*Sorghum guineense* Stapf). Also, Thomas (1997:420) refers to *cf. Z. mays* as “Indian wheat”, and according to Dickson (1969:78), *P. cinerum* and *S. guineense* are the two longest cultivated (and most well-liked) “corn” crops in Ghana, especially in the drier southeastern coastal plains.
(1847), the most common food at River Amissa in Ghana was “kankie (bread made from Indian corn), and soup made of palm oil, fish or fowl, pepper” as well as a variety of vegetables including yams, cassava, manioc, sweet potato, plantains, and “many herbs”.

It appears that *Z. mays* may have reached West Africa by more than one major route (Miracle 1963). De Marees credits the Portuguese with the introduction of *Z. mays* into West Africa, explaining that they initially brought the crop from the West Indies to São Tomé ca. late 15th century (de Marees 1602). From São Tomé, varieties of *Z. mays* likely diffused throughout West Africa (see also Alpern 1992). Portères (1955 in Alpern 1992) determined that, not only did the Portuguese bring *Z. mays* to West Africa from South America, but the Spaniards introduced West Indian “flint corn” to Europe where it diffused to Italy, Turkey, and finally Egypt. Dickson (1969) agrees with a domestic introduction of *Z. mays* into West Africa, stating that this crop plant was probably diffused originally from the Mediterranean, then to Egypt and overland to West Africa. Moreover, according to Purseglove (1976), an easterly introduction of *Z. mays* could be credited to the Portuguese, whom had early contact with Ethiopia and introduced several crops there, including *Z. mays*.

Supporting evidence for the antiquity of *Z. mays* in West Africa is found in the form of decorations on culturally significant objects associated with Akan93 tradition, such as staff handles and small figurines, often being used as a symbol of prosperity (see Antubam 1963 for relevant photos). The varieties of *Z. mays* introduced to Africa were adopted into traditional agricultural systems and were further subjected to indigenous selection preferences (McCann 2005). Today, *Z. mays* is a major food crop in West Africa (IITA 2008), especially in the wetter western sections of coast (Dickson 1969), and it is commonly grown in Jamaican Maroon communities like Cornwall Barracks and Moore Town, along with other staples such as yam, coco, and plantain (*e.g.*, see Figure 4.7).

Another important New World genus to have been introduced to West Africa in pre-colonial times is *Cucurbita*. According to Alpern (1992), indigenous people living on

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93 I observed corn represented in artifacts on display at the Asante Cultural center in Kumasi, Ghana, the capital of the Asante region in July 2005.
an unidentified island off the Guinea coast raised “lots” of pumpkins (Cucurbita) in 1564, and both “red and white varieties” were grown at Elmina by 1572.

A third example is Ipomoea batatas. The sweet potato was introduced to tropical West Africa relatively early. According to Alpern (1992), it was grown and sold in markets along the Gold Coast by the late 16th century, and was even given a local Fante name - sanhoume94. De Marees (1602) mentions sweet potatoes several times during his late 16th - early 17th century account of the Gold Coast. His descriptions of Gabon, south of the Gold Coast, suggest that sweet potatoes were common fare, along with bananas and yams. According to Dickson (1969), there were several root crops in sub-Sudan Ghana, sweet potato and yam being among the most important. However, apparently because of a reputation for spoiling easily, sweet potato was not favored for transport on slave ships (Sloane 1707). Sweet potato cultivars in Jamaica, likely represent material developed through Native Amerindian selection preferences. During field work in Jamaican Maroon communities in the Rio Grande Valley, I was shown varieties of sweet potatoes growing on farms and in gardens, but it was not mentioned as a medicinal plant.

A final example is Manihot esculenta Crantz.95 It is unclear when M. esculenta was widely established in West Africa, but Alpern (1992) maintains the Portuguese brought manioc (cassava) to Africa after the sweet potato. Jones (1959, in Purseglove 1976) claims that manioc was introduced to West Central Africa, the Gulf of Guinea Islands, and the Delta state of Nigeria by the second half of the 16th century. Likewise, Alpern contends that manioc must have reached Angola by the late 16th century, and was abundant at São Tomé by 1619; by 1644, it was being processed into cassava bread flour by indigenous people at Warri, Nigeria. However, Alpern states that manioc did not reach the Gold Coast until around the 18th century, and it was not established in many areas of tropical West Africa until the 19th or 20th century. Indeed, it is not mentioned by de Marees in his 1602 descriptions of the Gold Coast, nor by Bosman (1705) and Barbot (1732) (see also Dickson 1969). Today however, manioc is a widely cultivated staple in Africa, and is in fact grown on more acreage there than anywhere else in the world (Purseglove 1976). Results from a study done by Oluwole et al. (2007) on M. esculenta

94 Christaller (1881) lists the common Twi name for sweet potato as ntòmó.
95 The high status of this crop in West Indian indigenous culture is discussed in detail in Chapter 5.
production in Africa revealed as many as 54 traditional variety names for cassava in Nigeria. This high diversity is presumably the result of years of farmer-selected seedlings which had shown traits considered advantageous for an African cultural and environmental landscape (e.g., consistency of the tuber, alkaloid content, etc.). Additionally, many of the processing techniques associated with *M. esculenta* in Africa are unique, exemplifying the adeptness of Africans at agriculture and culinary innovation with adopted plants (Jones 1957). When I was in Ghana, I was told that the *fufu* dishes that I ate were made with dough of *cassava* and yam starch, a perfect example of how this native American crop has been incorporated into West African tradition.

Other non-staple foods also deserve mention, due to their prominence in the modern Jamaican Maroon cultural landscape. One example is *Ananas comosus* (L.) Merr. Alpern (1992) states that the Portuguese brought pineapple to West Africa, and De Marees (1602, 163) writes about this crop during his travels along the Gold Coast, describing it as a major component of the flora. According to Duncan (1847), pineapples were naturalized in tropical West Africa by at least the mid-19th century. Today in Jamaica, pineapples are a significant crop, with a number of varieties consumed locally or sold in town markets, including cowboy pine, wild pine, and sugar pine. In Cornwall Barracks, one of my research partners has dedicated a large part of her yard area specifically to growing pineapples.

Another non-staple crop is *Gossypium*. Cotton has a wild ancestor in southern Africa, *Gossypium africanum* (Watt) G. Watt (Purseglove 1976), making the exact route and date of dissemination of cultivated cotton and textile production technology into tropical West Africa a complex matter (see Shaw 1976) - especially considering the possible pre-contact presence of African diploid cotton in the Americas (Purseglove 1976). However, a compilation of evidence from linguistic, archeological, ethnographic, and paleobotanical sources indicate that cloth was produced from *Gossypium* species in sub-Saharan Africa by at least the 11th century (Kriger 2006). It is certain that American cotton was introduced to the Gold Coast at least by the late 17th century (Alpern 1992), and was growing extensively enough to process on an industrial scale at that time.

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96 According to Dickson (1969), a black man from Curacao named Pieter set up a cotton gin at Elmina in 1703.
The presence of *Gossypium* in pre-emancipation Maroon gardens could represent knowledge transfer from West African culture; however, this plant also has a long history in ancient Taíno societies. According to Long (1774), Taíno likely introduced *Gossypium* to Jamaica during their initial migrations from South America, and processed the seed hair into hammocks and clothes (see Chapter 5).

**Figure 4.7.** Subsistence garden/farm in Moore Town with *Z. mays*, *Cucurbita*, *A. esculentus*, *C. esculenta*, and *Musa spp.*

**Post-17th century New World crop introductions to West Africa**

Several American crop species were introduced to West Africa during or after the 17th century. Some of these are a part of the Jamaican Maroon and West African ethnopharmacopoeia and will be discussed in detail in later sections. Three species are presented here: coco-yam, tomato, and peanuts.
According to Dickson (1969), the West Indians that worked at the Basle Mission were the first to introduce *Xanthosoma sagittifolium* (*coco, coco-yam, taia*) to West Africa in 1847. In Jamaican Maroon culture, *X. sagittifolium* is an important plant and is used in the preparation of *dukunu* (see recipe in following section).

According to Alpern (1992), *Solanum lycopersicum* L. was originally introduced to West Africa by Europeans, as indicated by the common Ewe name, *yeu-te*, which means European eggplant. After its initial introduction by Europeans, the fruit was brought to West Africa by African Americans who were re-settled in Liberia in 1839. By 1846, tomatoes were a common staple sold in Benin’s Oidah markets, and as early as 1861 they had infused into Ghana’s cultural cuisine, forming part of the broth for *fufu*97 soups (Alpern 1992). Today, tomato is one of the most commonly grown commercial crops in Ghana (Sinnadurai 1973).

Peanuts (*Arachis hypogoea* L.) are said to have been introduced to West Africa by the Portuguese by at least the 1650s, in Angola; from Angola they diffused in a northerly direction to the Gold Coast where the crop was fittingly called “Angola Bean” (Alpern 1992, Dickson 1969). According to Harris (1976), peanuts were not introduced into West Africa until the “late colonial period”. They seem to have reached the Gold Coast by the turn of the 18th century, as they are mentioned by Bosman (1705), who states that they “have been known to us [Gold Coast inhabitants] but a few years.” Peanuts were among the staple foods stocked on slave ships destined for the Middle Passage. According to Sloane (1707), slaves brought to Jamaica were fed “Indian peanuts” and corn, indicating that production of these New World crops in West Africa was sufficient enough to supply several trans-Atlantic voyages in the 17th century.

The acceptance of *A. hypogoea* into West African culture (see Figure 8) and agriculture was likely facilitated by the presence of the two commonly grown native groundnuts, *Voandzeia subterranean* (L.) Thou., and *Kirstingilla geocarpa* Harms (Harris 1976, Alpern 1992). Dalziel (1937) states that peanuts have a reputation for aphrodisiac qualities in tropical West Africa, and several varieties are grown throughout the region, each with a local vernacular, indicating an autochthonous association. In

97 When I was in Ghana, I participated in preparing *fufu* soup, which consisted of a tomato, eggplant, *Capsicum* pepper, and palm oil base, with a starchy mass of yam and cassava flour dough serving as the “meat” of the one-pot meal.
Jamaica today, peanuts are a valued source of nutrition, often available in the form of “peanut punch,” a creamy drink consisting of peanuts (*A. hypogoea*), sometimes flax seed (*Linum* spp.), and/or alcohol (either Guinness Stout or white rum), and usually including a species of red algae called Irish moss (*Chondrus crispus* (Linnaeus) J. Stackhouse), along with assorted other spices. Various forms of this concoction are esteemed for their nourishing properties, as well as for their perceived ability to provide strength and stamina during sexual intercourse.

![Image](image.png)

*Figure 4.8. Woman selling peanuts in Elmina, Ghana in front of a local chief’s residence.*

**Native West African food plants introduced to the New World and cultivated in Jamaican Maroon communities**

Several native West African crop plants (and weed species associated with them) were introduced throughout the Atlantic region during the 14th-18th centuries, providing a plausible explanation for the relatively rapid development of botanical ethnopharmacopoeia in African Diaspora groups (Voeks 2009). West African plants introduced to the New World specifically as supplemental food sources for slaves include
okra, yam, and *ackee* (Voeks 1993). Several additional species will be discussed in detail later in this chapter; two examples highlighted here are yam and plantain.

Aside from cotton, *Dioscorea* is the only genus with species indigenous to both the Old and New World known to have been cultivated by both Amerindian and Maroon groups. However, yam played a much less important role in Native American diets than did manioc or corn (Ayensu and Coursey 1972, see Chapter 5). In West Africa, the cultivation of yam appears to have been ongoing since c. 9,000-4,000 B.C., making it one of the oldest cultivated foods known to man (Sowunmi 1985, Dickson 1969, Ayensu and Coursey 1972). According to Ayensu and Coursey (1972), the American and West African yam species can be distinguished botanically by both chromosome number and the ability to synthesize alkaloids - distinctive characteristics that demonstrate the evolutionary divergence of this variable crop, and may explain the cross-cultural differences in selection and use.

According to Ayensu and Coursey (1972), the only major areas of Guinea yam species (*D. rotundata* and *D. cayenensis*) production are in West Africa and the West Indies. The highest volume is centered in the sub-Saharan Akan-dominated Kwa language region of West Africa, an area which extends from the Bandama River in Côte d'Ivoire, east to the Cameroonian Mountains. Referred to as the “yam zone,” this West African cultural region embraces the major source areas where West Indian-bound slaves were forcefully exported (Figure 4.2). Both *D. rotundata* and *D. cayenensis* are rich in protein, carbohydrates, and Vitamin C, qualities that likely contributed to their inclusion as food for the slave ship voyages98 across the Atlantic and their subsequent establishment in the West Indies.99 The white variety of Guinea yam, *D. rotundata*, has had ubiquitous presence in the subsistence agriculture systems of Jamaica since at least the 18th century, where it was first described by the botanist Poiret (who actually thought it was indigenous to the island). In modern times, yam is still one of the most prominent crops in Jamaica; both white and yellow yam varieties are grown, with over 21,000 acres

98 Thomas 1997 cites slave ship captain Thams records, stating that slaves “prefer beans, Indian wheat, manioc, or yams,” adding that ships may take as much as 100,000 yams per voyage because “no other food will keep the slaves.”
99 The primarily east to west movement of yams is a trend recognized not only in the West African species, but also in the Southeast Asian yam species *D. alata* L. and *D. esculenta* (Lour.) Burk., since these species are known to have traveled into the Pacific Islands with early Pacific Island voyagers (Coursey 1976).
under cultivation in 1979 (Russell and Huddelston 1980) and over 250,000 tons produced in 1996 (Barker and Beckford 2003).

The cultural significance of yam has evidently been transferred to Jamaica from West Africa, as indicated by parallels in yam cultivation and preparation techniques (see Barker and Spence 1988), as well as linguistically in the Jamaican lexicon. In the Windward Jamaica Maroon communities located in the Rio Grande Valley, yam is a common crop (especially *D. rotundata*). I documented several variety names of yam from interviews with research participants in Moore Town, including white *afu*, and *afu pumpum* (“eaten with saltfish”). According to one of my major ethnobotanical research participants, Ivelyn Harris, a dish that was commonly prepared when she was a child was *fufu* which was often based on yam use.100 The word yam is thought to have originated from *niam* the West African Mande name, or the Temne word *enyame* (Ayensu and Coursey 1972). In Fante and Asante Twi language, the word for yam is *nyam* (Christaller 1881), which forms the root of the Akan word for God, *Nyame* (Manoukian 1950). According to Tufuo and Donkor (1969), most Ashanti homes have a type of altar where *Nyame* eats, called a *Nyamedua*, upon which the family places the first serving of each meal. In Jamaica, the word *nyam* means “to eat,” and yam itself is often referred to as “food.” For instance, if someone is given a plate of rice and peas and boiled green banana101, but no yam, the recipient might ask, “Where is my food?”

Another series of West African food plants that hold a prominent place in Jamaican Maroon culture is plantains (*Musa* spp.). Plantains are commonly cultivated in Jamaican Maroon gardens and farms. Many parts of these plants are used, primarily for food and the preparation of food. For example, *dukunu* is a sweet desert made in Jamaica and Ghana. *Dukunu* is prepared from the starch of corn, cassava, or plantain, then sweetened and wrapped in banana leaves to form a bundle, about the size and shape of a small corn cob, and then boiled or steamed. *Dukunu* is a word in the Twi language, providing evidence of the ancestral connection between Jamaicans and Akans of Ghana. Fibers from this genus are also used (Figure 4.9); medicinal uses are discussed in later

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100 Meredith (1812) describes *fufu* as the principal dish of the Gold Coast – a soup made of yam or plantain pudding, fish or poultry, with a palm oil base and seasoned with pepper, salt, eschallots; sometimes served with Indian corn bread, called *cankey*.

101 Interestingly, this typical Jamaican meal was what I was served while staying as a guest in the house of Nana Bonku, V, traditional Fanti chief of Biwiri in the Akan region of Ghana, West Africa.
sections. The following traditional Jamaican Maroon recipe for *dukunu* was provided by Ivelyn Harris;

“Grate *coco* or *taia* [*Xanthosoma sagittifolium*] (6 lbs.); grate 1 coconut and juice it to make 1 pint; 2 lbs. corn meal; 1 lb. sugar; 1 whole nutmeg grated; 3 tsp. vanilla or rosen almond; and cinnamon. In milk, stir in sugar, add nutmeg and spices with 1/2 tsp. salt; sweeten out. Pour cornmeal onto grated *taia* or *coco* and mix. Use wild plantain [*Musa* sp.] leaf for tying it in the leaf. Warm the plantain leaf over the fire to prevent them from bursting. Get strings from the dry part of a banana trunk and tie the *dukunu* in leaf. Add *dukunu* to boiling water in 3-gallon pot (2 gallons of water) with some 1/2 tsp. salt. Take out, place in basket or colander to drain. Cool. Makes ~12 Tie Leaf, each ~16-14 ounces. Take as breakfast with tea or lunch, or snack after dinner. Same ingredients can be used for baked pudding. Bake on both sides over fire. Put pudding in greased pan (~2 gallon pan). Throw in batter and place tin sheet on top. Put a fire on top (~350-400 degrees); wood fire with stones; bottom fire should be lower (~200 degrees). Bake ~45 minutes to an hour.”

*Figure 4.9. Musa fibers, Cornwall Barracks.*
Comparison of Jamaican Maroon and tropical West African ethnopharmacopoeia

Methods

Original data collected with Jamaican Maroon healers (see Chapter 1 for description of methods) is compared here with ethnomedicinal data from West Africa published by Agbovie et al. (2002), Abbiw (1990), Ayensu (1978), and Dalziel (1937). Classification is based on the phylogenetic treatment of flowering plant families (see Judd et al. 2007). Selection of West African ethnomedical studies was purposive; criteria included a description of ethnographic methodology, identification of ethnomedicinal species, and a presentation of the traditional uses of plants for medicine in West Africa.

Previous ethnobotanical comparative studies have used similar methods of analysis, including Halberstein (2005), who compares original data with “scientifically collected” data to establish historical and cross-cultural usage patterns of plant species. Also, Caesar (2009) compares voucher collection and survey data from Guyana with published information regarding West African plant vernaculars to establish linguistic connections in order to trace Afro-American ancestry.

The taxonomic level of genus is relatively large, often monotypic in folk systematics, and is assumed to be salient among medicinal plant experts – which provides an opportunity for recognition of congeneric species in various habitats (see Berlin 1973). For example, Palmer (2004) discusses the adoption of introduced congeneric species of Bidens and Plantago by Hawaiian la`aulapa`au (traditional medicine) practitioners into their ethnopharmacopoeia as an adaptation strategy to deal with a flora that has become increasingly alien. Examples of species in Jamaican Maroon ethnopharmacopoeia that

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102 Species that were identified as part of Arawak ethnopharmacopoeia (see Chapter 5 for methods), and have overlapping medicinal uses in Jamaican Maroon ethnomedicine, are also presented here for comparison. Plants used in similar ways by only Arawak Amerindians and Jamaican Maroons (and not West Africans) are presented in more detail in Chapter 5. Also, any identified similarities or differences between Jamaican Maroon and European colonial use of medicinal species is presented for comparison.
could be possible congeneric substitutions for West African medicinal plants are listed and compared in Appendix B.

My estimates of the historic availability of introduced ethnopharmacopoeia species are based on the use of the earliest (Sloane 1707, 1725) and the latest (Adams 1972, Proctor 1986) descriptions of Jamaica's flora, as well as the multi-volume flora of tropical West Africa (Hutchinson and Dalziel 1972, 1968, 1963, 1958, 1954, 1936), herbarium collections published online through Missouri Botanical Garden, African Plants Database, and the Natural History Museum of London, and recent biogeographical publications (Purseglove 1976, Harris 1976, and Alpern 1992). Folk taxonomies are compared using ethnographically derived data from Jamaica (original field collections) and published information in Abbiw (1990), Agbovie et al. (2002), Ayensu (1978), Christaller (1881), and Dalziel (1937). Species status (native, introduced, etc.) is sourced primarily from the Jamaican and tropical West African published floras, as well as other biogeographical authorities when indicated.

Only ethnomedicinal uses of plants that are already part of the public domain will be discussed (i.e., only the plant-disease associations shared by Jamaican Maroons and West African healers are presented here). Furthermore, only clear and certain similarities of usage are discussed. Many other uses and preparation methods may have been recorded for species listed in the Jamaican Maroon ethnopharmacopoeia but are not described here, thereby keeping control of unpublished information in the hands of the Jamaican Maroon community.

Results

Of the 176 plant species sampled from the Jamaican Maroon ethnopharmacopoeia, 48 are cited as a part of West African ethnopharmacopoeia (~ 27 %). Of the 48 shared ethnomedicinal species, 17 (~ 10 %) are native to West Africa, and 31 (~ 18 %) are alien to West Africa. Of the 17 native West African species included in Jamaican Maroon ethnopharmacopoeia, 12 (70 %) are known to have a clear analogous use in West African ethnomedicine. Out of the 31 species that are alien in West Africa, 18 (58 %) were identified as having similar uses in both Jamaican Maroon and West African ethnomedicine. At least 77 % of the 30 species with shared analogous uses in
both Jamaican Maroon and West African ethnomedicine are native to West Africa or were introduced to the region around the time of the trans-Atlantic slave trade period (Table 4.3). The plant family with the highest number (nine) of shared species is Fabaceae. The second, third, and fourth highest numbers of shared species belong to the families Malvaceae\textsuperscript{103} (six species), Euphorbiaceae (five species), and Solanaceae (four species).

At least 22 additional genera in the Jamaican Maroon ethnopharmacopoeia have congeneric counterparts in West African ethnomedicine, 68% of which have analogous medicinal uses, and 68% of which are processed and administered as medicine in similar ways. In the following sections, selected species and/or genera will be discussed in terms of potential overlaps in use and in some cases, their possible dates of introduction. Taxa reviewed in each of the following sections are listed alphabetically according to the genus. It is important to qualify and compare ethnomedicinal plants cross-culturally, species by species, because combining uses into common categories is not always possible. Furthermore, understanding the historical biogeography of each species is critical for acknowledging where and how traditions associated with plants in ethnopharmacopoeia may have developed. Therefore, it is necessary to describe the uses and origins of each plant, individually, within the context of each relative culture.

\textsuperscript{103} Sterculiaceae is subsumed in Malvaceae here, according to the phylogenetic treatment put forth in Judd \textit{et al.} (2007).
Table 4.3. Summary of main findings: Species with similar uses in Jamaican Maroon and tropical West African ethnomedicine and estimated date of introduction to Africa and Jamaica

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Region of Origin</th>
<th>Possible time of introduction to West Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anacardiaceae</td>
<td>Mangifera indica L.</td>
<td>Tropical Asia</td>
<td>8th century</td>
</tr>
<tr>
<td>Apiaceae</td>
<td>Eryngium foetidum L.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Cucurbitaceae</td>
<td>Momordica balsamina L.</td>
<td>Africa, Asia, Australia</td>
<td>-</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Chamaesyce hirta (L.) Millsp.</td>
<td>Americas</td>
<td>unknown</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Ricinus communis L.</td>
<td>Africa</td>
<td>-</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Tamarindus indica L.</td>
<td>Africa, temperate Asia</td>
<td>-</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Canavalia ensiformis (L.) DC.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Andira inermis (W. Wright) Kunth ex DC.</td>
<td>Africa, tropical America</td>
<td>-</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Desmodium incanum DC.</td>
<td>Tropical America</td>
<td>unknown</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Entada gigas (L.) Fawcett &amp; Rendle</td>
<td>Africa, tropical America</td>
<td>-</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Mimosa pudica L.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Senega alata (L.) Roxb.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Senega occidentalis (L.) Link</td>
<td>Pantropical</td>
<td>-</td>
</tr>
<tr>
<td>Lamiaceae</td>
<td>Ocimum gratissimum L.</td>
<td>Africa, tropical Asia</td>
<td>-</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Acalypha amantacea ssp. wilkesiana</td>
<td>Oceania</td>
<td>unknown</td>
</tr>
<tr>
<td>Lauraceae</td>
<td>Persea americana P. Mill.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Malvaceae</td>
<td>Cola acuminata (P. Beauv.) Schott &amp; Endl.</td>
<td>Africa</td>
<td>-</td>
</tr>
<tr>
<td>Malvaceae</td>
<td>Sida acuta Burm. F.</td>
<td>Pantropic</td>
<td>-</td>
</tr>
<tr>
<td>Malvaceae</td>
<td>Sida rhombifolia L.</td>
<td>Pantropic</td>
<td>-</td>
</tr>
<tr>
<td>Myrtaceae</td>
<td>Psidium guajava L.</td>
<td>Tropical America</td>
<td>17th century</td>
</tr>
<tr>
<td>Piperaceae</td>
<td>Lepianthes peltata (L.) Raf.</td>
<td>Pantropical</td>
<td>-</td>
</tr>
<tr>
<td>Poaceae</td>
<td>Cymbopogon citratus (DC. Ex Nees) Stapf</td>
<td>India</td>
<td>unknown</td>
</tr>
<tr>
<td>Sapindaceae</td>
<td>Blighia sapida K. D. Koenig</td>
<td>Africa</td>
<td>-</td>
</tr>
<tr>
<td>Scrophulariaceae</td>
<td>Scoparia dulcis L.</td>
<td>Tropical America</td>
<td>c. 16th to 19th century</td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Capsicum annuum var. annuum L.</td>
<td>Tropical America</td>
<td>17th century</td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Solanum torvum Sw.</td>
<td>Tropical America</td>
<td>unknown</td>
</tr>
<tr>
<td>Verbenaceae</td>
<td>Lantana camara L.</td>
<td>Tropical America</td>
<td>19th century</td>
</tr>
<tr>
<td>Verbenaceae</td>
<td>Lantana trifolia L.</td>
<td>Tropical America</td>
<td>unknown</td>
</tr>
<tr>
<td>Verbenaceae</td>
<td>Stachytarpheta cayennensis (Rich.) Vahl</td>
<td>Tropical America</td>
<td>unknown</td>
</tr>
<tr>
<td>Zingiberaceae</td>
<td>Zingiber officinale Roscoe</td>
<td>Tropical Asia</td>
<td>16th century</td>
</tr>
</tbody>
</table>

* Due to lack of historical botanical collections, descriptions, and archeobotanical data in West Africa, it is difficult to pinpoint the exact time of plant introductions; actual presence of species in the region could be much earlier; historical, ethnomedicinal, and ethnotaxonomic evidence to support earlier introductions of some species is discussed in text.
Jamaica ethnopharmacopoeia species indigenous\textsuperscript{105} to tropical West Africa and used as medicine in both West Africa and Jamaica

\textit{Abelmoschus esculentus} (Malvaceae) “okra”

Okra is just one of the native West African species brought to the Americas aboard slave ships for its edible fruits (Carney 2003). This annual herbaceous crop is now a part of the Jamaican Maroon ethnopharmacopoeia as a medicinal food. Okra is often grown in subsistence gardens (Figure 4.10), and was cited during interviews as a medicinal plant that “gives strength.” The significance of okra (\textit{nkuruma}) in Akan culture is evident by the many varieties grown by farmers, the numerous medicinal applications (Dalziel 1937), and the traditional Ashanti stories written about it (\textit{e.g.}, Rattray 1930). Also, according to Kodanu (2004), \textit{okra} is “that part of you which returns to \textit{Onyankopon}.”\textsuperscript{106}

\textbf{Figure 4.10.} Jamaican Maroon elder with okra fruit

\textsuperscript{105}This includes species that are very widespread, or pantropical, with no clear distinct region of origin. \textsuperscript{106}\textit{Onyankopon} is a term a term for The Creator that translates as “the one who receives the weight of others and does not break or bend” (Konadu 2004).
**Andira inermis** (Fabaceae) “cabbage wood”

*Andira inermis* has colonized both sides of the Atlantic naturally via its oversea dispersal capabilities, and is therefore considered native to both Jamaica and Ghana. According to Abbiw (1990) the bark of *A. inermis* is powdered and mixed with honey and other plant species to expel worms from the body. During my research in Jamaica, one Maroon herbalist told me during an interview that the leaves, bark, and seeds of *A. inermis* is combined with other plants and used to treat intestinal worms. This plant is also used to treat intestinal worms by the African-Amerindian ethnic group known as Garinagu in Nicaragua (Coe and Anderson 1996, see Chapter 5).

**Blighia sapida** (Sapindaceae) “ackee”

This large tree is native to the Ivory and Gold Coast forests of tropical West Africa (Dalziel 1937). According to Carney (2003), *B. sapida* was dispersed throughout the Americas during the slave trade. Although the first documented collection of *ackee* in Jamaica was not until 1890 by Hitchcock (Missouri Botanical Garden 2011), Fawcett (1897) credits its introduction to the island to “Dr. Clarke” who planted *B. sapida* on his property adjoining Hinton East’s estate, now known as Bath Gardens, in 1778.

Various and multi-contextual uses of *ackee* in Jamaican Maroon tradition, along with the retention of the Asante107 vernacular, suggests that knowledge associated with this species diffused directly from West African to Jamaican ethnic groups. For example, according to Dalziel (1937), the immature fruits are used by Krobos on the Gold Coast to create lather “in washing.” Comparable accounts of this application were told to me by research participants in Jamaican Maroon villages who stated that the husks of *ackee* can be used as a replacement for store-bought soap when laundering clothes. In Ghanaian ethnomedicine, the leafy twigs of *B. sapida* are crushed and applied to the forehead to treat migraine headaches (Abbiw 1990). Similarly, in Jamaican Maroon communities, the leaves of this species are used as an analgesic to treat “pain in the back.” Also, in both West Africa and Jamaica, people have the knowledge necessary to eat *ackee* without

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107 According to Dalziel (1937), the name *ackee* is Ashanti in origin, and is applied to *B. sapida* across West Africa and the West Indies.
being poisoned; in fact, it is considered a delicious delicacy – particularly when cooked in fat (e.g., see Rashford 2001, Dalziel 1937). Nowhere else in the world has *ackee* reached such high cuisine status as in Jamaica, where it is now a major component of the national dish, *ackee* and saltfish. The connection between *ackee* and Jamaica is so exclusive that it may be considered an indicator species for Jamaican culture (Rashford 2001).

*Cola acuminata* (Malvaceae) “bissy”

*Cola acuminata*, whose seeds are used widely in soda drinks as a source of flavor and caffeine, is a native West African tree species brought to the New World aboard slave vessels (Carney 2004). Linguistic analysis of *Cola* in the African Diaspora supports a non-random movement of people during the slave trade that led to a disproportionate amount of African ethnic groups concentrated in certain areas of colonial America. For example, in Brazil (a former Portuguese colony), Maroons refer to *Cola acuminata* by its Yoruban name, *óbí* (Voeks 1997); in Jamaican Maroon groups (a former British colony), the same species is called by its Akan name, *bissy*.

*Cola acuminata* is used to treat problems associated with the digestive system in both Jamaican Maroon and Ghanaian ethnomedicine. For example, Jamaican Maroon herbalists reported to me during interviews that this species is used to treat a variety of complaints, including bellyache. In Ghana, *C. acuminata* is used in traditional medicine to treat colic, griping, and belly pain (Abbiw 1990).

*Commelina diffusa* (Commelinaceae) “water grass”

*Commelina diffusa* is a sprawling herbaceous species, found throughout tropical and warm temperate regions (USDA, ARS, National Genetic Resources Program) and is present in both Jamaican Maroon and Ghanaian ethnopharmacopoeia. Ayensu (1978) lists six names for this species in Ghanaian vernacular, none of which appear to have transferred to Jamaican Maroon folk taxonomy. There are two types of the water grass ethnospecies recognized in Jamaican Maroon ethnomedicine (*C. diffusa* and *Tradescantia zebrina* hort. ex Bosse, see Chapters 3 and 5). I did not identify any use overlaps in West African in Jamaican Maroon ethnopharmacopoeia; however, I did identify similarities
between Arawak and Jamaican Maroon medicinal use. According to Valadeau et al. (2010), the Arawak Yanesha use a decoction of *C. diffusa* to “prevent infections;” similarly, Jamaican Maroons use this species in “clean out” remedies (see Chapter 3) which are given to cleanse the body of impurities thought to cause disease. Also, the Yanesha prepare *C. diffusa* as a poultice to treat wounds and trauma; similarly, Jamaican Maroons apply a poultice of *C. diffusa* as a remedy for sprained ankle. The relatively high tendency in Jamaican Maroon and Amerindian ethnomedicine to select species of Commelinaceae for medicine (see Chapter 6), suggest that knowledge of *C. diffusa* may have been learned from Amerindian groups.

*Entada gigas* (Fabaceae) “cacoon”

The Jamaican Maroon common name for *Entada gigas* is similar to the vernacular applied to the same species in Nigeria, *kakoba* (Dalziel 1937). According to Dalziel, Yoruba (an ethnic group in Nigeria) use the seeds of this liana for medicine and the plant itself is grown around villages “as a fetish.” In Jamaica, this thick liana grows naturally in the Blue and John Crow mountain region around Maroon villages. It is distinctively associated with Maroons, also being called Maroon Wis. According to one Maroon elder and drummer that I interviewed, *E. gigas* is considered “play bush” or “Maroon bush,” and parts of the plant are used for esoteric medicinal purposes including “to run away Satan.”

*Lepianthes peltata* (Piperaceae) “cow foot”

This pantropical species has similar uses in the ethnomedicine of Jamaican Maroon and Ghanaian culture. According to Adams (1972), *L. peltata* is “general in

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108 The word fetish is highly esoteric and its meaning may vary across cultures; the Igala ethnic group in Nigeria use fetish objects primarily as a means to prevent witchcraft or sorcery (Boston 1971).
109 Plants used during Kramanti play ceremony; according to one Maroon elder and traditional drummer, Kramanti play practitioners will “work” on a sick person to heal them. The healer will “rub them, put rum on them, rub them up - if Satan on them he gone - this is coming off a Grande Nanny tradition.”
110 Several species of plants were indicated as effective for removing demons; often this type of remedy is applied by rubbing the plant or parts of the plant onto the patient, or put into baths. I was told by one Jamaican Maroon herbalist that this tradition of removing demons or devils from a person is similar to the healing practices of Jesus, as described in the Christian Bible. For example, Luke chapter 4 verse 40-41 reads, “Now when the sun was setting all they that had any sick with divers diseases brought them unto him; and he laid his hands on every one of them, and healed them. And devils also came out of many, crying out, and saying, Thou art Christ the Son of God.”
tropical America [and] West Africa; and Vercourt (1996) states that this shrub “certainly appears wild in Africa.” According to Abbiw (1990) the soaked leaves are applied to treat toothache. In Jamaican Maroon medicine, the leaf is applied to treat headache. Garinagu also use *L. peltata*, and in similar ways as Jamaican Maroons. For example, Jamaican Maroons treat pains and headaches with *L. peltata*, and Garinagu treat aches and pains.

**Leonotis nepetifolia (Lamiaceae) “holy thistle”**

*Leonotis nepetifolia* was introduced to Jamaica, but it was not collected by Sloane, so it is unclear when it arrived to the island. However, as a native of tropical West Africa, this small-seeded herb could have been transported consciously by slaves across the Middle Passage. Another possibility is that this herb was introduced unintentionally in the food stores on slave ships. According to Dalziel (1937), *L. nepetifolia* was “put amongst stored corn to keep away vermin” - a situation that describes a feasible means for this weedy species to have been dispersed across the Atlantic Ocean.

Varieties of *L. nepetifolia* are used for an assortment of ailments in Ghana and Nigeria, indicating that this species is an important and well-recognized medicinal plant in traditional West African health care. Ailments treated with *L. nepetifolia* in West African ethnomedicine include fever, gastrointestinal pains, headache, syphilis, and catarrh (Abbiw 1990), as well as swellings, ulcers, tonic, and as a febrifuge (Dalziel 1937). In Jamaica, this plant is recognized as medicinal and has been incorporated into Maroon ethnopharmacopoeia, but it is uncertain whether it is used in similar ways as West African ethnomedicine.

**Momordica balsamina (Cucurbitaceae) “cerasee”**

According to Abbiw (1990), in Ghana a decoction of the leafy stems of the vine *Momordica balsamina* (along with other species) is taken internally, and an infusion is applied as a wash to treat yaws\(^{111}\) in Ghana. In Jamaica, Maroon participants told me during interviews that *M. balsamina* is prepared as a bath to treat skin rash, sores on the body, and fungus on the skin (see Chapter 3 for a description of bath and other medicinal preparations in Jamaican Maroon culture).

\(^{111}\) Yaws is an infectious skin disease present in tropical regions (Abbiw 1990).
According to Carney (2003), *Momordica* was brought to the New World on slave ships. Sir Hans Sloane collected *M. balsamina* in Jamaica in 1687-89 (Sloane ID455), indicating that the species was established on the island relatively early. The similar preparation methods and use in both Jamaican Maroon and Ghanaian ethnomedicine suggest that a transfer of knowledge, along with this species, was spread across the Middle Passage.

* Ocimum gratissimum (Lamiaceae) “balsam” 

This species of basil is classified as native to West Africa (USDA, ARS, National Genetic Resources Program). However, Hutchinson and Dalziel (1963) state that, although widespread in tropical West Africa, it was introduced from Asia. It is possible that this species represents the legacy of trade between Africa and Asia that has been ongoing for roughly 3,000 years, since the time of Solomon and Sheba (see Purseglove 1976).

The first botanical collection of *Ocimum gratissimum* in tropical West Africa was from the Congo in 1895 (African Plants Database 2010). In the West Indies, *O. gratissimum* was first collected in Martinique in 1880 (Missouri Botanical Garden 2011), although it was reportedly already a component of Brazilian ethnopharmacopoeia by the early 19th century, following its introduction to the country by European colonists (Voeks 1997). Jamaican Maroons and Ghanaians prepare medicine from *O. gratissimum* as a tea, and use it to treat ailments of the integument and digestive systems, as well as fevers and coughs.

* Peperomia pellucida (Piperaceae) “rat ears” 

This herbaceous plant has a pantropical distribution (Adams 1972). In Nigeria, it is commonly included in medicinal infusions (Dalziel 1937). According to the research participants I interviewed in Jamaican Maroon villages, *P. pellucida* is also frequently selected to make medicinal infusions (see Chapter 3), although the exact indication appears to differ from those described by Dalziel (1937). This small herbaceous species is prevalent along roadsides in Jamaican Maroon villages in Portland and is well known by many people, including young children, as it is one of the plants commonly prescribed.
**Ricinus communis** (Euphorbiaceae) “castor bean”

*Ricinus communis* is a widespread spurge in tropical areas throughout the world. The probable origin of *R. communis* is Africa (USDA, ARS, National Genetic Resources Program 2011), but the vernacular (*abrônkruma*) in Fanti regions suggests that it was introduced to West Africa by Europeans; *abrônkruma* translates as “white-man’s okra” Dalziel (1937). It is possible that the geographical origin of *R. communis* is located in northeast Africa, as it was part of the ethnopharmacopoeia in ancient Egypt (Voeks 1997). According to Carney (2003), *R. communis* traveled to the New World aboard slave ships. It was collected in Bermuda by Sloane in 1687–89 (Sloane ID656) and by 1753 it was widespread in many regions, as indicated by Linnaeus’ description of *R. communis* habitat as “India *utraque*” (meaning that it grows in both the East and West Indies), as well as in Africa, and Europe, in elevation to about 1,200 meters above sea level (Missouri Botanical Garden 2011).

Considered a weedy species, *R. communis* is now naturalized in most tropical and subtropical countries (USDA, ARS, National Genetic Resources Program 2011, Dalziel 1937), and has been incorporated into the ethnopharmacopoeia of many American cultures including colonial Brazil (Voeks 1997). According to Abbiw (1990), *Ricinus communis* is used as a purgative in Ghanaian ethnomedicine. Likewise, one Jamaican Maroon healer I work with told me that *R. communis* is used as a purgative (see Chapter 3 for an emic definition of this term). The application of *R. communis* “as a purgative” in Jamaica was also described by Long (1774), who writes that *R. communis* is used to “help expel the meconium from newborns and has saved the lives of many thousand Negroe children by purging this excrement from their bodies, which, if left inside can be fatal…” Additional interviews and participant observations with traditional Ghanaian herbalists are needed to better understand the meaning of, and indications for, “purgative” in Akan or other West African ethnomedicine for an accurate comparison with Jamaican Maroon ethnomedicine.

**Senna occidentalis** (Fabaceae) “dandelion”

*Senna occidentalis* has a pantropical distribution and is classified as a native in both Africa and the Americas (USDA, ARS, National Genetic Resources Program 2011).
It was collected from Cape Coast, Ghana in 1841, but has likely been in the region for a much longer time. According to Brenan (1967), *S. occidentalis* may have been introduced to West Africa from tropical America. By the latter part of the 19th century, it was commonly found growing in damp and watery places, and reported as “widely diffused in tropical West Africa” (Oliver 1871).

*Senna occidentalis* is present in tropical ethnopharmacopoeia in both the Old and New World, including Jamaican Maroon, Garinagu, and Ghanaian. Both Jamaican Maroons and Garinagu use parts of *S. occidentalis* to treat the nervous system; Garinagu use it to treat “aches and pains”, and Jamaican Maroons use the same species to treat back pain. Other examples are provided by Voeks (1997), who discusses the diffusion of *S. occidentalis* into African Diaspora, as well as indigenous cultures, of Brazil. Support for its relatively long-time presence in the tropical West African landscape is the exceptionally high number of distinct applications in traditional Ghanaian medicine (more than 30 indications are cited by Abbiw alone). Some of the uses described by Abbiw (1990) are similar to those described to me during interviews with Jamaican Maroons. For example, both Jamaican Maroon and Ghanaian traditional healers use *S. occidentalis* to treat kidney and bladder problems, as well as “swelling.”

*Sida acuta* and *Sida rhombifolia* (Malvaceae) “broom weed”

*Sida acuta* and *S. rhombifolia* have a pantropical distribution and may be considered native to both tropical America and tropical West Africa; each are also included in Jamaican Maroon and Ghanaian ethnopharmacopoeia. Both *Sida* species are recognized by the same vernacular in Jamaican Maroon ethnomedicine. *Sida rhombifolia* is used in Jamaican Maroon ethnomedicine to strengthen the bones. Similarly, according to Dalziel (1937), preparations of the same species are administered internally to treat wasting or atrophic diseases.

Arawak groups also include *Sida* species in their ethnopharmacopoeia. For example, the Yanesha use *S. rhombifolia* for many of the same ailments as Jamaican Maroons. According to Valadeau *et al.* (2010), Yanesha use *S. rhombifolia* to treat
arthritis and rheumatic pain. Likewise, Jamaican Maroons use this species for back pain and bone pain, as well as for aching “joints.”

_Spondias mombin_ (Anacardiaceae) “hog plum”

According to Duvall (2006), there is ample historic biogeographical evidence to suggest that _S. mombin_ dispersed naturally across the Atlantic and is therefore native to both tropical America and West Africa. This tree species is an example relevant to a symbolic statement one Jamaican Maroon research participant made during one of my research interviews, “The Creator put the same things in the places where we was gonna come.” Indeed this statement emphasizes the idea that long-distance, oceanic natural plant dispersals in the tropical Atlantic region have been grossly underestimated in botanical literature.

_Tamarindus indica_ (Fabaceae) “tambrin”

Tamarind is classified as native to West Africa (USDA, ARS, National Genetic Resources Program 2011). According to Purseglove (1976), it was first domesticated in East Africa. However, Alpern (1992) cites West African linguistic evidence112 to suggest that _T. indica_ is associated with Europeans. Carney (2003) includes _T. indica_ as one of the species that traveled to America aboard slave ships. Although _T. indica_ was reportedly a common component of colonial European ethnopharmacopoeia113 (see Long 1774), tamarind is used by Jamaican Maroons in very different ways; instead, Jamaican Maroons employ _T. indica_ in ways that are very similar to how it is used in traditional West African medicine, suggesting that a conscious retention of African usage and rejection of European ethnobotanical knowledge occurred during Maroon cultural development. For example, in Ghana, parts of this cultivated tree species are applied in the treatment of carbuncular boils and bronchial trouble (Abbiw 1990); similarly, Jamaican Maroon healers use _T. indica_ to treat measles and bumps, as well as asthma.

112 Christaller (1881) lists two Akan names for the tree, only one of which (bọrofo-sō̄ку́rań) references Europeans (bọrofo means English, European, or white-man).
113 According to Long (1774), the tamarind pulp was considered a purgative and used to treat fevers (among other things). Long describes many medicinal actions of tamarind, stating that it “temperates the acrimony of humours,” “abates the heat of the bile and blood,” “quenches thirst,” “quicksens those that are sluggish,” and it “never fails to open the body.” Additionally, Long states that a decoction of the leaves was thought to “destroy worms in children.”
Jamaica ethnopharmacopoeia species alien in tropical West Africa, recognized and used as medicine in both places

*Acalypha amantacea* ssp. *wilkesiana* (Euphorbiaceae) “Joseph coat”

Jamaican Maroons and Nigerian Yorubans use this Pacific ornamental shrub for similar ailments. According to Burkill (1985) *A. amantacea* ssp. *wilkesiana* is used for “nasopharyngeal affections and for pain.” In Jamaican Maroons use the same species for “asthma and bronchitis,” “anti-mucous,” and for “period pain.” *A. amantacea* ssp. *wilkesiana* is one of the most salient plants in Jamaican Maroon communities (see Chapter 3). It is possible that this colorful shrub was selected by Captain Bligh in Tahiti, along with fruiting trees (*e.g.*, Otaheite apple (*Syzygium malaccense* (L.) Merr. & Perry), breadfruit (*Artocarpus altilis* (S. Parkinson) Fosberg), and Jack fruit (*A. heterophyllus* Lam.), etc.), and brought to Jamaica in 1793. According to (Parry 1955), Captain Bligh brought “many hundreds of rooted cuttings in tubs and baskets from the Pacific Islands.” It is unclear how the shrub reached West Africa but it is possible that it was introduced directly from tropical Asia. *A. amantacea* ssp. *wilkesiana* is also called “roses” in Jamaican Maroon communities, and the Nigerian Yoruba name is *aworoso* - a possible cognate.

*Annona muricata* (Annonaceae) “soursop”

Soursop is native to tropical America and was dispersed throughout the West Indies by pre-European Arawak voyagers (Newsom 1993). According to Alpern (1992), *A. muricata* was introduced to West Africa prior to the colonial period (*c.* pre-1870). Hutchinson and Dalziel (1954) state that *A. muricata* is cultivated in West Africa for its fruit, and it may be naturalized in some areas. The earliest collected specimen in West Africa is held at Kew Gardens in London and is dated 1868 (African Plants Database 2010); but according to Alpern (2008), it was present in Angola by at least 1668.

Although *A. muricata* is present in Jamaican Maroon, Ghanaian, and Garinagu (Central American) ethnopharmacopoeia, there are no known overlaps in specific ethnomedicinal application. It is possible that *Annona* species were recognized in America based on familiar characteristics shared by native West African species, such as
*Annona senegalensis* Pers.; however, unique uses indicate ingenuity in Jamaican Maroon ethnomedicine.

**Asclepias curassavica (Apocynaceae) “red head”**

The earliest collected specimen in West Africa is from Senegal in 1882 (JStor Plant Science 2011). According to Dalziel (1937) and Hutchinson and Dalziel (1963), *A. curassavica* is primarily planted as an ornamental, and has escaped cultivation in some areas. Although it has a widespread presence in most countries of tropical West Africa, and is included in Ghanaian ethnopharmacopoeia, there are no known specific overlapping indications of its use as a medicinal in tropical West Africa and Jamaica Maroon tradition.

**Canavalia ensiformis (Fabaceae) “overlook bean”**

According to Adams (1972), *C. ensiformis* is likely native to the American tropics and is now widespread due to introductions. Hutchinson and Dalziel (1954) state that it is commonly cultivated in tropical places worldwide, found growing on fences and trees in West Africa. *Canavalia ensiformis* was collected in Nigeria in 1858 by C. Barter (No. 1607 held at the Royal Botanical Gardens, Kew (JStor Plant Science 2010). This leguminous vine has “superstitious” associations in West Africa (Dalziel 1937). In Jamaica, this vine is planted in people’s yards in order to “keep away bad eye,” or to cause persons with bad intentions to “overlook your house.”

**Capsicum annuum var. annuum (Solanaceae) “bird pepper”**

According to Alpern (1992), all the species in the *Capsicum* genus crossed the Atlantic, with spicy red varieties reaching the Gold Coast by at least the 1640s when they were seen growing at Elmina Castle. *Capsicum annuum* was likely transported on English slave ships that included “red pepper” as part of their provisions (likely for use to prevent scurvy or other diseases produced by a lack of Vitamin C content). According to Fitzpatrick and Keegan (2007), the common pepper *C. annuum* was introduced into the Caribbean by at least the Ceramic Age (c. 300 B.C. to 1400 A.D.) (deFrance and Newsom

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114 According to Abbiw (1990), Ghanaians have at least 19 distinct medicinal uses for *A. senegalensis*, indicating its prominence in West African ethnomedicine.
Indigenous people throughout the New World use *Capsicum annuum* var. *annum* as medicine, including the African-Amerindian Garinagu. Long (1774) describes medicinal use of bird pepper in Jamaica, stating that it was used in both internal and external applications, but only for horses and mules. For human use he only describes it as a spice and condiment, but adds that it may be a necessary food additive in Jamaica’s climate, in order to “assist digestion, promote the tonic motion of the bowels, invigorate the blood, and correct the flatulency of vegetable aliments.” Today, *Capsicum* peppers are naturalized in West Africa (Purseglove 1976) and have become a primary component of traditional cuisine; they provide the basis of the flavor profile for common West African *pili-pili* dishes (Alpern 1992). Likewise, *Capsicum annuum* is used in traditional Jamaican Maroon recipes, including *run down*. Specific overlaps in Jamaican Maroon and West African ethnomedicine include its use in the treatment of pain. Additionally, the leaves are warmed and applied as a dressing for skin ailments in both tropical West African and Jamaican Maroon medicine.

*Carica papaya* (Caricaceae) “papaya”

According to Alpern (1992), *Carica papaya* was in São Tiago by 1647 and by 1679, it had reached Anamabo in the Fante region of the Gold Coast. The Tano ethnic group in the Volta region of Ghana has applied a unique Twi name for papaya, *bor fere*, in reference to the fruit’s resemblance to native melons (*fere*) (Christaller 1881, Blench 1981).

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115 Long (1774) provides a recipe for preparing a concoction using *Capsicum annuum* called “man-dram”, given to “provoke the most languid appetite”: “sliced cucumbers, echalots or onions cut very small, a little lime juice and Madeira wine with a few pods of bird pepper - or bonnet pepper, well mashed and mixed with liquor.”

116 Jamaican *run down* is a popular traditional coconut-based sauce dish. The main “meat” of the dish can vary according to availability and/or preference. For example, I have eaten salt fish rundown, as well as *cacoon* (*Entada gigas*) rundown. The name *run down* is in reference to how the sauce is made – by letting coconut oil run (boil) down to custard and oil. One recipe for *run down* was provided by Ivelyn Harris of Cornwall Barracks, Jamaica: “Grate one big dry coconut using one pint of warm water. Put 1/2 pint of warm water in the grated coconut and squeeze it together to get the milk out and strain into a pot. Put back the coconut trash in the pan, add the remainder of warm water to the trash and squeeze it again. Add this milk to the milk in the pot then you put on the fire to boil. Make boil for 20 to 30 minutes over medium heat until you see oil and custard. Don’t make it go straight down to oil. To this you add 1 small onion, 1 stalk scallion, 2 peg garlic, 2 little bird pepper cut in two, 1 tomato, and then add the prepared salt fish (washed, cooked, and then rinsed again). Cover the pot with contents and let simmer for 10 to 15 minutes. Turn off the stove, or remove from the flame and serve over yam and dumplings or rice and peas, and other foods.”

117 Anamabo is an ancestral homeland of at least one Jamaican Maroon tribe, but the date of *C. papaya* introduction to this region is recorded as after the original group of first-time Maroons left (see Chapter 2).
2000), indicating keen recognition and incorporation of *C. papaya* into traditional frameworks. Although *C. papaya* is selected for medicine in both West Africa and Jamaican Maroon ethnopharmacopoeia, the uses do not appear to overlap.

**Chamaesyce hirta** (Euphorbiaceae) “woman milk weed”

*Chamaesyce hirta* is considered a pantropical weedy herb classified as native to tropical America and introduced to tropical West Africa where it is now naturalized (Adams 1972). It is unclear when it was introduced into Africa, as it is now so widespread. This unassuming herb in the spurge family has many uses in tropical West Africa, including treatment of “urinogenital complaints” (Abbiw 1990). Jamaican Maroon herbalists use the same species for kidney and urinary tract infections (Austin and Thomas 2004).

**Cinnamomum verum** (Lauraceae) “cinnamon”

Native to the western slopes of southern India and Burma (Burkill 1985), cinnamon was introduced to West Africa by at least early 19th century, as it was collected in Senegal in 1829 (JStor Plant Science 2010), but could have diffused much earlier, along with other southeast Asian plants, with Bantu migrations or trans-Saharan traders. According to Fawcett (1897), cinnamon was among the booty captured on a French ship travelling from the southeast coast of Africa (Mauritius) to Haiti. Along with other plants of Asian origin such as jack fruit and mango, it was planted in Mr. East’s estate at Bath Gardens in 1782. Jamaican Maroons use cinnamon for at least one similar use as Ghanaians in their ethnomedicine, *i.e.*, as a remedy for gas.

**Citrus aurantifolia** (Rutaceae) “lime”

Lime was likely introduced to tropical West Africa prior to the arrival of Europeans (Harris 1976, Williamson 1970 in Alpern 1992). According to Bosman (1705), lime was one of the most important traditional medicinal plants used by Gold Coast natives during the turn of the 18th century. One use of lime described by Bosman is a remedy for colic, and it was prepared by mixing melegueta pepper (*Aframomum*

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118 This one cargo of plants may have been the original source of other weedy species in the Jamaican Maroon ethnopharmacopoeia that are native to the Indo-Malaysian region.
melegueta K. Schum.) with lime juice in a calabash. This remedy appears similar to how Sloane (1707) describes “negro medicine” in Jamaica around the same time period. According to Sloane, Africans in Jamaica often “take herbs in substance” – meaning that plants are pulverized and added directly to liquid (often liquor or lime juice), and taken orally. For example, Sloane witnessed persons preparing a remedy for gonorrhea by grinding up roots of fingrigo\textsuperscript{119} and lime tree between two stones, and then stirring the contents into lime juice.

Cultivation of lime in West Africa was so viable in the early 18\textsuperscript{th} century that the Dutch established a lime plantation at Mauri, Ghana with a factory to extract juice (Alpern 1992). According to Dalziel (1937), all parts of the lime tree are used in West African ethnomedicine, applied both internally and externally, including the roots, seeds, fruit, flowers, stem, and leaves; the fruit juice is “much used…usually in mixture with other herbal remedies.”

Lime was introduced to the New World during the trans-Atlantic slave trade (Carney 2004). Collected in Jamaica by Sloane in 1687-89 (ID1018), this Asian fruit crop may have diffused to the Caribbean in conjunction with Akan ethnomedicinal knowledge, as research participants I worked with often mentioned lime as a medicinal plant. Interview results suggest that the leaves of the lime are most frequently used in traditional Jamaican Maroon medicine. Although I did not identify any specific overlapping indications in Jamaican Maroon and tropical West African ethnomedicine, \textit{C. aurantifolia} is prepared in similar ways: as a steam bath, and by decoction. According to Dalziel (1937), patients are treated for gonorrhea by sitting under a blanket with “a steaming brew of the leaves.” In Jamaica, lime leaves are also used in bath, which is prepared and administered in a strikingly similar way (see Chapter 3 for description of the use of therapeutic baths in Jamaican Maroon ethnomedicine).

\textit{Cucurma longa} (Zingiberaceae) “tambrick”

Evidence suggests that \textit{C. longa} was introduced to West Africa from Asia prior to European contact, and was commonly cultivated in the region by at least 1898 (Alpern 1992, Hutchinson and Dalziel 1968). Today, this widely used rhizome is now

\textsuperscript{119} The vernacular \textit{fingrigo} is associated with \textit{Pisonia aculeate} L., see Adams (1972).
incorporated into traditional ethnopharmacopoeia of both Ghana and Jamaica. In Jamaican Maroon ethnomedicine, *C. longa* is called tambrick, and according to the research participants I worked with, it is used for ailments that appear unrelated to what both Dalziel (1937) and Abbiw (1990) report as traditional uses in West Africa.

**Cymbopogon citratus (Poaceae) “lemon grass”**

This fairly common grass species was introduced into tropical West Africa and tropical America and is now widely cultivated in Jamaican gardens and hedgerows. Native to India (Adams 1972), *C. citratus* could have been introduced to tropical West Africa, along with other crops of Asian origin, prior to European contact via Bantu migrations. This clumping grass species was introduced to Jamaica in c. 1800 (Lunan 1814 in Asprey and Thornton 1953). In tropical West Africa, it is only found in the cultivated state, and planted in gardens and along roads (Hutchinson and Dalziel 1968). In both Ghana and Jamaican Maroon ethnomedicine the leaves of *C. citratus* are used to make herbal beverages (“bush teas”), and in therapeutic preparations to treat fever (Dalziel 1937).

**Desmodium incanum (Fabaceae) “flat bur”**

*Desmodium incanum* is classified as native to Jamaica (USDA, ARS, National Genetic Resources Program 2011) and was introduced to tropical West Africa from tropical Asia (African Plants Database 2011, JSor Plant Science 2011). According to Hutchinson and Dalziel (1958), *D. incanum* (listed as *D. canum* (J. F. Gmel.) is also present in the Mascarene Islands and some East African Islands, suggesting it may have traveled (likely accidentally along with agricultural crops of Asian origin) from East to West Africa along with Bantu migrations as early as the first few centuries A.D. (Oliver 1966, Murdock 1959). At least three different folk taxa of *Desmodium* (two distinct species plus a distinct variety of *D. incanum*) are recognized and used in Jamaican Maroon ethnomedicine. In Ghanaian ethnopharmacopoeia, at least four species of *Desmodium* are identified and utilized (Abbiw 1990). The relatively high selection of taxa in this genus indicates its importance in both the medicinal culture of Jamaican Maroon and West African society. *Desmodium incanum* is used to treat sexually
transmitted diseases in Ghanaian ethnomedicine (Abbiw 1990); Jamaican Maroons use the same plant as a sexual stimulant.

*Eryngium foetidum* (Apiaceae) “spirit weed”

This deceptively humble weed is native to the Americas and naturalized in most other regions (USDA, ARS, National Genetic Resources Program 2011). The first collected specimen in West Africa was in 1885 on the island of São Tomé in the Gulf of Guinea, equatorial Africa (JStor Plant Science 2010). According to Dalziel (1937), *E. foetidum*, “like all strong smelling plants” is used to treat symptoms of hysteria (fits). Similarly, Jamaican Maroon healers select *E. foetidum* for treatment of convulsive fits (Austin and Thomas 2004). Long (1774) also mentions the use of this species, claiming that it is “reckoned [a] very powerful anti-hystericks, and most used by the Negroes and poorer whites on all occasions of that nature.” This demonstrates an example of how ethnomedicinal knowledge may have transferred from African slaves to some European colonists in pre-emancipation Jamaica.

*Hyptis pectinata* (Lamiaceae) “piaba”

*Hyptis pectinata* is classified as native to tropical America and has now become naturalized in tropical West Africa, Madagascar, and Asia (Hutchinson and Dalziel 1963). It has the same vernacular in both Jamaica and Ghana, and is used for medicine in both region’s ethnopharmacopoeia, indicating a diffusion of knowledge across the Atlantic; however, I was not able to record specific information regarding its medicinal uses, and so cannot compare indication at this time. According to Ntim Gyakari, Asante Akan ethnobotanist in Ghana, *piaa* is a medicinal plant in the mint family used for “spiritual healing and other purposes” in Ghanaian ethnomedicine.

*Indigofera suffruticosa* (Fabaceae) “indigo”

*Indigofera suffruticosa* is native to tropical America (Adams 1972); it was introduced to West Africa sometime prior to c. early-mid 19th century, as indicated by the
first collected specimen by George Don\textsuperscript{120} in Sierra Leone (JStor Plant Science 2011). There are several native varieties of indigo in West Africa where the plant forms the basis of a long-standing cloth-dying tradition (Dalziel 1937). \textit{Indigofera suffruticosa} was an important plantation cash crop grown as a source of blue dye in many parts of the West Indies (including Jamaica) during the era of slavery (Long 1774). In Jamaica at least six other species of \textit{Indigofera} have been recorded (Adams 1972). Today, it can be found growing as a garden species in the yards of Jamaica communities in Rio Grande Valley, and was cited as a useful medicinal species by several research participants I worked with in Cornwall Barracks. People select \textit{Indigofera suffruticosa} for use as medicine in both tropical West Africa and Jamaica; however, there were no indications cited by Abbiw (1990) that appeared similar to the indications cited by research participants in Jamaica.

\textit{Jatropha gossypiifolia} (Euphorbiaceae) \textquotedblleft cassava marble\textquotedblright

\textit{Jatropha gossypiifolia} is considered native to tropical America and was introduced into tropical West Africa. In Jamaica, it was collected by Sloane in 1687-1689 (ID660-661). According to Sloane (1707), \textit{J. gossypiifolia} was so common that it grew in every savannah of Jamaica, as well as in “the Caribes, and on the main continent of America.” In tropical West Africa, it is possible that it diffused from the east, near Somalia (Heller 1996); however, the specific date of introduction is unclear. My research did not reveal any overlapping uses for \textit{J. gossypiifolia} in Jamaican Maroon and tropical West African ethnopharmacopoeia. This plant is also used in Brazilian \textit{candomblé} practice (Voeks 1997), as well as Miskitu and Garafuna ethnomedicine, but the uses are different from those recorded in Jamaican Maroon ethnomedicine (see chapter 5). Also, Sloane (1707) wrote that \textit{J. gossypiifolia}\textsuperscript{121} was considered a “general remedy of the poorer sort in the dry belly-ache”; again, this is not similar to the uses told to me by Jamaican Maroon research participants. It is possible that the specific uses of this New World pantropical plant in Jamaican Maroon ethnomedicine represent innovative discoveries.

\begin{flushright}
\textsuperscript{120} Although George Don did not date his specimen of \textit{I. suffruticosa}, I estimated the time of documented presence of the species in West Africa based on G. Don’s lifetime (1798-1856) (Desmond 1994).
\textsuperscript{121} Sloane used the polynomial \textit{Ricinus minor staphysagria folio} for this species.
\end{flushright}
Lantana camara (Verbenaceae) “red sage”

Several varieties of Lantana are used in Jamaican Maroon ethnomedicine. Native to the American tropics, L. camara was introduced to tropical West Africa by at least 1899 when it was collected by G. Paroisse in Guinea (African Plants Database 2010). Today, it is cultivated and naturalized throughout the West African region (Hutchinson and Dalziel 1963). In Ghana, L. camara is used to treat wounds, sores, cuts, bronchial problems, belly pain, and colic (Abbiw 1990). In Jamaican Maroon medicine, the same species is given to treat bleeding wounds, bronchitis, asthma, and indigestion.

Lantana trifolia (Verbenaceae) “sage”

Lantana trifolia is classified as native to the Americas (USDA, ARS, National Genetic Resources Program 2011). There are several types of the ethnospecies sage recognized and used as medicine by Jamaican Maroons (see Chapter 3). Lantana trifolia is also recognized and used as medicine in Ghana, but it is not certain whether the documented uses overlap with those I recorded in Jamaica.

Mangifera indica (Anacardiaceae) “mango”

Mangifera indica was probably growing in Mozambique by at least eighth century AD (Purseglove 1976), and was introduced to the west coast of Africa (Upper Niger region) prior to European contact (Dalziel 1937). According to Parry (1955), rows of mango trees still grow where they were planted by ancient Arab slave traders along caravan routes to the coast. The earliest collected specimen of mango in Jamaica is dated 1891 (Missouri Botanical Garden 2011), but according to Fawcett (1897) it was first introduced sometime before 1780 by Hinton East, owner of Bath Gardens in the parish of St. Thomas. Parry (1955) gives a rather different account, stating that mango actually came to Jamaica by way of Africa in 1782. A ship carrying a botanical collection, including mango trees, was travelling to Martinique from Mauritius and was intercepted and commandeered by Captain Marshall of the H. M. S. Flora. The long history of M. indica in Africa suggests that forced migrants recognized the species when they found it growing in Jamaica, allowing them to use the plant with familiar tradition. For example,
the leaves are used in both Ghana and Jamaica to treat fever (Abbiw 1990, Austin and Thomas 2004).

**Mimosa pudica (Fabaceae) “shame my darling”**

*Mimosa pudica* is a native tropical American species that was introduced into tropical West Africa sometime during the trans-Atlantic slave trade period (Verger 1976-1977 in Voeks 1997); it is used for treatment of diarrhea in both Jamaican Maroon and Ghanaian ethnomedicine (Abbiw 1990, Austin & Thomas 2004). Duncan (1847) quite possibly observed *M. pudica* growing near Elmina castle on the Ghana coast, where he noticed several sorts of “sensitive plants,” however it was not formally described in tropical West Africa until 1871; today it has naturalized in the region (African Plants Database 2010). There are also overlaps between Jamaican Maroon and other African-Amerindian groups. For example, both Jamaican Maroons and Garinagu use this widespread “weedy” herb to treat pain, digestive system disorders, and menorrhagia.

**Nicotiana tobacum (Solanaceae) “tobacco”**

According to Fitzpatrick & Keegan (2007), *N. rustica* was introduced to the West Indies by at least the Ceramic period (c. 300 B.C. to 1400 A.D.) (deFrance and Newsom 2005). The South American relative, *N. tobacum* is the species used by Jamaican Maroons, and it has deep significance in traditional Arawak cultures. For example, tobacco is stated to be the single most important plant to the Yanesha, as it permits communication with the spirit world and helps them to increase their ethnomedicinal knowledge base (Valadeau *et al.* 2010). According to Valadeau *et al.* (2010), Yanesha use tobacco in a medicinal context via smoke bath applications. Perhaps similarly, one Jamaican Maroon research participant cited tobacco as an ingredient in medicinal baths, but the degree to which this correlates with how Yanesha use and view tobacco requires additional inquiry.

According to Alpern (1992), tobacco is the only other American crop besides maize to have possibly been introduced into West Africa from both the north and the south. Evidence that coastal Akan groups received tobacco from a northerly route comes from Dickson (1969) who states that the Twi word for tobacco was borrowed from the
Mande taw. Alpern (1992) speculates that the North American variety *N. rustica* L. could have diffused to West Africa sometime between 1594 and 1596, as its use was already a local habit at the Gold Coast by 1639 (see also Ferreyra 1735 in Voeks 1997). Purseglove (1976) states that the Portuguese introduced several crops into Africa, including tobacco - possibly during their relatively early contact with Ethiopia c. 15th century. In 1602, de Marees describes tobacco (along with lime, orange, rice, and “grain”) as one of the crops growing on the coast of northern West Africa122 (cf. Mauritania or Senegal) (de Marees 1602). The rapid acceptance of *Nicotiana* in West African culture may have been facilitated by their already established tradition of smoking *Cannabis* (Philips 1983). *Nicotiana tobacum* then traveled back across the Atlantic with slaves as part of their daily ration (National Museum of Ghana 2005).

According to Long (1774), *Nicotiana* was cultivated extensively on the island of Jamaica “chiefly by the Negroes, for their own consumption.” He goes on to say that there are several species of it, and describes many medicinal uses, including the green leaf juice to kill maggots in sores, as an ingredient in salves and tinctures, leaf oil extractions to clean and heal ulcers, and ashes from the burned plant as a dentifrice to correct “putrid gums.” However, I recorded no clear similar uses for the medical use of tobacco in Jamaican Maroon ethnomedicine, and there are no apparent overlaps with West African ethnomedicine either.

**Persea americana (Lauraceae) “pear”**

*Persea americana* is a tree crop native to Mexico (Adams 1972), and was likely introduced to the West Indies by pre-ceramic cultures sometime prior to c. 300 B.C. (Newsom 1993, Saunders 2005, deFrance and Newsom 2005). It was introduced to tropical West Africa relatively late, c. post 1850 (Purseglove 1968). A decoction of *P. americana* leaves is prescribed to treat high blood pressure in both Jamaican Maroon and Ghanaian ethnomedicine. Ethnomedicinal knowledge of this species in West Africa could have diffused from the West Indies via post-emancipation repatriate colonies, or via Jamaicans that returned to Africa to work with the Basle Mission in Ghana.

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122 de Marees is not specific on the location here, only describing it as the “mainland” in his chapter on *Cabo Verde*. 
Phyllanthus amarus (Euphorbiaceae) “pickney pon back”

Phyllanthus amarus is a widespread herb considered native to tropical America, including Jamaica (USDA, ARS, National Genetic Resources Program 2011), but it was first described in Ghana, West Africa in 1827 by Schumacher, whose type specimen is held at the Royal Botanical Gardens, Kew (African Plants Database 2010) (Adams 1972). In Kofisah and Mampong, Ghana, P. amarus is called awomaguwa (Agbovie et al. 2002), the root of which (awo) translates as “mother” (Kotey 1998). According to Ntim Gyakari, Ghanaian Asante Akan ethnobotanist (2011, personal communication), awomaguwa is an incomplete word in the Akan language. Gyakari states that the actual word is awomaguwakyi, which can be broken down into individual parts; awoma translates as “haven given birth,” gu translates as “at,” and wakyi translates as “at your back.” According to Gyakari, the name is applied to Phyllanthus urinaria L., and was given to the plant because the fruits are at the back surface along the mid-stem of the leaf. Likewise, in Jamaica, the common patois name “pickney pon back” means “children upon the back” and refers to the small fruits of P. amarus, which are born on the abaxial side of the horizontal stems. According to Carney (2003), P. amarus was (re)introduced to the Americas aboard a slave ship, indicating that African ethnobotanical knowledge of this species diffused back (along with the plant itself) across the Middle Passage. Indeed, Phyllanthus amarus is used as an ingredient in Nigerian “agbo” prescriptions” (Dalziel 1937), is a component of Ghanaian ethnomedicine (Agbovie et al. 2002), and is included in Brazilian candomblé medicine (Voeks 1997), as well as Jamaican Maroon ethnopharmacopoeia. However, I found no specific overlapping uses in Jamaican Maroon and tropical West African ethnomedicine.

Psidium guajava (Myrtaceae) “guava”

Guava was introduced to West Africa by the Portuguese at approximately the same time as the introduction of papaya (c. 1647), with the first reported sightings in São Tiaho (Alpern 1992). Although now naturalized in West Africa, P. guajava has retained the Arawak Taíno name guava (from guyaba) in all Kwa language groups (Alpern 1992).

123 Agbo appears to be a general term for infusions and/or decoctions made from plant material (Odugbemi 2008).
By the early 19th century, this woody species was among the major cultivated crops on the Gold Coast, along with corn, millet, “some” rice, yams, cassava, potatoes, \(^{124}\) “pulse”, plantains, bananas, “chilees of all kinds”, and “other tropical fruits” (Meredith 1812). Guava has been classified as a native cultivated plant in the West Indies (Adams 1972) and is used to treat the same health conditions as in Ghanaian ethnomedicine, including diarrhea and stomachache.

**Scoparia dulcis (Scrophulariaceae) “sweet broom”**

*Scoparia dulcis* is a pantropical species considered native to tropical America and is thought to have been introduced to West Africa during the slave trade (Verger 1976-1977 in Voeks 1997). This weedy species is included and employed in similar ways in the ethnomedicine of both Jamaican Maroons and West Africans. According to Dalziel (1937), *S. dulcis* is used in Liberia as a cold decoction for “gravel and kidney complaints”. In Ghanaian ethnomedicine, a cold decoction of *S. dulcis* is given for bladder trouble, kidney disease, and “gravel” (Abbiw 1990). Jamaican Maroons also prepare an infusion of *S. dulcis*, given to adults or children (in different doses) for treatment of kidney and bladder problems (Austin and Thomas 2004).

**Senna alata (Fabaceae) “king of the forest”**

*Senna alata* is present in Jamaican and Ghanaian ethnoflora. It was first collected in Nigeria in 1859 (African Plants Database 2010) and is now widespread in tropical West Africa. *Senna alata* is prepared and applied as medicine in a similar manner in Jamaican Maroon and Ghanaian ethnomedicine to treat fungal infections on the skin. In Jamaica, research participants told me that parts of this woody plant are “rubbed up” in the palms of the hands to express the juice, which is then rubbed onto affected area of the skin. An exact description of this preparation / application method was documented in Gold Coast areas of tropical West Africa, where *S. alata* is “rubbed up in the palms of the hands and then on the sores” (Dalziel 1937). The importance of this plant in Jamaican ethnopharmacopoeia is indicated by its high salience (see Chapter 3), as well as its

\(^{124}\) The vernacular mentioned by Meredith is likely the tropical sweet potato (rather than the temperate-inclined *Solanum tuberosum* L.), as *I. batatas* is also mentioned by Duncan during his West African travels from 1845-1846.
vernacular. *Senna alata* is also one of the most highly selected species in Miskitu\(^{125}\) ethnopharmacopoeia (Coe and Anderson 1997). Additionally, Garinagu use *S. alata* in similar ways as Jamaican Maroons, to treat skin rashes and sores.

**Solanum ptychanthum (Solanaceae) “gouma”\(^{126}\)**

*Solanum ptychanthum* is naturalized in tropical places worldwide, making an exact geographic region of origin difficult to determine (Adams 1972), Hutchinson and Dalziel 1963, USDA, ARS, National Genetic Resources Program 2010). In Africa, it was first collected in the Comoros Islands off East Africa in 1875 (African Plants Database 2010), and is now naturalized and widespread throughout the tropical West African region (Hutchinson and Dalziel 1963). In Jamaica, *S. ptychanthum* was first collected by Sloane in 1687-89 (Sloane ID 480), and is now considered a common agricultural weed (Adams 1972). I found no evidence of use overlaps in Jamaican Maroon and West African ethnomedicine.

**Solanum torvum (Solanaceae) “susumber”**

*Solanum torvum* is one of the most widely recognized medicinal species in the windward Jamaican Maroon villages in which I conducted interviews (see Chapter 3). The common name in Jamaica is a possible cognate of the Twi vernacular *nsusoa*,\(^{127}\) which is applied to *S. torvum* (as well as related species) in Ghana (see Abbiw 1990), or perhaps from the Ewe *susrubu* (Dalziel 1937).

Both in Ghana and in Jamaica, I was able to actively participate in traditional soup preparation. In both countries, *S. torvum* is picked while green and added as a medicinal component to soups in order to “add strength.” In Ghana, the fruits are steamed until soft and then ground in a traditional blender, which is actually a thick shallow black

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125 The Miskitu are a syncretic ethnic group with both African and Amerindian heritage, whose population is now concentrated in coastal regions of Nicaragua (Offen 2002) (see also Chapter 5).

126 According to Kelly and Dickinson (1985), the origin of the word *gouma* is African, yet they provide no further explanation. In Niger, West Africa, *gouma* is a term used by the Tuareg ethnic group to refer to a patient being treated in an ethnomedicinal possession ritual known as the ‘head dance’ (Rasmussen 1994).

127 When I was conducting exploratory field research in Ghana in 2005, I visited the large market in Kumasi (West Africa’s largest open-air market), where I observed *Solanum torvum* fruits for sale at one lady’s table. I stopped and asked about the name of the green round fruit that I recognized as *susumber*, as it is called in Jamaica. I was informed that there are two types, one larger fruited variety, and one with smaller fruits. I purchased one of each type and was told the common name for the large ones (*S. torvum*) is *nsusoa*, and the smaller ones (*Solanum* sp.) are called *kauw nsusua*; they are both eaten cooked in soup.
clay pot with concentric grooves on the inside which provide the grinding surface. The *S. torvum* fruits are ground, along with steamed tomatoes and hot peppers, into a liquid which is then enriched with red palm oil, making up the soup base. Green fruits from a smaller variety of *Solanum* sp., called *kuwu nsusua*, are then added to the pot whole. In Jamaica, I only observed the larger *S. torvum* fruits being used, which are added whole to one-pot stews (usually with a coconut milk base). As a medicinal preparation, in both tropical West Africa (Ghana, Sierra Leone) and Jamaican Maroon villages, a decoction is made from the fruits of *S. torvum* and taken as a tea. Also, both Jamaican Maroons and Garingau prepare a decoction of *S. torvum* to treat fever and cuts.

*Stachytarpheta cayenensis* (Verbenaceae) “vervine”

Native to the New World, *Stachytarpheta cayenensis* is now widely dispersed (Hutchinson and Dalziel 1963). There are two types of *Stachytarpheta* recognized in Jamaican Maroon ethnomedicine (see Chapter 3), and according to one research participant, both are used interchangeably. Abbiw (1990) states that Ghanaians use *S. cayenensis* to treat several ailments, including as a purgative to treat worms. In Jamaican Maroon medicine, the same species has over 20 distinct indications, including “as a purgative.” However, the ethnomedicinal context may differ and therefore additional research with Ghanaian healers is needed to determine if “purgative” has a similar meaning in Jamaican Maroon and Ghanaian ethnomedicine. Several clearly similar uses were identified in Jamaican Maroon and Garinagu ethnomedicine, including as a remedy to treat fever and coughs.

*Theobroma cacao* (Malvaceae) “chocolate”

*Theobroma cacao* was one of the most salient medicinal species in the Jamaican Maroon ethnopharmacopoeia, and I was told that “Maroons love to drink chocolate tea,” mostly as a meal for breakfast. Although it is now an important cash crop, *Theobroma cacao* is a relatively late mid-18th century introduction to Ghana (Opoku et. al 2007). This cultivated tree species is in Ghanaian ethnopharmacopoeia (Abbiw 1990); however, I was not able to identify any specific overlapping uses with Jamaican Maroon ethnomedicine, suggesting a lack of knowledge transfer associated with *T. cacao* from American to West African tradition.
*Theobroma cacao* is native to continental tropical America (Adams 1972) and there are specific overlaps in Jamaican Maroon and Amerindian ethnomedicine. For example, in addition to using the seed to make a nutritious beverage, the fruit pods, as well as the leaves, are prepared as a poultice to treat skin problems in Jamaican Maroon, Bribri, Cabecar, Garinagu, and Miskitu ethnomedicine (Coe and Anderson 1996, 1997, Garcia-Serrano and del Monte 2004).

**Zingiber officinale** (**Zingiberaceae**) “ginger”

Ginger is considered native to China and was possibly introduced to West Africa via trans-Saharan merchants, by way of the Silk Road, during the first centuries A.D. (Wood 2002). According to Dutch traveler Pieter de Marees (1602), the Portuguese were cultivating ginger on St. Tome and Cabo Verde as early as 16th century. In his descriptions of ginger on the Gold Coast of West Africa, de Marees suggested that there were several different varieties of ginger grown in diverse areas of the region, and wrote that it is “put into great medicine.” He goes on to say that ginger “grows in different places” and “in all hot places where it is sown or planted, because it grows easily” (de Marees 1602). Alpern (1992) also states that ginger was naturalized and growing abundantly in Gold Coast areas by 1780.

Sloane collected ginger in Jamaica in 1687-89 (ID196), and today it is widely cultivated on the island. Sloane (1725) also described extensive patches of wild ginger growing on the north side of Mount Diablo, located in the central part of Jamaica on the northern border of St. Catherine parish. According to Long (1774), Jamaica exported over 8,000 pounds of ginger in 1738. Jamaicans grew this rhizomatous crop in freshly cleared forested areas, and there was a high demand in Europe for it at the time, as ginger was regarded as effective in treatment of colic, loose bowels, indigestion, gas, and as a purge.

*Zingiber officinale* has similar uses in Ghanaian and Jamaican Maroon ethnomedicine, including in the treatment of gastrointestinal and ophthalmic ailments. Ginger was one of the most salient plants listed during free-list exercises I conducted in Jamaican Maroon villages. *Zingiber officinale* was also cited as the most frequently used

128 This is not a unique indication, as *Z. officinale* was also used to treat such problems in European ethnomedicine (Long 1774).
medicinal plant by the Akan Bono ethnic group of northern Ghana (Warren 1974). The selection of Zingiberaceae species for medicine in Akan tradition is also exemplified in the importance of Aframomum melegueta, a plant with a long tradition of use in West Africa (Dalziel 1937). For example, according to Bosman (1705), melegueta pepper (along with lime) was one of the most important medicinal plants used by native people of the Gold Coast. Although A. melegueta is not present in Jamaica, the very similar looking Z. officinale is, and it is widely used in ethnomedicinal practices today.

**Congeneric Species in Jamaican Maroon and West African Ethnopharmacopoeia**

**Aloe**

According to Long (1774), aloe was initially brought to Jamaica from Barbados. Long describes the harvest and preparation of aloe for use as a purge, and it is very similar to the preparation methods I have participated in Jamaica, where the leaf is cut and placed in cool water for a period of time in order to extract the active constituents; the infusion is then drunk as a purge. Long also mentions that “Indians” are the originators of using aloe topically, mixed with myrrh, to treat ulcers and “decayed bones.” The ethnopharmacopoeia of tropical West Africa do not list A. vera (L.) Burm. f., suggesting that this species is a relatively recent introduction to the region. It is cultivated, but apparently not as valued for medicine as the other two native species (A. buettneri A. Berger, and A. schweinfurthii Baker). In Jamaican Maroon ethnomedicine, the leaf gel is applied topically to treat skin ulcers. In West Africa, A. barteri leaf juice is applied topically to Guinea worm sores, and on the Gold Coast the juice is used to treat a disease that causes “white patches of the skin” (Dalziel 1937). In the Canary Islands, where A. vera is native, several types of medicinal uses have been recorded (Darias et al. 2001), but the uses appear different from how the plant is used by Jamaican Maroons and Ghanaians.

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129 Using Dalziel (1937), Abbiw (1990) as primary sources.  
130 Cultivation of A. vera exclusively in Freetown and Njala, Sierra Leone and Victoria, Cameroon (Hutchinson and Dalziel 1968) suggests that this species may have been introduced to tropical West Africa from the West Indies with repatriated ex-slaves from the same region.
Aristolochia

According to one Jamaican Maroon healer, *A. trilobata* L. is “an excellent herb.” It is used for several ailments in Jamaican Maroon ethnomedicine, including for “belly hurt.” Similarly, people in Ghana use *A. indica* L. to treat stomachache, pains, disorders, and indigestion (Abbiw 1990).

Long (1774) described *Aristolochia* as a very abundant plant in Jamaica during the 18th century, stating that it could be found growing “everywhere among the woodlands and thickets, on the south and north sides of the island…” Sloane (1707) provided a description of how one Jamaican plantation owner learned of a remedy using *Aristolochia* for poison arrow wounds from the native people in Guiana. According to Sloane, the planter found the same plant species growing in Jamaica and was thus able to recreate the recipe and adapt it for local ailments such as colds, fever, and infection. The recipe calls for soaking *contra yerba* (*A. odoratissima* L.) seeds in wine, and the resultant liquid was taken orally to induce sweating, and “during sickly times to prevent infection”.

The vernacular for *A. trilobata* is very similar in several indigenous languages in tropical America, including Miskitu, Garifuna (Coe and Anderson 1997, 1996), and Jamaican patois. The name (variations of *conchi elbo* or *contribo*) could be a cognate of the Spanish vernacular *contra yerba*. Considering also the story provided by Sloane (above), it is likely that the uses associated with this native American species diffused from Amerindians to both Europeans and Jamaican Maroons.

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131 According to Sloane (1707), Miskitu Indians from Nicaragua and Honduras were brought to Jamaica in large numbers. Miskitu cleared vast areas of the coastal Jamaica plains to grow maize, and they hunted with African slaves for wild and ferel pig. The circumstances under which Miskitu were brought to Jamaica however, reduces the likelihood that interactions of cultural knowledge exchange occurred between them and Maroons. To explain, I quote Long (1774), who stated that 200 Miskitu were hired in 1738 to “hasten the suppression of the Marons [sp.]”. Long mentions that the Miskitu were rewarded for their role in the war against Maroons by being returned to their native land, with a promise that any Miskitu captured and brought to Jamaica as a slave would be emancipated and allowed to reside on the island as any other free person. Dallas (1803) also reports that “Black-shot and Mosquito Indians” were used to find Maroons in the remote and mountainous terrain of Jamaica. According to Jamaican Maroon oral history, as told by Ivelyn Harris, the British brought Miskitu to Jamaica, along with dogs, to capture and kill Maroons. Harris also stated that it was the Miskitu who spread the rumor that Maroons are a dangerous, fierce, and evil people. Today, descendants of Miskitu are said to live mostly to the east of Moore Town, in the village of Toms Hope.
**Bidens**

In Jamaica, there is a higher diversity of *Bidens* than in West Africa, which may explain the preference that Jamaican Maroons appear to exhibit for a different species, although the one used by Ghanaian Akans (*B. pilosa* L.) is present in the Jamaican flora. The species preferred by Maroons for medicine (*B. cynapiifolia* Kunth) is not present in West Africa; however, both Jamaican Maroons and Ghanaians use two different species of *Bidens* to treat similar ailments, including problems with the eyes (redness, soreness, conjunctivitis). This suggests that Jamaican Maroons adapted a traditional Akan ethnopharmacopoeia to accommodate new (assumedly more desirable) species that became available in the new landscape.

**Ficus**

At least 19 species of *Ficus* are used medicinally in tropical West Africa. Several uses are similar to how species are used as medicine in Jamaican Maroon culture, including as a remedy to treat toothache, fever, inflammation, and sores on the skin. Additionally, many preparation methods (compress, tea, poultice), as well as several specific plant parts (sap, leaves, fruits), coincide in Jamaican Maroon and West African ethnomedicine. Species of *Ficus* have many shared characteristics that allow for easy recognition (*e.g.*., milky sap, adventitious roots). One Jamaican Maroon research participant and herbalist stated that there are “many kinds” of figs, but he uses one specific species.

**Gouania**

Known as “chew stick” in Jamaica, *Gouania lupuloides* (L.) Urban is a commonly selected liana for both medicinal and hygiene purposes. Jamaican Maroons may be substituting this native species for *G. longipetala* Hemsl., a native of tropical West Africa that is not present in Jamaica. Both lianas grow in similar vegetation zones, along secondary forest margins (Hutchinson and Dalziel 1958), so *G. lupuloides* may have been recognized by first-time Jamaican Maroons as a relative of *G. longipetala*. Jamaican Maroons and Ghanaians use these congeneric woody vines in preparations with analogous indications, including as a sexual aid, and for eye problems.
**Justicia**

The species of *Justicia* in Ghanaian ethnopharmacopoeia (*J. flava*) is a common herb in tropical Africa (Hutchinson and Dalziel 1963), but it does not grow in Jamaica. Maroons may have recognized the native Jamaican *Justicia* by form, and have included it in their ethnopharmacopoeia as a substitution for *J. flava*.

**Kalanchoe**

Two different species of *Kalanchoe* are indicated for at least five similar ailments in the ethnomedicine of both Jamaican Maroon and Ghanaian societies, including asthma, cough, skin ulcers, eye problems, and sprains - as well as several overlapping methods of administration - a relatively strong indication that transfer of knowledge associated with *Kalanchoe* species occurred during the trans-Atlantic slave trade. According to Carney (2003), *Kalanchoe* was brought to America across The Middle Passage. The earliest collected specimen in Jamaica is dated 1890 (Missouri Botanical Garden 2011). Presumably, this Madagascar native could have been introduced into tropical West Africa c. first century A.D., as part of the crops that diffused west with the Bantu migrations.

**Lippia**

*Lippia* is one of the genera (along with *Annona* (Annonaceae), *Copaifera* (Fabaceae), *Elaeis* (Arecaceae), *Haematoxylum* (Fabaceae), and *Hyptis* (Lamiaceae) that are restricted entirely to tropical West Africa and tropical America. According to Dalziel (1937), a liquid prepared using the dried infused leaves of *L. adoensis* Hochst. has been a popular beverage enjoyed in tropical West Africa, commonly known as “bush tea.” It is taken for several ailments, including colic, which was one of the indications cited by research participants in Jamaican Maroon villages for a congeneric *Lippia* species. Other West Indian cultures use *Lippia* for medicine as well, including the Garinagu, who use the same species as Jamaican Maroons, *L. alba*, to treat stomachache.

**Merremia**

Two different species of *Merremia* are included in the ethnopharmacopoeia of Jamaican Maroon and West African societies. Similar applications in Jamaican maroon and West African ethnomedicine are suspected, but cannot be confirmed without further
investigation. In Jamaica, *M. umbellata* (L.) Hallier f. is used to treat painful conditions. In Ghanaian ethnomedicine, *Merremia aegyptia* (L.) Urban is used for “sprains, burns and bruises.” Although *M. aegyptia* is present in the Jamaican flora, according to Adams (1972) it is very rare except in the drier southeastern parishes, making it rather inaccessible to Maroons living in the wet northern-facing slopes of the Blue and John Crow Mountains.

**Mikania**

Two species of *Mikania* vines are used in Jamaican Maroon and Ghanaian ethnopharmacopoeia, but there are no known overlaps in ethnomedical application. There are however, clear similarities in the way that Garinagu and Jamaican Maroons use species in this genus, and they apply the same vernacular (see Chapter 5). According to Kelly and Dickinson (1985), the Jamaican Maroon common name for *Mikania* species (*Guaco*) is of Arawak origin, but this is likely in error. Bilby (2005) recorded Jamaican Maroon oral histories and reported that Quaco (also Kwako, Kwakuro, Kwaku) was one of the first-time leaders of the leeward Jamaican Maroon communities, and he is listed as a captain on their treaty with the British. According to one elder I interviewed in Comfort Castle, Quaco was one of Nanny’s soldiers; he died in Bowden Pen and is buried in a district called Four Feet.

The name Quaco is almost certainly Twi in origin, translates directly to “Wednesday,” and is often given to sons born on this day in traditional Ghanaian Akan and Jamaican Maroon society (deCamp 1967). The species that Jamaican Maroons use (*M. micrantha* Kunth) is native to the West Indies. Autochthonous origins of Jamaican Maroon forefathers who continued to speak the language of their ancestors (a dialect of West African Akan, see Chapter 2), and had intimate interactions with Arawak peoples, may explain the dual nature of this highly salient plant in Maroon ethnomedicine (see Chapter 3) that has an African name but apparently Amerindian uses. For example, *Mikania* species are used in Miskitu, Garinagu, and Yanesha ethnomedicine. The Twi vernacular is used in both Miskiti (*guahku*) and Garinagu (*guagú*) language. Both

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132 See also Lalla and D’Costa (1990).
Jamaican Maroons and Yanesha prepare *Mikania* as a bath, and both Jamaican Maroons and Garinagu prescribe *Mikania* to treat skin rashes.

**Musa**

According to Crosby 1972, bananas were introduced to the Antilles from the Canary Islands in 1516. Long (1774) describes bananas in a rather reverent way, noting their use in sustenance as well as medicine. According to Long, bananas were esteemed for their use in “correcting those sharp humors which generate, or accompany, the fluxes to which Europeans are often subject on their first coming into the West Indies.” Today, bananas are one of the most salient medicinal species in the windward Jamaican Maroon communities in which I conducted interviews (see Chapter 3). As a food source, bananas can be used in a variety of ways, fresh or processed. One Jamaican Maroon herbalist, Ivelyn Harris, mentioned to me during an interview that dumplings can be made from banana flour; they are called *concontay* and are traditionally eaten at breakfast time. Species of this Old World genus (both banana and plantain) are used in Jamaican and Ghanaian traditional medicine. At least one use in particular is similar – applying a poultice with parts of *Musa* to skin wounds. Considering the long presence of this crop in West Africa (since at least 8th century A.D.), the ethnomedicinal uses associated with *Musa* spp. were likely transferred directly from Akan to Jamaican Maroon tradition.

**Opuntia**

Jamaican Maroon use *O. tuna* to treat internal bruises. Similarly, species in this genus are used in Ghanaian ethnomedicine to treat internal hemorrhage. When I was in Kormantse, Ghana, *Opuntia* was one of the conspicuous parts of the strand vegetation in the Fante fishing village (Figure 4.11). In Jamaica, more than one type of *Opuntia* are selected for medicine, one (*O. tuna*, “tuna”) grows naturally and is used in medicinal preparations; another is cultivated, goes by the name of “king thistle,” and has different (esoteric) applications (Figure 4.12).
Figure 4.11. Opuntia near the Atlantic Ocean in Kormantse, Ghana

Figure 4.12. Opuntia growing on farm in the mountains of Comfort Castle.
Passiflora

Species of *Passiflora* vine were observed growing on trellises in pre-emancipation Maroon gardens (Price 1979), which is exactly how I observed them being cultivated by Jamaican Maroons today. Archeobotanical evidence from the Greater Antilles suggests that species of *Passiflora* species were a traditional crop in Arawak society (deFrance and Newsom 2005). According to Voeks (1997), Maroon communities in Bahia, Brazil use *Passiflora* in the sacred practice of *Candomblé*, and call the plant an African Yoruba name. In both Jamaican Maroon and Ghanaian ethnomedicine, species of *Passiflora* are used to treat menstrual problems.

In Jamaica there is much higher diversity of *Passiflora* than in West Africa, with at least 24 species recognized by Adams (1972), compared with only one listed in Hutchinson and Dalziel (1954). This discrepancy likely explains the reason why the species selected by Maroons differ from the one used in Ghana (*P. suberosa* L.), although it is present in the Jamaican flora.

Pavonia

Although there are no known specific overlaps in use, species of *Pavonia* are recognized and used as medicine in both Jamaican Maroon and tropical West African ethnomedicine. The species used by Jamaican Maroons is a rather tenacious plant that can be found growing in empty lot areas of Port Antonio, Jamaica.

Piper

Species of *Piper* are distinguished by their knobby / jointed stems and conspicuous spike inflorescences. Two species of *Piper* are used to treat gastrointestinal complaints (*e.g.*, gas, stomachache) in Jamaican Maroon and Ghanaian ethnomedicine. Jamaican Maroons possibly recognized *Piper* species and substituted the native *Piper amalago* L. for the related *Piper guineense* Schumacher & Thonn. which is native to tropical West Africa, but not present in Jamaica. Selection of Piperaceae species in ethnopharmacopoeia appears to be also correlated with Amerindian culture (see Chapter 6). For example, at least 32 varieties of *Piper* are cited as part of Arawak Yanesha ethnopharmacopoeia (Valadeau et al. 2010).
**Portulaca**

In Liberia, West Africa, *Portulaca* species are used as a “gastric sedative” and for “urinary troubles” (Dalziel 1937). In Jamaican Maroon ethnomedicine, species of *Portulaca* are used for bad belly, gallstones, and stoppage of water in Jamaica. Moreover, both the roots and leaves are used in Jamaican Maroon and tropical West African ethnomedicine.

**Sauvagesia**

The species of *Sauvagesia* used as medicine in Ghana, *S. erecta* L., is not present in Jamaica. The native species Jamaican Maroons use however, is widespread in Africa, and according to Hutchinson and Dalziel (1954), is a “weed of rice swamps and other moist places.” It is possible that Jamaican Maroons recognized *S. brownei* Planch. upon arriving in Jamaica, and adopted it as part of their ethnopharmacopoeia as a substitute for *S. erecta*.

**Scleria**

Only one species of herbaceous *Scleria* in the ethnoflora of Ghana is present in Jamaica, *Scleria pterota* var. *melaleuca* (Reichenb. ex. Schlecht. & Cham.) Standl. Although no known specific overlaps in the ethnomedicine of Jamaican Maroon and Ghana were identified, the presence of *Scleria* in both the Jamaica and Ghana, as well as among the West African Diaspora group in Brazil (Voeks 1997) ethnopharmacopoeia, is significant, particularly because it represents an anomaly – sedges are not common in global ethnoflora (see Chapter 6).

**Smilax**

*Smilax anceps* Willd. is an ethnomedicinal species native to tropical West Africa, but is not present in Jamaica. However, another *Smilax* species is important in Jamaica; this vine species is the introduced *S. regelii*,133 or sarsaparilla, and was a major export

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133 Long (1774) mentions China Root, a *Smilax* species with a description of a similar preparation method (decoction), but the uses appear to differ from how it is used in Jamaican Maroon ethnomedicine (e.g., “to resolve thick humors, “promote perspiration”) – nothing like this was mentioned in any interviews I conducted with Jamaican Maroons.
crop during the 17th century (Sloane 1707). It is possible that Jamaican Maroons are substituting the available *Smilax* species for congenerics in West African ethnopharmacopoeia. There are three apparent overlapping uses for *Smilax* in Ghanaian and Jamaican Maroon ethnomedicine, including as a treatment for eye problems, kidney problems, and rheumatism. Additionally, both species are prepared in similar ways, by hot water extraction.

*Sphagneticola*

*Sphagneticola trilobata* (L.) Pruski is a native species in Jamaican Maroon ethnopharmacopoeia that may represent a substitution of the related and similar looking native West African *Aspilia africana* (Pers.) C.D. Adams. *Sphagneticola trilobata* is present in tropical West Africa, but appears to be a relatively recent introduction; possibly from repatriated Africans in Freetown Sierra Leone (Hutchinson and Dalziel 1963). Native species of *Aspilia* appear to be an important component of West African ethnomedicine. *Aspilia latifolia* is one of the most frequently represented species in Bono-Akan ethnomedicinal preparations in Ghana (Warren 1974). Also, there are several uses that are clearly similar to how *S. trilobata* is used in Jamaican Maroon ethnomedicine. For example, both species are used as a styptic, analgesic, and remedy for stomachache. Furthermore, there are esoteric associations with each of these plants in Jamaican Maroon and West African (Hausa) culture (Dalziel 1937).

*Syzigium*

Both Jamaican Maroons and Ghanaians use species of *Syzigium* for medicine. The species used by Jamaicans is native to the Indo-Malaysian and Pacific regions. Ghanaians use several different species of *Syzigium*, including more than one native variety that are not present in Jamaica. It is possible that Jamaicans recognized *S. jambos* (L.) Alston as a relative of native ethnomedicinal *Syzigium* species, such as *S. guineense var. guineense* DCA., and were able to use it as a substitute, for similar purposes. For example, in both regions, the bark of *Syzigium* is applied topically to treat skin ailments. Other influence from the species region of origin is also possible. For example, in Bangladesh *S. jambos* is used in medicinal preparations to treat “cracking of soles of feet” (Rahmatullah *et al.* 2010).
**Discussion**

More than one quarter (~27% of total identified) of the plants in the Jamaican Maroon ethnopharmacopoeia are also selected for medicine in West Africa. A majority of these species (65%) are considered alien in the West African flora. Inter- and intra-continental trade in pre-colonial Africa is an undeniable mechanism for the introduction of non-native species into tropical West Africa, including useful plants originating from southern Europe, the Middle East, and Southeast Asia. It is likely that many food, spice, and medicinal plants were introduced to tropical West Africa via trans-Saharan and equatorial trade routes prior to their (re)introduction by Europeans during the 15-19th centuries. Furthermore, the introduction of New World crops, along with the unintentional introduction of weedy species from tropical American regions into West Africa happened before or during the trans-Atlantic slave trade – many prior to 17th century. The adoption of these species (and perhaps some associated traditions) into West African culture, including medicine and cuisine, demonstrates a cultural disposition towards adaptation and acceptance of new and readily available plants.

Native West African species in Jamaican Maroon ethnopharmacopoeia have a higher percentage (70% compared to 58%) of shared uses with West African ethnomedicinal tradition than do the species that are alien in West Africa. Maroons have successfully perpetuated traditional knowledge associated with many of these plants, such as cultivation, preparation, and use. Concurrent movements of native African crop species (e.g., *B. sapida* and *C. acuminata*), and massive numbers of people associated with specific ethnic groups from West Africa likely facilitated the perpetuation of African ethnomedicinal knowledge in the Americas.

Historical collections and descriptions in tropical West Africa and the Caribbean, as well as oral histories in Diaspora communities, demonstrate deliberate multi-directional trans-Atlantic movement of plants during 16th, 17th, and 18th centuries. Based on descriptions of folk medicine gleaned from Long, Sloane, and others, it appears as if ethnomedicinal knowledge diffusion during the trans-Atlantic slave trade may have occurred not only among groups within the African Diaspora, but between African slaves and European colonists, and Africans and Amerindians in the New World as well (see also Chapter 5). Additionally, there may have been ethnobotanical knowledge diffusion
from the West Indies back to Africa during the years of and following the trans-Atlantic slave trade, by way of repatriate colonies in Sierra Leone,\textsuperscript{134} or via Christian churches that brought freed slaves from the West Indies to Africa in order to work with the missions. Furthermore, ethnographic evidence suggests that innovative discovery of many ethnomedicinal uses for species was made by Jamaican Maroons. Finally, Jamaican Maroon ethnomedicinal tradition exhibits adaptation through congeneric species and recipe ingredient substitutions, as well as rejection of certain elements from various cultures. For example, some aspects of common colonial English medical practices (\textit{e.g.}, bleeding) are not perpetuated in Jamaican Maroon ethnomedicine (see Chapter 1 for more detail).

\textbf{Conclusions}

In this paper, I qualified and compared uses of plants within Jamaican Maroon and West African ethnomedicinal contexts. By recognizing introductions of plant species that occurred before, during, and as a direct result of the trans-Atlantic slave trade, the role displaced Africans played in their transportation, propagation, and perpetuation of associated traditional botanical knowledge can be honored.

Plants from tropical Asia and Mediterranean regions were introduced to tropical West Africa during the first centuries A.D. during Bantu migrations as well as via Arab trading at centers of exchange such as Timbuctu and Kano. These early diffusions provided opportunity for tropical West African ethnic groups (\textit{e.g.}, Fante and Asante Akan) to incorporate introduced species into ethnopharmacopoeia, and to develop indigenous ethnomedicinal traditions associated with them. Multiple specific and unique overlaps in Jamaican Maroon and West African ethnomedicine support the hypothesis that much traditional ethnobotanical knowledge diffused across the Atlantic between West Africa and Jamaica, and this process was likely facilitated by the increased movements of people and the associated dispersals of many edible and weedy species during the 14\textsuperscript{th} to 19\textsuperscript{th} centuries. Congeneric species selection with analogous application in Jamaican Maroon and West African ethnomedicine supports the hypothesis that the

\textsuperscript{134} See Chapter 7 for a comparison between Jamaican Maroon and Sierra Leone ethnomedicine.
first time Maroons recognized species in Jamaica related to species used in West African ethnopharmacopoeia and were able to carry on African tradition with these substitutions.

Although the historical record of weedy plant dispersal is inconsistent at best, we do have fairly detailed information about the movement of edible and other economically valuable plants, many of which were introduced to West Africa prior to, or during, the trans-Atlantic slave trade. American plants that were established early in West Africa presented opportunity for Africans to become familiar with their uses and associated cultivation techniques before they encountered these species in the New World. Furthermore, similar forest types in tropical West African Akan and Jamaican Maroon traditional areas support growth of similar vegetation. Based on the information gathered in this comparative analysis, it appears as if Maroons exerted a selection preference for crop plants (and weedy species) they had already known in Africa. The West African multi-contextual approach to ethno botany appears to have diffused to Maroon cultures in the New World. For example, several of the Jamaican Maroon ethnopharmacopoeia species are also food plants that were likely introduced during the trans-Atlantic slave trade.

Evidence has been presented in this chapter to suggest that, despite their historic forced migrations, Africans in the Diaspora actively directed the course for their future by mindfully determining which species and traditions to adopt, which to adapt, and which to reject – a process that appears to have begun in tropical West Africa, a region with an ancient history of cross-cultural exchange.

Limitations of methods and call for more research

Early plant collections in West Africa are lacking. Additional biogeographical research is needed to better understand when (and from where) species were introduced into Atlantic regions. Herbaceous plants that do not regularly yield food crops, which are often a dominant component in ethnopharmacopoeia (see Gottleib et al. 1995), are regularly excluded from historical biogeographical discussions (Murdock 1959). Also, botanists face many problems when using historical records as indicators of a plant’s presence in a particular region or culture because often only the common name is given, which could refer to more than one species (e.g., in Jamaica, Lantana species are
commonly referred to as ‘sage’, whereas the same appellation is applied to *Salvia* species in European and American cultures). Archeobotanical work in tropical West Africa could help identify when species were introduced and incorporated into ethnomedicinal traditions. Critical reconsiderations of historical biogeographies are needed (particularly in West Africa) in order to trace the origins of ethno-botanical knowledge over time and space, and additional cross-cultural comparisons will perhaps shed light on existing similarities and differences in the ways humans interact with plants in various cultures, ultimately improving our understanding of ethnomedicinal knowledge genesis. Finally, cross-cultural comparison of disease classification systems is difficult without conducting field work in both regions using similar ethnographic methods. The categories ascribed under the heading “Body System Treated?” in Appendix A are based primarily on information gained through ethnographic field work in Jamaica compared to pre-determined categories described in publications dealing with West African ethnomedicine; therefore, the methodologies across regions are not uniform and this may have affected the results.
# Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia

<table>
<thead>
<tr>
<th>Family</th>
<th>Species &amp; Voucher #</th>
<th>Local Names: Jamaica Maroon</th>
<th>Local Names: West Africa*</th>
<th>Origin Tropical America</th>
<th>Origin Tropical West Africa</th>
<th>Same Body System Treated?</th>
<th>Similar Method† of Preparation/Application?</th>
<th>Same Part(s) Used?</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anacardiaceae</td>
<td>Mangifera indica L. (SA161)</td>
<td>mango</td>
<td>mano (Ashanti), mangoro (Yoruba)</td>
<td>Introduced</td>
<td>Introduced</td>
<td>Whole Body</td>
<td>unknown</td>
<td>Leaves</td>
<td>Abbiw 1990, Dalziel 1937</td>
</tr>
<tr>
<td>Anacardiaceae</td>
<td>Spondias mombin L. (SA399)</td>
<td>hogplum</td>
<td>atóaa (Twi, Ashanti), atóaba (Fanti)</td>
<td>Native</td>
<td>Native</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Abbiw 1990, Dalziel 1937, Duvall 2006</td>
</tr>
<tr>
<td>Annonaceae</td>
<td>Annona muricata L. (SA167)</td>
<td>soursop</td>
<td>Aduantũnkũm, deboo (Twi)</td>
<td>Native</td>
<td>Introduced (naturalized)</td>
<td>unknown</td>
<td>Decoction</td>
<td>Leaves</td>
<td>Abbiw 1990, Dalziel 1937</td>
</tr>
<tr>
<td>Apiaceae</td>
<td>Eryngium foetidum L. (SA124, 398)</td>
<td>fitsweed, Spiritweed</td>
<td>ndõmui, ghani, mama-la-gugui (Mende)</td>
<td>Native</td>
<td>Introduced (naturalized)</td>
<td>Nervous</td>
<td>unknown</td>
<td>unknown</td>
<td>Dalziel 1937</td>
</tr>
<tr>
<td>Apocynaceae</td>
<td>Asclepias curassavica L.</td>
<td>red head</td>
<td>red head, blood flower</td>
<td>Native</td>
<td>Introduced</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Adams 1972</td>
</tr>
<tr>
<td>Caricaceae</td>
<td>Carica papaya L. (identified in field; photos only)</td>
<td>pawpaw, papaya</td>
<td>brôfre (Ashanti &amp; Twi)</td>
<td>Native</td>
<td>Introduced (cultivated; some-times spont.)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Dalziel 1937, Hutchinson &amp; Dalziel 1954</td>
</tr>
</tbody>
</table>

* Region, ethnic group, or language which vernacular is most commonly spoken in is indicated in parentheses
† The shared preparation method and part(s) used do not necessarily correlate with the listed indication.
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Common Names</th>
<th>Scientific Names</th>
<th>Botanical Names</th>
<th>Herbal Use</th>
<th>Source(s)</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commelinaceae</td>
<td>Commelina diffusa Burm. f.</td>
<td>water grass</td>
<td>nyame bewu ansa na mewu, onyame bewu na mawu, to lilei, agbomaku maku, nyamele wua ngwowu, agbenokui nokui (Ghana)</td>
<td>Native (pan-tropical)</td>
<td>Poultice</td>
<td>unknown</td>
<td>Abbiw 1990, Ayensu 1978</td>
</tr>
<tr>
<td>Cucurbitaceae</td>
<td>Momordica balsamina L.</td>
<td>sirosee, cerasee</td>
<td>nyinya, nya-nya (Ashanti)</td>
<td>Introduced</td>
<td>Native (pan-tropical)</td>
<td>Integumentary</td>
<td>unknown</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Chamaesyce hirta (L.) Millsp.</td>
<td>woman milkweed</td>
<td>ahinkodge (Twi), notsighë (Ewe)</td>
<td>Native (pan-tropical)</td>
<td>Introduced (naturalized)</td>
<td>Urinogenital</td>
<td>Infusion</td>
</tr>
</tbody>
</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Euphorbiaceae</th>
<th><em>Jatropha gossypiifolia</em> L. (SA159, 458)</th>
<th><em>cassada marble</em></th>
<th><em>kaagya</em> (Ashanti), <em>aburokyiraba</em> (Fanti)</th>
<th>Native (pantropical)</th>
<th>Introduced (naturalized)</th>
<th>unknown</th>
<th>unknown</th>
<th>unknown</th>
<th>Abbiw 1990, African Plants Database, Adams 1972, USDA, ARS, National Genetic Resources Program, Dalziel 1937</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphorbiaceae</td>
<td><em>Phyllanthus amarus</em> Schumacher (SA160)</td>
<td><em>pikney pon back</em></td>
<td><em>awomaguwa</em> (Ghana)</td>
<td>Native (pantropical)</td>
<td>Introduced (widespread)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Abbiw 1990, African Plants Database, Agbovie et al. 2002, USDA, ARS, National Genetic Resources Program</td>
</tr>
</tbody>
</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Names</th>
<th>Place of Origin</th>
<th>Use</th>
<th>Part Used</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabaceae</td>
<td><em>Andira inermis</em> (W. Wright) Kunth ex DC. (SA24)</td>
<td>cabbage wood</td>
<td>Native</td>
<td>Native</td>
<td>Digestive</td>
<td>unknown, Bark</td>
</tr>
<tr>
<td>Fabaceae</td>
<td><em>Canavalia ensiformis</em> DC. (SA195, 329)</td>
<td>conquer bean, overlook bean</td>
<td>Native</td>
<td>Introduced</td>
<td>Esoteric</td>
<td>Planted in yard, Whole Plant</td>
</tr>
<tr>
<td>Fabaceae</td>
<td><em>Desmodium incanum</em> DC. (SA134, 377,393, 421)</td>
<td>flat bur, bur weed</td>
<td>Native</td>
<td>Introduced</td>
<td>Reproductive</td>
<td>Decoction, Whole Plant</td>
</tr>
</tbody>
</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Fabaceae</th>
<th>Species</th>
<th>English Common Names</th>
<th>Native/Introduced Status</th>
<th>Parts Used</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mimosa pudica L. (SA120, 407)</td>
<td>shame mocker, shame me darlin, shame `ole lady</td>
<td>mumaankan, kata w<code>ani na w</code>osew reba (Twi), eʃu mu wano, nantvi mũa wo nã (Fanti)</td>
<td>Native</td>
<td>Decoction</td>
<td>Root</td>
</tr>
<tr>
<td>Senna alata (L.) Roxb. (SA104, 447)</td>
<td>king of the forest</td>
<td>ôsempô, duawusu (Twi), mmôfra brôde (Fanti), yamnu (Ashanti)</td>
<td>Native (cultivated)</td>
<td>Integumentary; Respiratory</td>
<td>Leaves</td>
</tr>
<tr>
<td>Senna occidentalis (L.) Link (SA71, 111, 419, 426)</td>
<td>dandelion, piss-a-bed</td>
<td>mmôfra brôde (Twi), ananse dua, dènkyênhe (Ashanti)</td>
<td>Native (pan-tropical)</td>
<td>Infusion</td>
<td>Root</td>
</tr>
<tr>
<td>Tamarindus indica L. (identified in field; photos only)</td>
<td>tambrin, tamarin</td>
<td>bôrofo-sôûkôrah (Twi), tamrisi (Fanti)</td>
<td>Introduced (naturalized)</td>
<td>Integumentary; Respiratory</td>
<td>Bark, Leaves</td>
</tr>
</tbody>
</table>

Abbiw 1990, African Plants Database

Dalziel 1937, African Plants Database

USDA, ARS, National Genetic Resources Program, Adams 1972
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Name</th>
<th>Native/Introduced</th>
<th>Medicinal Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamiaceae</td>
<td><em>Lamiaceae</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Hyptis pectinata</em> (L.) Poit.</td>
<td>piaba</td>
<td>Native</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>peaba, ōpea</em> (Twi)</td>
<td>Introduced (naturalized)</td>
<td>unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Leonotis nepetifolia</em> (L.) R. Br.</td>
<td>holy thistle, piaba</td>
<td>Introduced</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>nyeddō</em> (Krobo)</td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Ocimum gratissimum</em> L.</td>
<td>balsam</td>
<td>Introduced</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>nunum, onunum</em> (Ghana)</td>
<td></td>
<td>Integumentary, Respiratory, Whole Body, Digestive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Infusion, Decoction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Leaves, Stems, Flowers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lauraceae</td>
<td><em>Cinnamomum verum</em> J. Presl</td>
<td>cinnamon, wild cinnamon</td>
<td>Introduced</td>
<td>Introduced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cinnamon</td>
<td></td>
<td>Digestive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Decoction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bark, Shoots</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Persea americana</em> P. Mill.</td>
<td>pear</td>
<td>Native</td>
<td>Introduced</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>pear, paya</em> (Mexico)</td>
<td></td>
<td>Circulatory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Decoction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Leaves</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Abelmoschus esculentus</em> (L.) Moench</td>
<td>okra</td>
<td>Introduced</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>nkuruma</em> (Ashanti, Fanti, Twi)</td>
<td></td>
<td>(Savannah Zone of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unknown</td>
</tr>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Name</th>
<th>Distinctive Names</th>
<th>Use</th>
<th>Part Used</th>
<th>Source</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malvaceae</td>
<td><em>Cola acuminata</em> (P. Beauv.) Schott &amp; Endl. (SA106)</td>
<td>bissy</td>
<td><em>bise, besi, bise pa, bise kyem, bise hene</em> (Twi)</td>
<td>Introduced (cultivated)</td>
<td>Native</td>
<td>Digestive Decoction</td>
<td>Bark, Grated Seeds</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Sida acuta</em> Burm. f., <em>S. rhombifolia</em> L. (SA147)</td>
<td>broom weed</td>
<td><em>ewé ifín</em> (Yoruba)</td>
<td>Native (pantropical)</td>
<td>Native</td>
<td>Whole Body unknown</td>
<td>Leaves</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Theobroma cacao</em> (identified in field; photos only)</td>
<td>choco-late</td>
<td>Cocoa</td>
<td>Native (cultivated)</td>
<td>Introduced unknown</td>
<td>unknown unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Myrtaceae</td>
<td><em>Psidium guajava</em> L. (SA61)</td>
<td>guava</td>
<td><em>gua, aduaba, oguawa</em> (Ghana)</td>
<td>Native (cultivated)</td>
<td>Introduced (naturalized)</td>
<td>Digestive Infusion</td>
<td>Leaves</td>
</tr>
</tbody>
</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Names</th>
<th>Use</th>
<th>Habitat</th>
<th>Plant Part</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Piperaceae</strong></td>
<td><em>Leptianthes peltata</em> (L.) Raf. (SA15, 303)</td>
<td>cow foot</td>
<td></td>
<td>Native</td>
<td>Stem</td>
<td>Dalziel 1937, USDA, ARS, National Genetic Resources Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Amuaha, mumuaha</em> (Twi)</td>
<td></td>
<td>Introduced</td>
<td></td>
<td>Dalziel 1937, USDA, ARS, National Genetic Resources Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(naturalized)</td>
<td></td>
<td>Dalziel 1937, USDA, ARS, National Genetic Resources Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nervous</td>
<td></td>
<td>Dalziel 1937, USDA, ARS, National Genetic Resources Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Native</td>
<td></td>
<td>Dalziel 1937, USDA, ARS, National Genetic Resources Program</td>
</tr>
<tr>
<td><strong>Piperaceae</strong></td>
<td><em>Pepperomia pelucida</em> (L.) Kunth (SA374)</td>
<td>rat ears</td>
<td></td>
<td>Native</td>
<td></td>
<td>Abbiw 1990, Adams 1972</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>rinrin</em> (Yoruba)</td>
<td></td>
<td>(pantropical)</td>
<td></td>
<td>Abbiw 1990, Adams 1972</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Native</td>
<td></td>
<td>Abbiw 1990, Adams 1972</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(pantropical)</td>
<td></td>
<td>Abbiw 1990, Adams 1972</td>
</tr>
<tr>
<td><strong>Poaceae</strong></td>
<td><em>Cymbopogon citratus</em> (DC. Ex Nees) Stapf (SA112)</td>
<td>fever grass, lemon grass</td>
<td></td>
<td>Introduced</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>eti, isoko</em> (Benin), <em>akwukwo</em> (Ibo)</td>
<td></td>
<td>(cultivated)</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Introduced</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(cultivated)</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Whole Body</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bath</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Leaves</td>
<td></td>
<td>Abbiw 1990</td>
</tr>
</tbody>
</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Names</th>
<th>Latin Names</th>
<th>Introduced/Cultivated</th>
<th>Uses</th>
<th>Plant Part</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rutaceae</strong></td>
<td><em>Citrus aurantifolia</em></td>
<td>lime</td>
<td><em>ankaa</em> (Ashanti), akenkaa (Twi), ankama (Fanti)</td>
<td>Introduced (cultivated)</td>
<td>Introduced (cultivated)</td>
<td>unknown</td>
<td>Decoction, Steam Bath</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td><em>Blighia sapida</em></td>
<td>ackee</td>
<td><em>ankyê, akyê-fufuo</em> (Twi), <em>Achin, akyen, akyê</em> (Ashanti), takwadua (Fante Twi)</td>
<td>Introduced</td>
<td>Native</td>
<td>Nervous</td>
<td>Poultice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sapindaceae</strong></td>
<td><em>Scoparia dulcis</em></td>
<td>sweetbroom, gripe bush, baby bush</td>
<td><em>Onyame kô me tiri</em> (Ashanti)</td>
<td>Native (pan-tropical)</td>
<td>Native</td>
<td>Urinogenital</td>
<td>Infusion</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Solanaceae</strong></td>
<td><em>Capsicum annuum</em> var. annuum*</td>
<td>bird pepper, pepper</td>
<td><em>makô</em> (Ashanti Twi)</td>
<td>Native</td>
<td>Introduced (cultivated &amp; sometimes naturalized)</td>
<td>Nervous, Integumentary</td>
<td>Fomentation</td>
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<tr>
<td></td>
<td><em>Nicotiana tobacum</em></td>
<td>tobacco, cigar bush</td>
<td><em>tuwa</em> (Fanti)</td>
<td>Native (S. Am.)</td>
<td>Introduced</td>
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### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

<table>
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<th>Solanaceae</th>
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<th>Scientific Name</th>
<th>Habitat</th>
<th>Source</th>
<th>Introduced</th>
<th>Use</th>
<th>Whole Body</th>
<th>Decoction</th>
<th>Fruit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solanum ptychanthum Dunal (SA15)</td>
<td>gouna</td>
<td>nsusu-abiri</td>
<td>Native (common weed of cultivated &amp; disturbed places)</td>
<td>cf. Introduced (naturalized) ; cf. native?</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Abbiw 1990, African Plants Data-base, USDA, ARS, National Genetic Resources Program</td>
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<table>
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<th>Solanaceae</th>
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<th>Scientific Name</th>
<th>Habitat</th>
<th>Source</th>
<th>Introduced</th>
<th>Use</th>
<th>Whole Body</th>
<th>Decoction</th>
<th>Fruit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solanum torvum Sw. (SA460)</td>
<td>susumber</td>
<td>nsusua (Ghana), susruba (Ewe)</td>
<td>Native</td>
<td>Introduced (cultivated)</td>
<td>Whole Body</td>
<td>Decoction</td>
<td>Fruit</td>
<td>Abbiw 1990, Adams 1972, USDA, ARS, National Genetic Resources Program</td>
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<th>Species</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Habitat</th>
<th>Source</th>
<th>Introduced</th>
<th>Use</th>
<th>Whole Body</th>
<th>Decoction</th>
<th>Fruit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lantana camara L. (SA127, 154)</td>
<td>red sage, sage, common sage</td>
<td>ananse dôkono (Twi)</td>
<td>Native</td>
<td>Introduced (cultivated)</td>
<td>Respiratory, Integumentary, Digestive</td>
<td>Poultice, Bath, Infusion</td>
<td>Whole Plant</td>
<td>Abbiw 1990</td>
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</table>
### Appendix A: Species in Jamaican Maroon and West African ethnopharmacopoeia (continued)

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<th>Family</th>
<th>Species</th>
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<th>Native/Introduced</th>
<th>Status</th>
<th>Medicinal Parts</th>
<th>Reference</th>
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<tr>
<td>Zingiberaceae</td>
<td><em>Curcuma longa</em> L. (SA184, 196)</td>
<td><em>tambrick, tumeric</em></td>
<td>Introduced (cultivated)</td>
<td>Introduced (cultivated)</td>
<td>unknown</td>
<td>unknown</td>
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<tr>
<td></td>
<td><em>Zingiber officinale</em> Roscoe (SA199)</td>
<td><em>ginger</em></td>
<td>Introduced (cultivated)</td>
<td>Introduced (cultivated)</td>
<td>Digestive, Optical</td>
<td>Decoction</td>
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**Appendix B: Congeneric species in Jamaican and Tropical West African ethnopharmacopoeia**

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus and Voucher number for Jamaican species</th>
<th>Common Name of species used in Jamaica</th>
<th>Common Names in West Africa (applied to one or more species)</th>
<th>Same Body System Treated?</th>
<th>Similar Method of Preparation/Application?</th>
<th>Same Part Used?</th>
<th>Source</th>
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<tbody>
<tr>
<td>Acanthaceae</td>
<td>Justicia (SA136)</td>
<td>freshcut</td>
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<td>unknown</td>
<td>unknown</td>
<td>Dalziel 1937, Abbiw 1990</td>
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<tr>
<td>Asphodeliaceae</td>
<td>Aloe (SA123)</td>
<td>sinkle bible, single bible</td>
<td>sereberebe (Ashanti)</td>
<td>Integumentary</td>
<td>Poultice</td>
<td>Leaves, Sap</td>
<td>Dalziel 1937, Abbiw 1990</td>
</tr>
<tr>
<td>Aristolochiaceae</td>
<td>Aristolochia (SA005, 358)</td>
<td>contribo</td>
<td>kotoku saabobe (Twi)</td>
<td>Digestive</td>
<td>Infusion</td>
<td>Leaves</td>
<td>Dalziel 1937, Abbiw 1990</td>
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<tr>
<td></td>
<td>Emelia (SA401)</td>
<td>asthma bush</td>
<td>gipoi (Mende)</td>
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<td>unknown</td>
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<td>Dalziel 1937, Abbiw 1990, Ayensu 1978</td>
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<tr>
<td></td>
<td>Sphangeticola (SA132, 385, 409); Aspilia</td>
<td>Mary gool</td>
<td>nfofoa (Twi, Ashanti), mufu (Fanti), ja majina, tozalin 'yam mata (Hausa)</td>
<td>Integumentary, Digestive, Nervous, Esoteric</td>
<td>Infusion</td>
<td>Flower, Leaves</td>
<td>Dalziel 1937, Abbiw 1990</td>
</tr>
<tr>
<td></td>
<td>Mikania (SA50, 72, 351, 382)</td>
<td>Guaco bush</td>
<td>niankoko sino (Mande), iyawa (Yoruba)</td>
<td>unknown</td>
<td>Juice of crushed fresh plant material</td>
<td>Leaves, Stems</td>
<td>Dalziel 1937, Abbiw 1990</td>
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### Appendix B (continued)

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<td>Opuntia</td>
<td>tuna</td>
<td>nkantonsoe</td>
<td>Whole Body</td>
<td>Poulite</td>
<td>Modified Stems 1990</td>
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<td>Abbiw 1990</td>
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<tr>
<td>Convolvulaceae</td>
<td>Merremia</td>
<td>hog meat</td>
<td>abia (Twi), yim’bururu, barmatabo, k’aftar kaza (Hausa),</td>
<td>unknown</td>
<td>unknown</td>
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<td>Ayensu 1978</td>
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<tr>
<td>Crassulaceae</td>
<td>Kalanchoe</td>
<td>leaf of life</td>
<td>egoro (Twi), aporo (Fanti)</td>
<td>Optical, Resp-iratory, Integumentary, Muscular</td>
<td>Leaves</td>
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<td>Ayensu 1978</td>
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<td>Euphorbiaceae</td>
<td>Acalypha</td>
<td>Joseph coat</td>
<td>m’fofoa (Ashanti)</td>
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<td>Ayensu 1978</td>
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<td>Verbenaceae</td>
<td>Lippia</td>
<td>colic mint</td>
<td>saa-nunum (Twi, Ashanti)</td>
<td>Digestive</td>
<td>Decoction</td>
<td>Leaves</td>
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<td>Ayensu 1978</td>
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<td>Moraceae</td>
<td>Ficus</td>
<td>Fig</td>
<td>galinziela, ofontő (Gold Coast)</td>
<td>Nervous, Integumentary, Respiratory, Compress, Infusion, Poulite</td>
<td>Poilute, Decoction</td>
<td>Dalziel 1937,</td>
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<td>Leaves, Fruits</td>
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<td>Musaceae</td>
<td>Musa</td>
<td>Banana, plantain</td>
<td>ôborôde, kwadu (Twi), brôde, mpuî (Fanti)</td>
<td>Integumentary</td>
<td>Decoction</td>
<td>Leaves, Pseudostem, Fruit</td>
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<td>Syzygium</td>
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<td>nzima (Gold Coast)</td>
<td>Integumentary</td>
<td>Decoction</td>
<td>Bark</td>
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### Appendix B (continued)

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<th>Reference(s)</th>
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<td>Sauvagesia</td>
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<td>unknown</td>
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<td>un-unknown</td>
<td>Dalziel 1937</td>
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<td>Passifloraceae</td>
<td>Passiflora</td>
<td>sweet cup kiyunganga (Mende), abu enyi (Ibo)</td>
<td>Reproductive</td>
<td>Infusion</td>
<td>Leaves</td>
<td>Dalziel 1937, Abbiw 1990</td>
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<tr>
<td>Piperaceae</td>
<td>Piper</td>
<td>Pepper elder, pepper jointer, black jointa, black Betty soro-wisa (Ashanti), sasaa (Ashanti, Twi), amuaha (Twi), sasima (Fanti)</td>
<td>Digestive</td>
<td>unknown</td>
<td>Leaves</td>
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<td>Portulaca</td>
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<td>Decoction</td>
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<td>Rhamnaceae</td>
<td>Gouania</td>
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<td>Optical, Reproductive</td>
<td>unknown</td>
<td>un-unknown</td>
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<td>Smilax</td>
<td>chainy root kokora (Twi)</td>
<td>Optical, Urinary, Rheumatism</td>
<td>Decoction</td>
<td>Tuberous Root</td>
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Appendix C: Common cultivated species in Amerindian and Maroon gardens

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<th>Sources</th>
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<tr>
<td>Maroon</td>
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<tr>
<td>Amerindian</td>
<td><em>Carica papaya</em> L.</td>
<td>C. America or northern S. America</td>
<td>Watts 1984, Newsom 1993, Heiser 1990</td>
</tr>
<tr>
<td>Maroon</td>
<td><em>Colocasia esculenta</em> (L.) Schott</td>
<td>Tropical Asia</td>
<td>Price 1979, Adams 1972</td>
</tr>
<tr>
<td>Amerindian</td>
<td><em>Crescentia cujete</em> L.</td>
<td>C. America or northern S. America</td>
<td>Watts 1984, Newsom 1993, Heiser 1990</td>
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<td>Maroon</td>
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<tr>
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<tr>
<td>Maroon</td>
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</tr>
<tr>
<td>Amerindian</td>
<td><em>Manihot esculenta</em> Crantz - both “sweet” and “bitter” varieties were grown by Amerindians</td>
<td>S. America</td>
<td>Watts 1984, Newsom 1993, Price 1979, Heiser 1990</td>
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<tr>
<td>Maroon</td>
<td></td>
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<tr>
<td>Amerindian,</td>
<td><em>Musa</em></td>
<td>Tropical Asia</td>
<td>Price 1979, Mabberley 1989</td>
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<td>Maroon</td>
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### Appendix C (continued)

<table>
<thead>
<tr>
<th>Amerindian, Maroon</th>
<th><strong>Nicotiana</strong> <em>tobacum</em> L. and/or <strong>Nicotiana</strong> <em>rustica</em> L.</th>
<th><strong>N. tobacum</strong>: Tropical America; <strong>N. rustica</strong>: eastern N. America</th>
<th>Watts 1984, Newsom 1993, Price 1979, Mabberley 1989, Alpern 1992</th>
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<td>Maroon</td>
<td><strong>Oryza</strong> <em>glabberina</em> Steudel and/or <strong>Oryza</strong> <em>sativa</em> L.</td>
<td><strong>O. glabberina</strong>: W. Africa; <strong>O. sativa</strong>: Asia</td>
<td>Price 1979, Mabberley 1989</td>
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<tr>
<td>Amerindian (restricted to Cuba), Maroon</td>
<td><strong>Phaseolus</strong></td>
<td>Tropical and warm America</td>
<td>Watts 1984, Newsom 1993, Price 1979, Mabberley 1989</td>
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<td>Amerindian</td>
<td><strong>Psidium guajava</strong> L.</td>
<td>Tropical America</td>
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<td>Maroon</td>
<td><strong>Saccharum officinarum</strong> L.</td>
<td>Asia (India or southern China) or Oceana (Papua New Guinea)</td>
<td>Price 1979, Sills <em>et al.</em> 1995</td>
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<td>Amerindian</td>
<td><strong>Spondias mombin</strong> L.</td>
<td>Tropical America</td>
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<td>Amerindian</td>
<td><strong>Xanthosoma</strong></td>
<td>Tropical America</td>
<td>Watts 1984, Newsom 1993, Mabberley 1989</td>
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Literature Cited


Bosman, W. 1705. A New and Accurate Description of the Coast of Guinea, Divided into the Gold, the Slave, and the Ivory Coasts. London, UK.


Dallas, R. C. 1803. *The History of the Maroons, from their Origin to the Establishment of their Chief Tribe at Sierra Leone: including the Expedition to Cuba, for the Purpose of Procuring Spanish Chasseurs; and the State of the Island of Jamaica for the Last Ten Years: with a Succinct History of the Island Previous to that*


Duncan, J. 1847. *Travels in Western Africa in 1845 & 1846 Comprising a Journey from Whydah, through the Kingdom of Dahomey, to Adofoodia, in the Interior*. Vols. 1 & 2. Richard Bentley, Publisher in Ordinary to Her Majesty, London, UK.


Fage, J. D. 1961. Ghana a Historical Perspective. The University of Wisconsin Press, Madison, WI.


Sloane, H. 1707. *A Voyage to the Islands Madera, Barbados, Nieves, S.Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &ca. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. I. British Museum Press, London, UK.

Sloane, H. 1725. *A Voyage to the Islands Madera, Barbados, Nieves, S.Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &ca. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. II. British Museum Press, London, UK.


Chapter 5

The Amerindian influence on the human and cultural side of the Diaspora: A comparison of Jamaican Maroon and Arawak ethnopharmacopoeia using ethnographic and archaeobotanic evidence

Abstract

This chapter examines the traditional Amerindian origins of Jamaican Maroon ethnopharmacopeia. The hypothesis states that Amerindian culture influenced Jamaican Maroon medicinal plant species selection and use. Ethnographic data from fieldwork in Jamaican Maroon villages is compared to published ethnohistoric and paleobotanical data from ancient Amerindian sites in the West Indies, as well as published ethnographic data from extant Arawak-speaking groups, particularly the Garinagu in Nicaragua and the Yanesha in Peru. Results suggest that at least 14% of the sampled Jamaican Maroon ethnopharmacopoeia plant species are also used by Arawak Amerindian groups in similar ways. Fifteen of these species are not present in the West African ethnopharmacopoeia, indicating that uses of these plants in Jamaican Maroon ethnomedicine represent a probable link to prehistoric West Indian Amerindian tradition. An estimated 48% of the Jamaican Maroon ethnopharmacopoeia, including three endemic species, have no known presence in either tropical West African ethnopharmacopoeia or Amerindian native ethnopharmacopoeia, and no known congeneric species with analogous uses in either West African or Amerindian ethnomedicine, suggesting that a large portion of Jamaican Maroon ethnopharmacopoeia is innovative technology with possible influence from other (non-Amerindian, non-African) sources.

Introduction

Species present in the Jamaican Maroon ethnopharmacopoeia that are not used as medicine in West Africa suggest medical knowledge of these species was acquired in Jamaica, whether learned independently or transferred from indigenous sources. Did Jamaican Maroons learn how to use native plants from indigenous Americans? How much ethnomedicinal knowledge was gained through pure ingenuity? The hypothesis states that a significant amount of traditional knowledge from Amerindian people was
transferred to early Jamaican Maroon society, and that this is evident in their present day common ethnopharmacopeia of the Maroons in Jamaica.

Berry (2005) carried out a comparable study on Montserrat Island using similar methodology to estimate the influence of ancient Carib knowledge on modern uses of plants for medicine in the West Indies. According to Berry (2005), such endeavors are important for sorting through the multifaceted nature of Caribbean ethnobotany, and for the determination of the original sources of intellectual property. As Voeks (2009) pointed out, African Diaspora groups such as Maroons, are very rarely given credit for their traditional ecological knowledge; scholars and lay people commonly view migrated populations (particularly forcefully migrated peoples of African heritage) as unlikely repositories of traditional ecological knowledge (Voeks 2009). Studies such as this one utilize ethnopharmacological comparisons to evaluate if and how Jamaican Maroons have perpetuated traditional African and Amerindian traditional knowledge, and what aspects of their ethnomedicine are potentially novel strategies.

Jamaica Maroons may be one of the last viable communities in Jamaica practicing significant aspects of indigenous Amerindian ethnobotany. This has implications, not only in academia, but in the political arena as well. Jamaican Maroons, as well as other African Diaspora communities, deserve to be respected as a distinctive ethnic group whose heritage runs deep on two continents; and they should be afforded full legal rights and ownership of natural resources and property in the areas where they have been established autonomously for centuries.

**The West Indian landscape**

Natural and/or anthropogenic vegetation types in the Caribbean correlate primarily with temperature and rainfall, which are in turn affected by trade-winds and mountain barriers, as well as localized variables such as soil type and elevation, resulting in relatively high habitat and species diversity (Beard 1949, Table 5.1). Newsom and Pearsall (2003) describe the overall West Indian landscape as a reflection of its past, with evidence of intense anthropogenic disturbance from mining, timbering, cattle farming, and large scale monocrop agriculture. According to Asprey and Robbins (1953), as much as 35% of Jamaica's land area is classified as secondary growth scrub, with only about
18% covered in forest. More or less, the only places native vegetation can still be found is in areas where the rugged or precipitous terrain precludes human land use. It is in many of these same relatively inaccessible or remote regions that Maroon people have survived. For example, in the John Crow Mountain range of Jamaica, part of the windward Maroon territory, there is no extended dry season and the topography is steep and treacherous with a hard, white limestone substrate – all factors that contribute to the area being unsuitable for large-scale construction, thereby protecting one of the largest tracts of native forest left in the country (Kelly 1986, Shreve 1914).

Table 5.1. Vegetation Communities of the Insular Caribbean (Beard 1949)

<table>
<thead>
<tr>
<th>Vegetation Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Evergreen (Dry Forest, Bushland or Thorn Woodland, Littoral or Strand Woodland)</td>
</tr>
<tr>
<td>Montane (Rainforest, Thicket, Elfin Woodland)</td>
</tr>
<tr>
<td>Rainforest</td>
</tr>
<tr>
<td>Seasonal (Evergreen, Semi-evergreen, and Deciduous Seasonal Forest)</td>
</tr>
<tr>
<td>Seasonal Swamp (Edaphic Grassland Savannahs)</td>
</tr>
<tr>
<td>Swamp (Edaphic Mangrove Woodland)</td>
</tr>
</tbody>
</table>

A brief history of the Caribbean

Research with Arawak cultures in the Amazon and Orinoco basins (e.g., Barreiro 1990) has led to speculation concerning initial West Indian migration routes (Figure 5.1). Ethnohistorians such as Dieter-Heinen and García-Castro (2000), as well as Callaghan (1990), have hypothesized that Amerindians colonized insular Caribbean primarily from South America via the Leeward Caribbean Islands. However, archeological evidence indicates that the earliest human settlements were established on Cuba and Hispaniola (c. 4000 – 2000 B.C.), and ethnobotanical similarities between Yucatan Maya and pre-ceramic West Indian cultures further suggest that the Yucatan Peninsula was also a likely origin area for the early human migrations to the Caribbean Islands (Newsom 1993, Wilson 2001). According to Callaghan (1990, 2003), there is a lack of pre-ceramic
cultural sites in the Jamaican archeological record, implying that it was one of the last Greater Antillean islands to be colonized.

Various ethnic groups, each with a distinct language, settled the islands of the Caribbean. Highfield (1997) classifies West Indian dialects by first delineating the Greater and Lesser Antilles into separate language groups. In the Greater Antilles, “Taíno” was the predominant Arawak dialect. In the Lesser Antilles there was more variety, and different Arawakan dialects were spoken even within the same island. For example, in Trinidad, the languages Lokono, Jaoi, and Shebayo were all spoken into historical times. Wilson (1997) and Highfield (1997) state that, due to the prevalence of inter-island travel, trade, and warfare, diverse West Indian groups mingled enough so that nearly all insular Caribbean communities spoke Taíno-Arawak by the time of European contact.

In the late 15th century, there were various ethnic groups living in insular Caribbean, including Ciboney, Glades, Kalínago, and Taíno (Austin 2004, deFrance and Newsom 2005). Human rights advocate Bartolemé de las Casas (cf.1484-1566) sailed with Spanish explorers and crossed the Atlantic over ten times. The legacy of his multiple journeys includes numerous documents describing Spain’s colonization and exploitation of West Indies and her people; these documents have been translated by several editors including Collard (1971) and Knight (2003). The writings of las Casas portray the lifestyle and environs of indigenous Caribbean ethnic groups prior to contact with Europeans. For example, las Casas’ depiction of Guadalupe in 1493 included a short list of the island’s natural resources, including gum mastic, ginger, wax, incense, sandalwood, and “other aromatics” (Collard 1971). When las Casas and his captain’s

137 However, see Black (1983), who suggests that pre-ceramic Ciboney from Florida may have been present on Jamaica when the Ostinoid arrived.
138 According to Highfield (1997), small groups of non-“Taíno” speakers lived on the islands of Hispaniola and Cuba, the Ciguay and the Guanahatabey, respectively, as late as the 15th century.
139 Glades people often traveled between the Florida Keys and Cuba (Kuba), likely exchanging ethnobotanical information with Taíno and other Arawak island-dwellers (Austin 2004).
140 De las Casas could be referring to a species of Renealmia, a genus belonging to the Zingiberaceae family with native and endemic Caribbean species (Adams 1972); it is likely not the cultivated Z. officinale, since this species is native to SE Asia and was not introduced to the west until the 16th century (Sloane 1707).
141 This description of “sandalwood” could be Amyris balsamifera L., which was a primary export commodity during 17th century Jamaica (Asprey & Robins 1953), or a species of Bursera (see following footnote).
crew reached *Borinquen* (Puerto Rico), they met “Taíno”\footnote{According to Hulme (1993) the apppellate “Taino” was applied to indigenous West Indians by Europeans; it was not an ethnic term used by the people themselves. In this dissertation I use “Greater Antillean Islander” in place of “Taino” where appropriate.} living in houses made of straw and wood, with walls and streets fortified by woven reed. On Cuba, las Casas described a pleasant fragrance, stronger than they had encountered on any other island, supposedly from “the storax”\footnote{This “storax tree” is perhaps a species of *Bursera*. Archeobotanical evidence has shown that Taíno of *Borinquen* used *B. simaruba* as a source of fragrant oil and resin for ritual burning. The indigenous use of this genus as a source of copal incense is documented throughout the Caribbean, including pre-Columbian use of *B. glabrifolia* in dry tropical regions of Mexico (Peters *et. al* 2003).} tree...a wood the Indians use to burn” (Collard 1971). When the explorers finally reached Jamaica, they found “gardens of fruits and foodstuffs and hives of bees,” and were greeted by a thriving Taíno society (Curet 2002, Knight 2003). According to Sloane (1707), the Jamaican Taíno had once numbered about 60,000, but the Spanish killed an untold number of them, and many others died from introduced disease, forced labor, and oppression (Knight 2003, Collard 1971).

Las Casas stated that Alonso de Hojeda was commissioned by Spain in 1499 to further explore the New World that was so colorfully described in the preceding years (Knight 2003). Hojeda reached the South American continent at Paria Gulf in Venezuela. He claimed that the native people’s diet lacked any grains, and consisted instead of herbs, roots and fish, as well as bread made from *yuca* root. Hojeda reported to have seen both women and men chew herbs to induce vomiting, fast for several days without food or water, and practice “bleeding.” He also stated that women “give themselves abortions with herbs that force stillbirth.” Such descriptions of abortion and vomiting may have been partially contrived, exaggerated, or at the very least stated out of context as part of a moral argument to crown governments meant to justify land acquisition and subjugation of Amerindians (Schiebinger 2004).
The trans-Caribbean slave trade

As noted above, because of European exploration, exploitation, and establishment of colonies in the West Indies, Amerindian people were exposed to disease, warfare, and oppression. As a result, the coastal indigenous population in Jamaica (and elsewhere) rapidly declined, stimulating a trans-Caribbean forced migration of Amerindian people from across the Caribbean – an American slave trade that preceded the trans-Atlantic movement of Africans to the same region. Indigenous people were taken in bondage from various areas, including Nicaragua and Florida, during the 16th and 17th centuries for the high labor demands associated with the island plantocracy systems (Sloane 1707). According to las Casas, over a million Amerindians were transported in ships across the
Caribbean and sold as slaves in Jamaica, Hispaniola, as well as Santa Marta, Columbia, before the year 1542 (Knight 2003).

Aboriginal groups in the insular and continental Caribbean regions, as well as in North America, often fled to remote areas to escape disease, warfare, and slavery, frequently aligning with African runaway slaves (Austin 2004, Harris 2003, Bateman 1990, Thornton 1988, Price 1979, Kopytoff 1978, Collard 1971, Robinson 1969, Davidson 1966, Aptheker 1939). According to Schafer (1974), Jamaican Amerindians united with Maroons and together they developed a military to defend mountain strongholds. Also, Price (1979) stated that once Maroons were in the protection of the interior they often lived with Amerindians, fought side by side in battles, and undoubtedly shared knowledge about landscape, flora, and fauna.

According to Sloane (1707), the African slaves and Amerindians subjugated during the Spanish occupation of Jamaica remained on the island after the British took over. Supposedly, they were given their freedom by the new European colonizers, and were allowed to make small plantations of their own. Sloane stated that he visited some of these plantations, and noted that the people grew vegetables from “their own country.144”. Sloane also mentions that the Spanish planted many edible and medicinal fruit trees on Jamaica, and when they retreated to Cuba, the knowledge of how to use them remained with the “blacks and Indians”, suggesting that these two groups lived in close relations with one another. Marriage between Africans and indigenous Americans would have provided a direct means of cross-cultural influence, and these unions were apparently common in Maroon society (Porter 1996, Davidson 1966). With a common struggle for liberty and survival, intimate interactions undoubtedly occurred between African and autochthonous (as well as immigrant) Amerindian Maroons in Jamaica – relationships that would have provided opportunity for cross-cultural ethnobotanical knowledge transfer (Aptheker 1939, Bateman 1990, Davidson 1966).

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144 Sloane is probably referring to African as well as American countries (e.g., Ghana, Congo, Nicaragua, Hispaniola, etc.).
Indigenous Caribbean culture

Amerindian groups living in the Caribbean during the 15th century represent the aboriginal pool of knowledge available to African Maroons. Ancient West Indian Amerindians were descendants of mainland ethnic groups (mostly South American Saladoid), and are considered closely related to present day Arawak societies living throughout the region, including Garinagu in the Lesser Antilles, Belize, Guatemala, and Nicaragua, and Yanesha in Peru (Coe and Anderson 1996, Heckenberger 2002, Wilson 1997, Valadeau et al. 2010).

Pre-ceramic peoples of the West Indies

Peterson (1997) describes the first inhabitants of Hispaniola and Cuba as hunters and gatherers who relied on marine resources as well as native flora and fauna. However, on other Caribbean Islands, Veloz Maggiolo (1991, 1992), Veloz Maggiolo and Ortega (1976), and Veloz Maggiolo et al. (1977) argue, for example, that the early settlers of St. Thomas and Puerto Rico were “incipient horticulturists” who managed native plant species, including palms such as Acrocomia spp. and Roystonea borinquena O.F. Cook, woody dicots such as Clusia rosea Jacq., and gymnosperms such as Zamia pumila L. According to Newsom (1993), archaeobotanical and archeological evidence suggests pre-ceramic peoples established gardening in the Caribbean, and could have introduced a variety of useful species from the Central American Yucatan and South American region, including Manilkara zapota (L.) P. Royen. Native species in the pre-ceramic West Indian ethnoflora, such as Celtis iguanaea (Jacq.) Sarg., and Sideroxylon foetidissimum Jacq., are also grown in Yucatan Maya home-gardens; a connection that supports a transfer of ethnobotanical knowledge between the two regions. Other plants used by the first West Indian settlers include species in Ficus, Oenothera, Persea, Portulaca, Sterculia, Trianthema, and various genera of mangrove. The prehistoric use of S. foetidissimum, C. iguanaea, and Oenothera in the West Indies carried over to the ceramic age, and represents one of the earliest examples of inter-cultural ethnobotanical knowledge transfer in the Caribbean archipelago (Newsom 1993).
Ceramic-making cultures

Wilson (1997) presents evidence to support a separate colonization event into the Lesser Antilles approximately 3,000 years after initial migrations into the Greater Antilles. Through archeological findings, historical writings, and indigenous oral histories, Wilson was able to reconstruct the lifestyle of Arawak speaking Saladoid people from the Guiana region of South America (Figure 5.1). Saladoid people made ceramics with distinct decorations, indicating an advanced society with specializations of skill and expertise. They brought dogs and agouti to the West Indies, as well as more intensive agriculture techniques with domesticated root crops such as *yucca* (*Manihot esculenta* Crantz). Saladoid relied heavily on marine resources, including deep reef and open water species, plus they harvested wild herbs and fauna from inland forests (Wilson 1997).

Saladoid culture flourished and eventually expanded north into the Greater Antilles. It is likely that Saladoid people introduced many South American plants to Jamaica and neighboring islands. Newsom (1993) provides archeobotanical evidence from Hispaniola to suggest Saladoid home gardens included a diversity of trees and herbs such as *Psidium guajava*, and various species of *Annona*, *Capsicum*, *Manilkara*, and *Oenothera*. Staple crops included *yucca* and *maize*; however, *yucca* was more prominent. The Saladoid also utilized native West Indian plants such as *C. iguanaea*, *S. foetidissimum*, and *Trianthema portulacastrum*, as well as species of *Amaranth*, *Ficus*, *Portulaca*, and *Solanum*.

Saladoid eventually made contact with pre-ceramic cultures in Puerto Rico, Hispaniola, and Cuba, long-term interactions of these distinct groups eventually led to the development cultures that became distinct from South American Arawak societies (Reid 2009). Newsom and Pearsall (2003) have done extensive archeological work on these ancient Greater Antillean societies, providing evidence that they were sophisticated agriculturalists, and people had home-gardens with various plants such as fruit trees, calabash (*C. cujete*), cotton (*Gossypium*), pineapple (*Ananas comosus* (L.) Merr), and tobacco (*Nicotiana*). Intensive cultivation measures were applied to staple root crops such as *yucca* and sweet potato, with seed crop staples such as *maize* playing a less prominent dietary role (Newsom and Deagan 1994). In addition to cultivating plants, native species
were foraged from inland and marine wild habitats. For example, mangrove species were used heavily for fuel-wood and construction along the coast, and remains of nets, weirs, and animal skeletons suggest that native Greater Antillean Islanders were skilled hunters on both land and sea. Their societal structure is further revealed in various artistic and sporting artifacts, such as their extensive ball-game and dance courts, called *batey*. Musical instruments including flutes, drums, and maracas were made using various natural elements such as gourds (*e.g.* *Cucurbita* and/or *Lagenaria* species), wood, shell, clay, and stone.

According to Newsom and Pearsall (2003), indigenous Greater Antillean were experts in tropical agriculture, and they efficiently used limited resources such as top soil, water, and space. Their main agricultural tool was a fire-hardened digging stick, called *coa*. As noted above, they cultivated a wide variety of crops including peanuts,145 sweet potato, *yucca, maize*, as well as varieties of pepper (*Capsicum*), squash (*Cucurbita*), and *Zamia pumila*, in small hill-shaped mounds called *conuco*. According to Blome (1672), *conuco* were present in Jamaica until at least the late 17th century.

Olazagasti (1997) and Peterson (1997) describe the religious and material culture of indigenous Greater Antillean Islanders, with *yucca* at the center of both. The starchy tuber was processed using a cylindrical basket called a *cibucán* in which the pulpy mass was strained before being cooked on a clay griddle, called a *buren*, which was placed over a fire to make *cassava* cakes, known as *bammy*. *Yucca* also figured prominently in religion, with associations to a supreme deity called *Yucahu*.

According to Reid (2009), the culture thought to have first inhabited Jamaica are known as the Ostionan, with the oldest sites dating to c. 650 A.D. at Little River in St. Ann. Presence of similar styled intricately designed pottery in Jamaica, Cuba, Hispaniola, Puerto Rico, and the Bahamas suggest that trade was common among Greater Antillean societies.

Approximately 200 years after the Ostinoid found Jamaica (c. 800 A.D.) the Meillican inhabited the island (Reid 2009). An ancient Meillican midden was found in

145 According to Fitzpatrick & Keegan (2007), *A. hypogoea* was introduced into the Caribbean during the Ceramic Period (c. 300 B.C. to 1400 A.D.).
White Marl (St. Catherine), and is one of the most important indigenous Amerindian sites in the Caribbean (Reid 2009).

**The Carib**

Distinct from Greater Antillean groups, Lesser Antillean culture evolved with various Arawak and non-Arawak dialects. According to Ellis (1997), Highfield (1997), and Wilson (1997), several centuries following the proposed initial migration of Arawak speakers, a later migration of Galibi speaking people, known as Kalínago, from South America into the Lesser Antilles occurred (Figure 5.1). Although they spoke Galibi, the Kalínago people maintained trading relations with South American Arawak speaking tribes such as Eyéri. The Kalínago were a warring society that expanded into neighboring Arawak speaking communities, supposedly taking women for wives, who raised their children to speak Arawak, even though the fathers spoke Galibi.

**Garinagu**

According to Coe and Anderson (1996) and Ellis (1997), the Garinagu are descendants of Kalínago people and African slaves. These two distinct cultural groups met after a slave ship ran aground off the coast of Bequia (an island in the Grenadines). The would-be slave shipwreck survivors came ashore at St. Vincent, met with the Kalínago, and together evolved a syncretic culture with a distinct language, called Garifuna (Ellis 1997). Garifuna is closely related to native Lesser Antillean dialects, with predominant Arawak and Kaliña elements (Campos Reyes 2004). Garinagu have since migrated across the Caribbean, with communities in Belize, Guatemala, and, more recently, Nicaragua.

Gonzalez (1997) studied with a Garinagu community in Guatemala. She collected ethnographic data from interviews, audio recordings, and participant observation. Her research revealed a Caribbean people who look more like Africans, but live more like

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146 The years of European colonization following 1620 brought waves of disease, warfare, and acts of genocide to Lesser Antilleans, leading to the disappearance of many indigenous groups. Previously large societies, including the Kalínago, were reduced to control of only two islands: Wáitukubuli (Dominica), and St. Vincent. Regardless of how many distinct groups were once living in the Lesser Antilles, they have now been amalgamated into the generic grouping of “Carib.”

147 Kaliña is the native language of the Kalínago.

148 Garifuna migrated into eastern Nicaragua in the late 19th century for job opportunities felling Mahogany timber (Coe and Anderson 1996).
Amerindians. According to Gonzalez, in addition to their language, Garinagu music style is also Amerindian and completely unrelated to African compositions. Moreover, Garinagu agriculture employs Amerindian methods exclusively. On the other hand, Garinagu religion contains many African components, including a strong belief in a soul, the afterlife, and ancestral communication. Gonzalez contends that this self-directed cultural hybridization distinguishes Garinagu people as unique, and has continued to play a major role in their survival and integrity as a homogenous group.

**Amerindian ethnobotany compared**

Amiguet and colleagues (2005) studied the Q’eqchi Maya in southern Belize. They used consensus analysis to estimate species importance in Q’eqchi ethnomedicine. Results indicate that Q’eqchi Maya healers utilize parts of shrubs, herbs, or vines primarily in the families Rubiaceae, Asteraceae, and Piperaceae extracted from primary old-growth tropical forests with high species richness and little or no human disturbance.

Ross-Ibarra and Molina-Cruz (2002) found that Maya living in the Yucatán peninsula prefer a species that has been cultivated since pre-Columbian times – a shrub crop belonging to the family Euphorbiaceae. Yucatán Maya give significant value to *Cnidoscolus aconitifolius* (P. Mill.) I.M. Johnston, ascribe over 38 vernacular names for the plant, and practice at least 33 different medicinal and nutritional uses. On the basis of this sophisticated taxonomy and depth of ethnobotanical knowledge, the use of *C. aconitifolius* in Yucatan Maya society most probably represents a traditional knowledge continuum from pre-contact Central American society.

Berry (2005) found evidence of ancient Amerindian cultural diffusion in modern West Indian folk medicine through her comparison of ethnographic data (e.g., structured informal interviews and voucher collections) with archival data from Montserrat and Dominica Carib cultures. She estimated that at least 15% of modern Montserrat ethnomedicine is derived from prehistoric Amerindian knowledge. Berry identified 20 new world species with at least one parallel use in Dominica Carib and Montserrat society.

Taylor (2004) provides an example of ethnobotanical knowledge transfer from Amerindians to African Maroons on the island of Hispaniola. Taíno once used the
endemic species *Zombia antillarum* (Descourt. ex B.D. Jacks.) L.H. Bailey (Arecaceae) for its “powerful properties.” Today in Haiti, it is employed in the practice of voodoo for zombification.

To better understand how ethnobotanical knowledge is transferred over space and time in Cuba, Volpato and Godínez (2004) interviewed *pruzeros* (producers of the traditional drink *pru*) in Cuba. They found that knowledge is transmitted ‘intergenerationally’ within families and is coupled with *pruzero* migration. The complex recipe of species, as well as the technology used in production, suggests *pru* knowledge may only be understood in the context of multiple ethnic information sources, including indigenous, African, and European.

My research in Maroon communities located in the Rio Grande Valley of Jamaica also revealed qualitative evidence of knowledge transfer from Arawak to Africans. Several people expressed to me that their ancestry includes Arawak, including Ivelyn Harris, traditional Maroon herbalist, who stated that her mother is “part Arawak.” According to Harris, Taino Arawak and their descendants live “all over the island,” but mainly in the eastern parish of St. Thomas, and in Hellshire in St. Catherine parish. During one interview, Harris told me that the Arawaks loved to eat the fruit of the wild locust (*cf. Hymenaea courbaril* L.), along with honey, and “that is one of the things we learned from them.” Along with wild locust, Ivelyn Harris has mammy (*Mammea americana* L.) growing in her yard, as well with several other traditional Arawak crops including pineapple and yucca (*cassava*). Harris told me that bitter varieties of *cassava* were commonly grown in Maroon villages when she was growing up, and even today some people still have them. More often, the sweet *cassava* varieties are grown, perhaps because they require less processing for making fried *cassava* dumplings, or baked *cassava* cakes called *bammy*.

The complex processing techniques associated with utilizing *cassava* (particularly the bitter varieties) could have been transferred from indigenous sources. Harris explained and showed me how to harvest and process *cassava*: sweet *cassava* is grated

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149 Long (1774) also mentions *H. courbaril* and stated that “Indians ate it with great avidity, although likely to purge when gathered fresh.” According to Long, the tree is not indigenous, but introduced by a small colony from Surinam, who “planted a great variety of seeds, including this tree, in their spot allotted to them, called Surinam-Quarters, in the parish of St. Elizabeth, where this species is growing in great abundance.”
and juiced; the juice is set aside to allow the starch to settle out. Bitter cassava is grated and then must be washed, wrung out through a sieve, then dried in the sun. After it is dry it is pounded in a mortar and then sieved again for flour. Harris also mentioned that arrowroot (cf. Maranta) “operates the same way;” meaning that it is processed in a similar manner as cassava to make flour. This indicates that arrowroot (another traditional Arawak root crop) is both a Maroon food plant and a component of their ethnopharmacopoeia.150

Methods

The ethnopharmacopoeia of Jamaican Maroons was sampled using ethnographic methods (see Chapter 1). To examine potential influence from indigenous Amerindian ethnobotany, I gathered data from several sources, including deFrance and Newsom (2005), Highfield (1997), Newsom (1993), Newsom and Pearsall (2003), Peterson (1997), Coe and Anderson (1997), and Valadeau et al. (2010). Botanical name and authors were determined by using IPNI, ITIS, and TROPICOS databases.

Only ethnomedicinal uses of plants that are already part of the public domain are discussed (i.e., only the plant-disease associations shared by Jamaican Maroon and Amerindian healers are presented here). Furthermore, only clear and certain similarities of usage are discussed. Many other uses and preparation methods may have been recorded for species listed in the Jamaican Maroon ethnopharmacopoeia but are not described here, thereby keeping control of unpublished information in the hands of the Jamaican Maroon community.

Results

At least 47 species (~27%) of the sampled Jamaican Maroon ethnopharmacopoeia are also used by Arawak Amerindian groups for medicine, and 25 of these species (~14% of the Jamaican Maroon ethnopharmacopoeia) have similar indications in both traditions (Appendix A). The plant family with the highest number of species (six) that are used in similar ways in both Jamaican Maroon and Arawak Amerindian ethnomedicine is Fabaceae.

150 Arrowroot (Maranta arundinacea L. (SA316) was shown and described to me by research participants as a useful medicinal plant.
Out of the total 47 overlapping species in Jamaican Maroon and Amerindian ethnopharmacopoeia, 24 species (roughly 51%), are also used in traditional West African medicine (see Chapter 4). Fifteen species in the Jamaican Maroon ethnopharmacopoeia (~ 9 %) were identified as probable links to ancient Arawak Taíno tradition based on their presence and analogous use in Jamaican Maroon and Arawak ethnopharmacopoeia, and their absence in West African ethnopharmacopoeia. Each of those 15 species is presented in more detail below.

*Aristolochia trilobata* (Aristolochiaceae) “country elbow”

Both Garinagu and Jamaican Maroons use a decoction of *A. trilobata* to treat stomachaches and the blood. According to one Jamaican research participant, *A. trilobata* is “the capital herb for the blood.”

*Chamaesyce hyssopifolia* (Euphorbiaceae) “male milk weed”

Garinagu use *C. hyssopifolia* to treat “infections.” Similarly, Jamaican Maroons use this species to treat kidney and urinary tract infections.

*Clibadium* spp. (Asteraceae) “marshmellon”

Species of *Clibadium* are used as a tonic in both Jamaican Maroon and Garinagu ethnomedicine. Additional ethnographic research is needed in Garinagu communities to determine if “tonic” has a similar meaning as that described to me by research participants in Jamaican Maroons communities (see Chapter 3 for Jamaican Maroon definition of tonic).

*Crescentia cujete* (Bignoniaceae) “calabash”

*Crescentia cujete* is used by many Native American groups including Taíno, Miskitu, Garinagu, Jamaican Maroons, and others throughout the mainland and insular Caribbean region (see Morton 1968). Archeological evidence suggests that *C. cujete* has

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151 Offen (2002) states that the Miskitu in Nicaragua are not a homogenous ethnic group; rather, they are two geographically distinct people: the Sambo and the Tawira. To understand this, one needs to know the history. In 1641, a slave ship was wrecked off the coast of Nicaragua at Cape Gracias a Dios, allowing a large group of Africans to swim ashore to freedom. Apparently, many of them found shelter with the Miskitu. A dual ethnicity evolved, leading to a designation of two Miskitu groups – Sambo (mixed African and Amerindian) and Tawira (indigenous Amerindian). Although their physical appearance is different, both groups speak the indigenous Miskito language.
been a part of indigenous Caribbean Islander ethnobotany since pre-historic times (Newsom 1993). According to Coe and Anderson (1996), a decoction of *C. cujete* is used to treat respiratory and pulmonary disorders such as coughs and colds in Garinagu ethnomedicine; similarly, in Jamaican Maroon ethnomedicine, the same species is used to treat asthma and bronchitis. This evidence supports the diffusion of indigenous ethnobotanical knowledge associated with *C. cujete* throughout the West Indies, including to Jamaican Maroons.

*Desmodium barbatum* (Fabaceae) “wild pinda”

According to Coe and Anderson (1996), *D. barbatum* is used to treat aches and pains in Garinagu ethnomedicine. In Jamaican Maroon ethnomedicine, the same plant is used to treat back pain. Also, species of *Desmodium* are used to treat back pain by the Arawak Yanesha (Valadeau et al. 2010).

*Hyptis verticillata* (Lamiaceae) “John Charles”

According to Coe and Anderson (1996), *H. verticillata* is used to treat infections as well as skin rashes and sores in Garinagu ethnomedicine. In Jamaican Maroon tradition, the same species is used to treat gonorrhea infection, and to “take off sores from the body.”

*Lippia alba* (Verbenaceae) “colic mint”

Both Garinagu and Jamaican Maroon use *L. alba* to treat stomachache. A related species is also selected and used in similar ways in West African ethnomedicine (see Chapter 4).

*Mikania* (Asteraceae) “Guaco”¹⁵² *bush”

Mikania species are used in Miskitu, Garinagu, Jamaican Maroon, and Yanesha ethnomedicine. The vernacular used by Miskitu (guahku) and Garinagu (guagú) are cognates to the Jamaican Maroon name Guaco. However, there is no use or preparation overlap in Miskitu and Jamaican Maroon medicine. There is overlap though, in Jamaican

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¹⁵² In the West Africa and Jamaica, *Guaco* (also spelled *Quaco, Kweku, Kwaku*) is a proper name (see Chapter 4), which is why it is capitalized here.
Maroon, Garifuna, and Yanesha ethnomedicine. Both Jamaican Maroons and Yanesha prepare Mikania as a bath. Jamaican Maroons and Garinagu prescribe Mikania to treat skin rashes.

**Neurolaena lobata (Asteraceae) “bitter albut”**

Both Jamaican Maroons and Garinagu prepare a decoction of *N. lobata* to treat conditions of the blood. Jamaican Maroons use it to “clean the blood” and Garinagu use it as a blood fortifier. Additional ethnographic research is needed in Garinagu communities to better understand the meaning of blood fortifier in a Garinagu ethnomedicinal context (see Chapter 3 for Jamaican Maroon definition of blood cleanser).

**Petiveria alliacea (Phytolaccaceae) “Guinea hen weed”**

In both Jamaican Maroon and Garinagu ethnomedicine, *P. alliacea* is applied topically to treat ailments affecting the nervous system. For example, Jamaican Maroons rub it up and place it between thin pieces of cloth, which are then wrapped around the head to treat “pain in the head.” According to Coe and Anderson (1996), *P. alliacea* is also applied as a poultice to treat aches and pains among the Garinagu.

**Piper aduncum (Piperaceae) “white Betty”**

Both Jamaican Maroons and Yanesha use this *Piper* species to treat at least one similar ailment, fever. Also, both cultures prepare this herb for use in therapeutic baths.

**Pseudelephantopus spicatus (Asteraceae) “ironweed”**

Jamaican Maroons and Garinagu both use *P. spicatus* to treat pain. Additionally, Jamaican Maroons use this plant in remedies for bellyache, and Garinagu use it to treat diarrhea.

**Smilax spp. (Smilacaceae)**

Species of Smilax are used in Yanesha, Garinagu, and Jamaican Maroon ethnomedicine for similar indications. For example, Jamaican Maroons and Yanesha use *Smilax* species to treat back pain, as well as a “blood purifier.” Similarly, Coe and Anderson (1996) state that the Garinagu use *Smilax* species as a “blood fortifier.”
*Stachytarpheta jamaicensis* (Verbenaceae) “ vervine”

There appear to be numerous overlaps in indication for species of *Stachytarpheta* in Jamaican Maroon and Amerindian traditional medicine. For example, Jamaican Maroons use *Stachytarpheta* to treat “blocked tubes” in women, menstrual cramps, for “clean out,” belly ache, as an anti-mucous and expectorant, as well as to treat cough and whooping cough; Coe and Anderson (1996) state that Garinagu use *Stachytarpheta* for pregnancy and childbirth, stomachache, ulcer, as a “purgative,” laxative, treatment for constipation, colds, and cough. Additionally, both Jamaican Maroons and Garinagu use *Stachytarpheta* to treat fever.

*Tradescantia zebrina* (Commelinaceae) “red water grass”

Jamaican Maroons and Garinagu use a decoction of *T. zebrina* in remedies to treat digestive system complaints, including stomachache. *Tradescantia zebrina* is one of two ethnospecies of water grass used in Jamaican Maroon ethnopharmacopoeia (see Chapter 3).

**Discussion**

There appear to be many similarities in West African Akan and Arawak Amerindian cultures. For example, like the Akan in tropical West Africa, native Caribbean Islanders grew mostly root crops (instead of grains) as a primary source of nutrition, and each culture has strong traditional ritualistic associations with their primary staple (yam and yucca, respectively). Furthermore, principle areas of ethnomedicinal overlap in plant species selection, preparation, and treatment suggest that Native Americans and African Akans have similar worldviews - cognitive outlooks on the natural environment that may have facilitated ethnobotanical knowledge transfer from Amerindian to African groups during the early stages of Jamaican Maroon society development. For example, both Amerindian Arawak and Ghanaian Akan ethnic groups preferentially select species in Piperaceae for medicine (*e.g.*, see Valadeau *et. al.* 2010, Warren 1974, and Chapter 6 of this dissertation). Also, baths are an important preparation and application method in both Arawak and Akan ethnomedicine (*e.g.*, see Valadeau *et. al.* 2010, Opokuwaa 2005, and Chapters 3, 6 of this dissertation). Additionally, according to Campbell (1988), North American, West African, and West Indian Maroon ethnic
groups rub their bodies with medicinal preparations as a protective measure during war activities.

Indigenous Americans were the first people to transform the West Indian landscape through human habitat alteration and plant species introductions (both weedy and cultivated) from continental to insular Caribbean regions in prehistoric times. After European contact, indigenous Caribbean Islander populations declined dramatically in coastal areas, but some survived in Maroon communities located in the mountainous interiors of larger islands such as Jamaica. The long-term intimate connection between Maroons and Amerindian peoples in Jamaica is evident in their similar uses of plants.

This chapter provided several examples of overlapping ethnomedicinal uses of plants between Jamaican Maroons and various Amerindian groups (Appendix A). Similar species-use associations with at least two plants, *Commelina diffusa* and *Piper aduncum*, were identified as unique between Jamaican Maroons and Yanesha culture, representing a distinct ethnomedicinal relationship between Jamaican Maroons and extant Arawaks. A higher number of similarly used medicinal plants (at least 15) are exclusive to Jamaican Maroon and Garinagu ethnomedicine tradition. The higher number of species-use overlaps in Garinagu and Jamaican Maroon ethnomedicine was expected, considering that Garinagu are an ethnic group with African ancestry. One species in both Garinagu and Jamaican Maroon ethnopharmacopoeia, a climbing fern in the genus of *Lygodium*, was not identified as part of the tropical West African ethnopharmacopoeia, suggesting that this species represents a possible connection between Jamaican Maroon and ancient Kalínago ethnopharmacopoeia. Finally, archeological evidence indicates that at least eight plants in the Jamaican Maroon ethnopharmacopoeia (~ 5%), including three that were not identified to be part of West

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153 Selection of Piperaceae species has been recorded in several tropical Amerindian traditions (see Chapter 6).
154 Although *C. diffusa* is in West African ethnopharmacopoeia, the uses appear to differ from how Jamaican Maroons use this plant (see Chapter 4). *Piper aduncum* is not in the West African ethnopharmacopoeia; neither species was identified in Garinagu ethnopharmacopoeia.
155 These species were not identified in Yanesha or ancient Arawak tradition. Many of these species are also used in tropical West African ethnomedicine (see Chapter 4), but they are employed in different ways.
156 It is probable that much of Garinagu ethnomedicine also represents a continuum from African traditional knowledge.
157 This plant was not included in the list of 15 plants discussed above because no specific species-use association were found in Jamaican Maroon and Arawak ethnomedicine.
African ethnopharmacopoeia, *Crescentia cujete*, *Guazuma ulmifolia*, and *Picramnia* sp., were used by pre-contact West Indian Arawak societies (Appendix A), suggesting that Jamaican Maroon ethnopharmacopoeia represents a link to ancient indigenous Amerindian medicinal plant selection in Jamaica.

**Conclusion**

At least 25 species and four congeneric species (~ 16% of the sampled Jamaican Maroon ethnopharmacopeia) are used by Jamaican Maroon and Arawak Amerindian groups in similar ways. The presence and use of these plants in Jamaican Maroon ethnomedicine supports the hypothesis that traditional knowledge from indigenous Amerindian people was transferred to early Jamaican Maroon society, and suggests that the traditional ethnomedicinal knowledge practiced by Jamaican Maroons today represents a continuum from ancient Caribbean Islander (e.g., Kalínago, Meillacan, “Taino”) peoples.

The large number of species in Jamaican Maroon ethnopharmacopoeia with no overlapping uses found thus far in the other cultures analyzed suggests that ingenuity and skill of Maroon people played a significant role in the successful development of their ethnomedicine. In sum, the ethnobotanical knowledge practiced in Jamaican Maroon society is not simply transferred knowledge; it represents a link to both West African Akan as well as ancient Caribbean Islander and extant Arawak culture, while at the same time contains many elements that appear to be new innovations (i.e. there are species present in the Jamaican Maroon ethnopharmacopoeia that are not used in the other regions analyzed, as well associated uses of species not known to be present in the other ethnomedicine traditions analyzed). The botanical evidence presented in this paper supports the treatment of Maroons, or Maroon culture, in Jamaica, and elsewhere, as distinct autochthonous ethnic groups, with full rights granted for sovereignty, and ownership of their land and the natural resources found there.

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158 This is less than the ~ 30% overlap between Jamaican Maroon and West African ethnomedicine (Chapter 4).
159 Traditions may have been influenced or learned from other groups; additional comparative studies are needed to say with confidence which aspects of Jamaican Maroon ethnomedicine are truly unique.
**Limitations and call for more research**

Archeological studies are reconstructions of the past; therefore, details regarding specific plant use are often unknown or discussed conjecturally. Furthermore, cross-cultural comparison of disease classification systems is difficult without conducting field work in both regions using similar ethnographic methods. The categories ascribed under the heading “Body System Treated?” in Appendix A are based primarily on information gained through ethnographic field work in Jamaica compared to pre-determined categories described in publications dealing with Amerindian ethnomedicine; therefore, the methodologies across regions are not uniform and this may have affected the results.

Additional work with extant Arawak communities in Jamaica (e.g., in Hellshire), Maroon societies, and West African ethnic groups could help sort out the relative influence on Maroon ethnobotany from each side of the Atlantic. Statistical testing is necessary to ascertain if the percent of overlapping species-use associations are due to knowledge transfer, or random occurrence. Also, a better understanding of knowledge structure in Arawak societies could help determine how knowledge may have been (and continues to be) transmitted during Maroon ethnopharmacopoeia and ethnomedicine development.
Appendix A: New World species used by both Jamaican Maroons and Amerindians (For plants with known medicinal usage by Amerindian groups; information regarding indication and preparation methodology is provided in comparison with Jamaican Maroon ethnomedicine when available).

<table>
<thead>
<tr>
<th>Family</th>
<th>Plant, Voucher Number</th>
<th>Amerindian Group</th>
<th>Local Names: Garifuna or Arawak</th>
<th>Local Names: Jamaica Maroon</th>
<th>Same Body System Treated?</th>
<th>Similar Method* of Preparation/Application?</th>
<th>Same Part Used?</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anacardiaceae</td>
<td><em>Spondias mombin</em> L. (SA399)</td>
<td>Garinagu</td>
<td><em>siríngeula</em> (G)</td>
<td>hogplum</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Annonaceae</td>
<td><em>Annona muricata</em> L. (SA167)</td>
<td>Garinagu</td>
<td><em>gurásulu</em> (G)</td>
<td>soursop</td>
<td>unknown</td>
<td>Decoction</td>
<td>Leaves</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Apiaceae</td>
<td><em>Eryngium foetidum</em> L. (SA124, 398)</td>
<td>Garinagu</td>
<td><em>gúlan tro</em> (G)</td>
<td>fits weed</td>
<td>unknown</td>
<td>Infusion</td>
<td>Leaves</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Apocynaceae</td>
<td><em>Allamanda cathartica</em> L. (SA156)</td>
<td>Garinagu</td>
<td><em>dumári raíwa</em> (G)</td>
<td>yellow sage</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Apocynaceae</td>
<td><em>Asclepias curassavica</em> L. (SA148, 322, 414, 422)</td>
<td>Garinagu</td>
<td><em>lamú-ruhéwe</em> (G)</td>
<td>red head</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Aristolochiaceae</td>
<td><em>Aristolochia trilobata</em> L. (SA005, 358)</td>
<td>Garinagu</td>
<td><em>cuntríbo</em> (G)</td>
<td><em>conchi elbo, country elbow</em></td>
<td>Digestive, Circulatory</td>
<td>Infusion</td>
<td>Leaves</td>
<td>Coe and Anderson 1996</td>
</tr>
<tr>
<td>Asteraceae</td>
<td><em>Clibadium</em> spp. (SA082)</td>
<td>Garinagu</td>
<td><em>púntu</em> (G)</td>
<td>marsh-mellon</td>
<td>Whole Body</td>
<td>Decoction</td>
<td>Leaves</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Asteraceae</td>
<td><em>Neurolaena lobata</em> (L.) Cass. (SA078, 364, 428)</td>
<td>Garinagu</td>
<td><em>gúye árani</em> (G)</td>
<td>bitter albut, dog bittah diah</td>
<td>Circulatory</td>
<td>Decoction</td>
<td>Leaves</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
</tbody>
</table>

* The shared preparation method and part(s) used do not necessarily correlate with the listed indication.
### Appendix A (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Names</th>
<th>Uses</th>
<th>Parts</th>
<th>Preparation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asteraceae</td>
<td><em>Pseudoelephantopus spicatus</em> (Juss.ex Aubl.) C.F. Baker (SA022, 051, 077, 146)</td>
<td>Garinagu <em>iñei-bágasu</em> (G)</td>
<td>ironweed</td>
<td>Nervous, Digestive</td>
<td>unknown</td>
<td>Leaves</td>
</tr>
<tr>
<td>Caryophyllaceae</td>
<td><em>Drymaria cordata</em> (L.) Willd. Ex J.A. Scultes (SA045)</td>
<td>Garinagu <em>sumu marine</em> (G)</td>
<td>chickweed</td>
<td>unknown</td>
<td>unknown</td>
<td>Whole Plant</td>
</tr>
<tr>
<td>Cecropiaceae</td>
<td><em>Cecropia schreberiana</em> Miq. (SA048)</td>
<td>Garinagu -</td>
<td>trumpet</td>
<td>unknown</td>
<td>unknown</td>
<td>Leaves</td>
</tr>
<tr>
<td>Commelinaceae</td>
<td><em>Commelina diffusa</em> (SA437)</td>
<td>Yanesha <em>sholla-pan – shaneto par</em> (A)</td>
<td>Water grass</td>
<td>Whole Body</td>
<td>Decoction, Poultice</td>
<td>Leaves, Stem</td>
</tr>
</tbody>
</table>
# Appendix A (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Common Name</th>
<th>Part Used</th>
<th>Mode of Use</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commelinae</td>
<td>Tradescantia zebrina hort. ex Bosse (SA191)</td>
<td>Garinagu -</td>
<td>red water grass</td>
<td>Digestive, Decoction</td>
<td>Whole Plant, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Cucurbitaceae</td>
<td>Fevillaea cordifolia L. (SA360)</td>
<td>Garinagu -</td>
<td>antidote</td>
<td>unknown, Poultice Seed</td>
<td>Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Chamaesyce hyssopifolia (L.) Small (SA189)</td>
<td>Garinagu sagádi gayú (G)</td>
<td>milkweed (male)</td>
<td>Whole Body</td>
<td>Whole Plant, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Jatropha gossypifolia (SA159, 458)</td>
<td>Garinagu -</td>
<td>cassada marble</td>
<td>unknown</td>
<td>unknown, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Desmodium barbatum (L.) Benth. (SA037, 345, 408)</td>
<td>Garinagu -</td>
<td>wild pinda</td>
<td>Nervous</td>
<td>Leaves, Root, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Desmodium incanum var. incanum DC. (SA144, 363)</td>
<td>Garinagu here anágan (G)</td>
<td>man back, strong back</td>
<td>Nervous, Decoction</td>
<td>Leaves, Root, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Mimosa pudica L. (SA120, 407)</td>
<td>Garinagu, Yanesha mueñso par (A), gisú nebénene (G)</td>
<td>shame mocker</td>
<td>Nervous, Reproductive, Digestive</td>
<td>Whole Plant, Coe &amp; Anderson 1996, Valadeau et al. 2010</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Senna alata (L.) Roxb. (SA104, 447)</td>
<td>Garinagu -</td>
<td>King of the forest</td>
<td>Integumentary, Juice, Decoction</td>
<td>Leaves, Coe and Anderson 1996</td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Senna occidentalis (L.) Link (SA071, 111, 419, 426)</td>
<td>Garinagu ganibisi (G)</td>
<td>piss-a-bed</td>
<td>Nervous</td>
<td>Roots, Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Lamiaceae</td>
<td>Hyptis verticillata Jacq. (SA400)</td>
<td>Garinagu bariorá ma (G)</td>
<td>John Charles</td>
<td>Whole Body, Integumentary</td>
<td>unknown, Coe &amp; Anderson 1996</td>
</tr>
</tbody>
</table>

* Wood remains of Picramnia inermis were found at ceramic age (c. 300 B.C. to 1400 A.D.) sites on Puerto Rico and Vieques (deFrance and Newsom 2005)
### Appendix A (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Tribe</th>
<th>Part</th>
<th>Action</th>
<th>Method</th>
<th>Part</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lauraceae</td>
<td><em>Persea americana</em> P.Mill. (SA166)</td>
<td>Garinagu, Ortoiroid¹</td>
<td>wagādi (G)</td>
<td>Pear</td>
<td>unknown</td>
<td>Decoction</td>
<td>Leaves</td>
</tr>
<tr>
<td>Lygodiaceae</td>
<td><em>Lygodium</em> spp. (SA094)</td>
<td>Garinagu</td>
<td>pántugu (G)</td>
<td>bridal wis</td>
<td>unknown</td>
<td>unknown</td>
<td>un-known</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Guazuma ulmifolia</em> Lam. (SA025)</td>
<td>Greater Antillean Islanders¹</td>
<td>guásima (A)</td>
<td>bas cedar</td>
<td>unknown</td>
<td>Unknown</td>
<td>un-known</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Sida acuta</em> Burm f. (SA147)</td>
<td>Garafuna</td>
<td>sagādi abuída-gülei (G)</td>
<td>broom weed</td>
<td>unknown</td>
<td>Unknown</td>
<td>Whole Plant</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Sida rhombifolia</em> L. (SA038, 392)</td>
<td>Yanesha, Garinagu</td>
<td>c’hap (A)</td>
<td>sagādi abuída-gülei (G), broom weed</td>
<td>Skeletal, Nervous</td>
<td>Infusion</td>
<td>Whole Plant</td>
</tr>
<tr>
<td>Malvaceae</td>
<td><em>Theobroma cacao</em> L. (identified in field, photos only)</td>
<td>Garinagu</td>
<td>gábu (G)</td>
<td>Chocolate</td>
<td>Integumentary</td>
<td>Poultice</td>
<td>Seed</td>
</tr>
<tr>
<td>Moraceae</td>
<td><em>Ficus</em> sp. (SA339, 340, 430)</td>
<td>Saladoid,¹</td>
<td>higo (G)</td>
<td>katchman fig</td>
<td>unknown</td>
<td>Poultice</td>
<td>Sap</td>
</tr>
</tbody>
</table>

¹ Archeological evidence suggests that Ortoiroid people introduced *P. americana* into the West Indies from mainland tropical America by at least the Archaic Age c. 4000-5000 B.C. (Newsom and Pearsall 2003).

² Newsom (1993) found wood specimens of what she suspects is *G. ulmifolia* from digs in En Bas Saline, Haiti, and states that the Taíno there may have used this species for fuelwood.

³ Wood remains of *Ficus* sp. were found at ceramic age (c. 300 B.C. to 1400 A.D.) sites on Puerto Rico and Vieques (deFrance and Newsom 2005).
### Appendix A (continued)

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Common Name</th>
<th>Species Code</th>
<th>Yanesha, Garinagu</th>
<th>Uses</th>
<th>Note</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myrtaceae</td>
<td><em>Psidium guajava</em> L.</td>
<td>guava</td>
<td>(SA061)</td>
<td>Yanesha, Garinagu</td>
<td>guava</td>
<td>Digestive</td>
<td>Chew fresh leaves</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onagraceae</td>
<td><em>Ludwigia octovalvis</em></td>
<td>Garinagu</td>
<td>(Jacq.)</td>
<td>-</td>
<td>St. Peter and Paul’s bush</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td></td>
<td>Raven</td>
<td></td>
<td>(SA052)</td>
<td></td>
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<tr>
<td>Passifloraceae</td>
<td><em>Passiflora</em></td>
<td>Saladoid, Garinagu</td>
<td>sp. (SA063)</td>
<td>-</td>
<td>sweet cup</td>
<td>unknown</td>
<td>unknown</td>
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<tr>
<td>Phytolaccaceae</td>
<td><em>Petiveria alliacea</em> L.</td>
<td>Guinea hen weed</td>
<td></td>
<td>-</td>
<td></td>
<td>Nervous</td>
<td>Poultice</td>
</tr>
<tr>
<td></td>
<td>(SA436, 445, 462)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phytolaccaceae</td>
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<td></td>
<td></td>
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</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td>Phytolaccaceae</td>
<td><em>Lepianthes peltata</em> L.</td>
<td>cow foot</td>
<td>(L.) Raf.</td>
<td>Yanesha, Garinagu</td>
<td>cow foot</td>
<td>Nervous</td>
<td>unknown</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
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<td></td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td><em>Peperomia pellucida</em></td>
<td>rat ears</td>
<td>(L.) Kunth</td>
<td>Garinagu</td>
<td>rat ears, man to man</td>
<td>unknown</td>
<td>Decoction</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td>(SA374)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td><em>Piper aduncum</em> L.</td>
<td>White Betty</td>
<td>(SA129, 415,</td>
<td>Yanesha</td>
<td>white Betty</td>
<td>Whole Body</td>
<td>Bath</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td></td>
<td></td>
<td>431, 432)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td><em>Piper auritum</em> H.B.K.</td>
<td>arc angel, African</td>
<td></td>
<td>Garinagu</td>
<td>arc angel, African mint tea</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td>(SA300)</td>
<td>mint tea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pteridaceae</td>
<td><em>Pityrogramma</em></td>
<td>White back, adju</td>
<td>calomelanos</td>
<td>Yanesha, Garinagu</td>
<td>White back, adju</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td></td>
<td>calomelanos (L.) Link</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Macrophytic data found at ceramic age site (c. 300 B.C. to 1400 A.D.) on Puerto Rico and Vieques (deFrance and Newsom 2005).
**Appendix A (continued)**

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Species</th>
<th>Common Names</th>
<th>Uses</th>
<th>Pharmacological Uses</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrophulariaceae</td>
<td>Scoparia dulcis L.</td>
<td>(SA117)</td>
<td>Yanesha, Garinagu</td>
<td><strong>ayonapar</strong> (A); <strong>ri haráchan</strong> (G)</td>
<td>sweet broom, baby broom</td>
<td>Leaves, Whole Plant Valadeau <em>et al.</em> 2010</td>
</tr>
<tr>
<td>Simaroubaceae</td>
<td>Picramnia spp.</td>
<td>(SA068, 171)</td>
<td>Caribbean Islanders*, Yanesha</td>
<td><strong>yetsñorr</strong> (A)</td>
<td><strong>Mojo</strong> herb</td>
<td>unknown unknown Leaves Valadeau <em>et al.</em> 2010, Newsom &amp; Pearsall 2003</td>
</tr>
<tr>
<td>Smilacaceae</td>
<td>Smilax spp.</td>
<td>(SA151, 175, 368, 420, 186)</td>
<td>Yanesha, Garinagu</td>
<td><strong>illochuore ec&quot;h</strong> (A), <strong>ilaguleì gürìngüri</strong> (G)</td>
<td>chainy root, sarsa-parilla</td>
<td>Nervous, Circulatory Decoction tuberous Root Valadeau <em>et al.</em> 2010, Newsom &amp; Pearsall 2003</td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Capsicum annuum var. annuum L.</td>
<td>(identified in field; photos only)</td>
<td>Garinagu</td>
<td><strong>áti</strong> (G)</td>
<td>bird pepper</td>
<td>Respiratory unknown Fruit, Leaves, Seeds Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Nicotiana tobbacumL.</td>
<td>(SA338, 347)</td>
<td>Saladoid†, Yanesha, Garinagu</td>
<td><strong>Iúri</strong> (G)</td>
<td>tobacco, cigar bush</td>
<td>unknown Bath (?) unknown unknown Fitzpatrick &amp; Keegan 2007</td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Solanum torvum Sw.</td>
<td>(SA460)</td>
<td>Garinagu</td>
<td><strong>mirá-mira furáda</strong> (G)</td>
<td><strong>susumber</strong></td>
<td>Whole Body, Integumentary Decoction Leaves Coe &amp; Anderson 1996</td>
</tr>
<tr>
<td>Turneraeaes</td>
<td>Turnera ulmifolia L.</td>
<td>(SA001, 155)</td>
<td>Garinagu</td>
<td>-</td>
<td>ram goat regular, ram goat dash-along</td>
<td>unknown unknown Leaves Coe &amp; Anderson 1996</td>
</tr>
</tbody>
</table>

* deFrance and Newsom (2005) found archeobotanical evidence to suggest species of *Picramnia* were used for medicine in pre-contact Caribbean culture.
† Kelly and Dickinson (1985) mention that Barham (1794) credits the vernacular of *Picramnia (Mojo or Majoe)*, to “an old Negro woman [named Majoe]…who, with a simple decoction, did wonderful cures in the most stubborn diseases;” therefore, this vernacular is capitalized, in reference to its connection with the proper name.
‡ According to Fitzpatrick & Keegan (2007), *N. rustica* was introduced to the West Indies by at least the Ceramic period (c. 300 B.C. to 1400 A.D.) (deFrance and Newsom 2005).
### Appendix A (continued)

|-------------|-------------------------------------------------|------------------|-----------------|--------|---------------------------------------------|---------|--------------|----------------------------------|

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Literature cited


Dallas, R. C. 1803. *The History of the Maroons, from their Origin to the Establishment of their Chief Tribe at Sierra Leone: including the Expedition to Cuba, for the Purpose of Procuring Spanish Chasseurs; and the State of the Island of Jamaica for the Last Ten Years: with a Succinct History of the Island Previous to that Period, Volumes I & II*. T. N. Longman and O. Rees, Paternoster-Row, London, UK.


Harris, I. 2003. *History of the Maroons*. Centre for International Ethnomedicinal Education and Research, Honolulu, HI.


Reid, B. A. 2009. *Myths and Realities of Caribbean History*. The University of Alabama Press, Tuscaloosa, AL.


Sloane, H. 1707. *A Voyage to the Islands Madera, Barbados, Nieves, S.Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c. of the last of those Islands; to which is prefix’d an Introduction, wherein is an Account of the Inhabitants, Air, Waters, Diseases, Trade, &c of that Place, with some Relations concerning the Neighboring Continent, and Islands of America*, Vol. I. British Museum Press, London, UK.


*Arqueología de Cueva de Berna.* Universidad Central del Este, Serie Científica 
Vol. V. Ediciones de la UCE, San Pedro de Macorís, Dominican Republic.

*Proceedings of the First Puerto Rican Symposium on Archeology. Fundación Arqueología, Antropológica e Histórica de Puerto Rico,* San Juan, Puerto Rico. 
Pages: 147-201.


Wilson, S.M. 1997. The legacy of the indigenous people of the Caribbean. In Wilson, 
S.M. (ed.), *The Indigenous People of the Caribbean.* University Press of Florida, 

Chapter 6. Windward Jamaica Maroon ethnopharmacopoeia: A quantitative comparative analysis

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Abstract

Ethnopharmacopoeia data gathered from interviews with Rio Grande Valley Maroons in windward Jamaica are compared with published data from tropical West Africa, Ghana, Ecuador, Chiapas, North America, Korea, and Veracruz, Mexico using ordinary least squares (OLS) regression. The overall research focuses here on the transfer of ethnomedical knowledge to the Americas from West Africa during the trans-Atlantic slave trade. Results reveal that medicinal plant family selection patterns in windward Jamaica Maroon communities and tropical West Africa are significantly correlated, implicating trans-regional ethnomedicinal knowledge transfer. Shared anomalous selection tendencies in windward Jamaica Maroon, tropical West Africa, and colonial tropical American ethnopharmacopoeia suggest a unique relationship between these areas that may reflect historical biogeographical and cultural exchanges.

Introduction and Background

The trans-Atlantic slave trade was the largest forced migration of people in human history (Voeks 2009). Recent scholarship has identified cultural links among Atlantic places, revealing that the movement of people and plants during the slave trade accounts for the perpetuation of traditional African knowledge in the Americas. For example, Voeks (1993) identified specific parallels between Brazilian Candomble and Nigerian Yoruba ethnobotany, including a shared preference for using leaves in ritual healing practice, and selection of certain species such as the West African kola nut tree (*Cola acuminata* (P. Beauv.) Schott & Endl.).

Regression analysis has been used to assess medicinal plant selection tendencies among cultures around the world (e.g., Amiguet *et al.* 2006, Leonti *et al.* 2003, Moerman *et al.*1999). In order to test the hypothesis that medicinal plant species selection is random and largely dependent on available flora, Moerman and colleagues (1999) gathered ethnopharmacopoeia data from five independent regions and plotted the number of medicinal species per family against the total number of species per family. Results indicated that people exhibit non-random selection tendencies for ethnopharmacopoeia. In other words, people tend to select plants purposefully, according to factors such as tradition and efficacy, rather than according to what plants are most available.
Additionally, medicinal plant selection tendencies were compared by evaluating the residuals\(^{169}\) from each regression. Moerman and colleagues found prominent similarities in preferences for certain families between four of the regions tested (North America, Korea, Kashmir, and Chiapas highlands), implying that ethnobotanical knowledge is deep-rooted and may represent a continuum that extends as far back as the Paleolithic Era. One region, Ecuador, showed unique patterns of plant species selection, suggesting innovative ethnopharmacopoeia development in that area.

Amiguet et al. (2006) compared Q`eqchi` Maya ethnoflora with the five regions analyzed by Moerman et al. (1999) and concluded that Q`eqchi` ethnopharmacopoeia species are purposefully selected according to traditional knowledge and plant bioactivity. They also suggested that global patterns of medicinal plant species selection are influenced by climate and vegetation type.

Leonti et al. (2003) analyzed the ethnoflora of the Popoluca ethnic group in Veracruz, Mexico and compared his results with each of the five flora examined by Moerman et al. (1999). Leonti concluded that plant selection patterns among the Popoluca are guided not only by transmitted traditional knowledge, but according to salient characteristics of related plants, such as the presence of latex (e.g., Euphorbiaceae) and outstanding inflorescences (e.g., Piperaceae).

We use the ordinary least squares (OLS) regression residual analysis developed by Moerman et al. (1999) to test the hypothesis that selection preferences for certain plant families in Jamaican Maroon ethnopharmacopoeia are significantly correlated to the plant family selection preferences in West African ethnopharmacopoeia. To discuss cross-regional relationships and the possible Arawak influence on Jamaican Maroon ethnobotany, we compare our original data to four\(^{170}\) of the ethnoflora tested by Moerman et al. (1999), as well as the data collected by Leonti et al. (2003) in Popolucas communities of Veracruz, Mexico.

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\(^{169}\) A regression residual is the difference between the predicted and actual value of medicinal plant species used per family. Large positive residuals indicate a strong preference for species in a family, and large negative residuals indicate a strong rejection tendency for species in a family.

\(^{170}\) We decided to not analyze the data from Kashmir because it was unclear if the entire flora was used in the Kashmir regression.
Methodology

Jamaican Maroon ethnopharmacopoeia was sampled through interviews and plant collections with 38 Jamaican Maroons in windward villages of the Rio Grande Valley, Jamaica during research carried out over a period of approximately 21 non-consecutive months, during the years of 1999-2003, 2005, and 2010. Voucher specimens were deposited at the Institute of Jamaica and the University of Hawai‘i herbaria. All identified flowering plant species in Jamaican ethnopharmacopoeia were compared with analogous data collected by Moerman et al. (1999), Leonti et al. (2003), Dalziel (1937), and Abbiw (1990). Published floras from Jamaica and tropical West Africa were consulted to determine total number of species per family in each region (Adams 1972, Hutchinson and Dalziel 1972, 1968, 1963, 1958, 1954, 1936). Using Mabberley (1987) as a guide, the Cronquist (1981) plant classification was used. The three subfamilies previously lumped within Leguminosae (Caesalpinioideae, Mimosoideae, and Pailiionoideae) were subsumed and treated as one family under the heading Fabaceae.

Ordinary least squares regression (OLS) and residual analysis was carried out on both Jamaican Maroon and tropical West African ethnoflora, with number of cited medicinal species used per family as the response variable and the total number of species per family as the explanatory variable. Although the number of medicinal plant species per plant family data for each region is not normally distributed, OLS is used here because no hypothesis is being tested by the regression. To assess if outliers influenced the results, Cook’s distance was calculated for each outlying data point and observations that showed high leverage were removed from each dataset and a second analysis was then performed. Regression residuals for each plant family were sorted from highest to lowest (Table 1).

To carry out correlation analyses between regional regressions, the data were transformed\textsuperscript{171} using the natural logarithm to meet assumptions of equal variance and

\textsuperscript{171} Data observations of zero or less can be made amenable to ln-transformation by adding a constant to all values, and this has no effect on the regression (Little and Hills 1978); because ethnoflora datasets contain zeros if no species in a family are selected for medicine, we added a one to all values prior to transformation.
normality\textsuperscript{172} (Figure 1). The Pearson Product Moment Correlation Coefficient ($r$) was used to test if regression residuals for the Jamaican Maroon and other ethnopharmacopoeia were significantly correlated.

**Results**

Our results reveal that plant families most selected for medicine (the ones with the largest positive residuals) in windward Jamaica Maroon ethnomedicine are Fabaceae, Lamiaceae, Verbenaceae, Euphorbiaceae, and Piperaceae. When outliers are removed\textsuperscript{173}, Solanaceae was also among the common top five most selected families in Jamaican Maroon ethnopharmacopoeia. Jamaican Maroon, tropical West African, and Ghanaian ethnopharmacopoeia share two of the top five most-used plant families, Fabaceae and Euphorbiaceae. Unlike other regions analyzed, Asteraceae is not in the top five most selected plant families in Jamaican Maroon, tropical West African, Ghanaian, and Ecuadorian ethnopharmacopoeia. The tendency for Jamaican Maroons to select species in Verbenaceae, and the tendency for tropical West Africans to select species in Apocynaceae, Bombaceae, Capparidaceae, Combretaceae, Cucurbitaceae, Meliaceae, and Rubiaceae are also trends not found in other regions.

Pearson correlation coefficients of OLS regression residuals indicate that patterns of plant selection in Jamaican Maroon and tropical West African, as well as Jamaican Maroon and Ghanaian ethnopharmacopoeia, are significantly correlated ($r$=0.361, $p=0.000$ and $r$=0.358, $p=0.000$, respectively) (Table 2). The regression residuals from the tropical West African regression show the strongest correlations with Popolucas and Jamaican Maroon ethnopharmacopoeia (Table 6.2).

\textsuperscript{172} See Moerman and Esterbrook (2003) for alternative parametric analyses of non-normal datasets when the hypothesis tests the dependency of ethnoflora on regional flora.

\textsuperscript{173} Cook’s values revealed seven plant families that produced a large leverage on the regression line for Jamaica and tropical West Africa: Asteraceae, Cyperaceae, Euphorbiaceae, Orchidaceae, Fabaceae, Poaceae, and Rubiaceae.
Figure 6.1. Medicinal Species used per Plant Family in windward Jamaican Maroon communities.
Table 6.1. Residual Rankings: Top 5 most-used medicinal families highlighted in **bold**
(The symbol *** in the table represents plant families not present in that region’s flora).

<table>
<thead>
<tr>
<th>Family</th>
<th>North America</th>
<th>Korea</th>
<th>Popolucus Mexico</th>
<th>Chiapas Highland</th>
<th>Ecuador</th>
<th>Windward Jamaica Maroons</th>
<th>Tropical West Africa</th>
<th>Ghana</th>
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<tr>
<td>Asteraceae</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>45</td>
<td>6</td>
<td>22</td>
<td>82</td>
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<tr>
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<td>5</td>
<td>2</td>
<td>91</td>
<td>2</td>
<td>21</td>
<td>32</td>
</tr>
<tr>
<td>Apiaceae</td>
<td>2</td>
<td>5</td>
<td>74</td>
<td>5</td>
<td>55</td>
<td>47</td>
<td>75</td>
<td>133</td>
</tr>
<tr>
<td>Ranunculaceae</td>
<td>5</td>
<td>4</td>
<td>125</td>
<td>17</td>
<td>***</td>
<td>143</td>
<td>93</td>
<td>63</td>
</tr>
<tr>
<td>Liliaceae</td>
<td>20</td>
<td>1</td>
<td>20</td>
<td>12</td>
<td>***</td>
<td>18</td>
<td>158</td>
<td>86</td>
</tr>
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<td>14</td>
<td>24</td>
<td>82</td>
<td>3</td>
<td>16</td>
<td>7</td>
<td>5</td>
<td>8</td>
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<td>13</td>
<td>37</td>
<td>4</td>
<td>***</td>
<td>57</td>
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<td>181</td>
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<td>13</td>
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<td>126</td>
<td>73</td>
<td>126</td>
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<td>Euphorbiaceae</td>
<td>234</td>
<td>12</td>
<td>4</td>
<td>21</td>
<td>90</td>
<td>4</td>
<td>2</td>
<td>2</td>
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<td>8</td>
<td>***</td>
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<td>Fabaceae</td>
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<td>138</td>
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<td>1</td>
<td>1</td>
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<td>Bignoniaceae</td>
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<td>***</td>
<td>141</td>
<td>133</td>
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<td>59</td>
<td>15</td>
<td>18</td>
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<td>Loganiaceae</td>
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<td>52</td>
<td>4</td>
<td>128</td>
<td>28</td>
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<td>117</td>
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<td>19</td>
<td>5</td>
<td>50</td>
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<td>59</td>
<td>117</td>
<td>95</td>
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<td>32</td>
<td>53</td>
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<td>173</td>
<td>48</td>
<td>21</td>
<td>26</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Capparidaceae</td>
<td>228</td>
<td>***</td>
<td>163</td>
<td>132</td>
<td>39</td>
<td>168</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Meliaceae</td>
<td>137</td>
<td>***</td>
<td>143</td>
<td>41</td>
<td>103</td>
<td>52</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Iridaceae</td>
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<td>4</td>
<td>***</td>
<td>156</td>
<td>158</td>
<td>74</td>
</tr>
<tr>
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<td>***</td>
<td>***</td>
<td>***</td>
<td>5</td>
<td>74</td>
<td>62</td>
<td>78</td>
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<td>130</td>
<td>71</td>
<td>107</td>
<td>4</td>
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<td>41</td>
<td>28</td>
<td>16</td>
<td>119</td>
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</table>
**Table 6.2. Correlation co-efficient comparison of regression residual (Residuals were In-transformed).**

<table>
<thead>
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<th>Region</th>
<th>$r$</th>
<th>$p$</th>
<th>$r$</th>
<th>$p$</th>
<th>$r$</th>
<th>$p$</th>
<th>$r$</th>
<th>$p$</th>
<th>$r$</th>
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<tbody>
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<td>North America</td>
<td>0.372</td>
<td>0.000</td>
<td>0.104</td>
<td>0.196</td>
<td>0.342</td>
<td>0.000</td>
<td>-0.052</td>
<td>0.595</td>
<td>0.263</td>
<td>0.001</td>
</tr>
<tr>
<td>Chiapas Highlands</td>
<td>0.193</td>
<td>0.031</td>
<td>0.281</td>
<td>0.005</td>
<td>0.093</td>
<td>0.382</td>
<td>0.186</td>
<td>0.038</td>
<td>0.004</td>
<td>0.964</td>
</tr>
<tr>
<td>Popolucas; Veracruz, Mexico</td>
<td>0.223</td>
<td>0.026</td>
<td>0.107</td>
<td>0.265</td>
<td>0.463</td>
<td>0.000</td>
<td>0.391</td>
<td>0.000</td>
<td>0.328</td>
<td>0.000</td>
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<tr>
<td>Korea</td>
<td>-0.036</td>
<td>0.765</td>
<td>0.316</td>
<td>0.001</td>
<td>0.232</td>
<td>0.020</td>
<td>0.216</td>
<td>0.029</td>
<td>0.079</td>
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<tr>
<td>Ecuador</td>
<td>0.230</td>
<td>0.018</td>
<td>0.106</td>
<td>0.281</td>
<td>0.361</td>
<td>0.000</td>
<td>0.356</td>
<td>0.000</td>
<td>0.808</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Discussion**

The significant correlation between tropical West African, Ghanaian, and Jamaican Maroon ethnopharmacopoeia suggests that traditional African knowledge was transferred across the Atlantic, by people bound and carried aboard ships as slaves, and has been perpetuated through the establishment of free Maroon communities. The relatively strong correlation between Veracruz, Mexico and tropical West Africa may be also be explained by the trans-Atlantic slave trade; a high amount of African slaves were forcefully migrated to the region during the 15-17th centuries, comprising approximately two-thirds of the entire number of Africans shipped to Spanish colonies in the Americas at that time (Davidson 1966).

None of the top five most-selected plant families in either Ghanaian or tropical West African ethnopharmacopoeia are shared with the top five most-selected plant families of North America or Korea. This suggests that there may be more than one regional origin to account for global patterns of human knowledge: one stemming from Asia that diffused into the Americas; the other coming from West Africa that diffused west into tropical America, over the Atlantic Ocean.
The tendency for Jamaican Maroons to select species in Piperaceae may be indicative of ethnomedicinal influence and knowledge transfer\textsuperscript{174} from Arawak tradition. For example, in addition to the proto-Mayan Popolucas in Mexico, Amiquet \textit{et al.} (2006) also found Piperaceae to be a highly selected family among Maya of southern Belize, suggesting that the ethnomedicinal knowledge associated with this conspicuous plant family may have diffused from Mayan to Arawak and finally to Maroon groups in Jamaica. Also noteworthy in the Jamaican Maroon ethnopharmacopoeia is the tendency to select species in Araceae. This pattern is also observed in Ecuador, Korea, Chiapas, and Veracruz, Mexico; and may be related to the relatively high diversity of Araceae species found in these regions (Croat 1998).

Species in both Fabaceae and Euphorbiaceae are highly selected in Jamaican Maroon, Popolucas, Ghanaian, and tropical West African ethnopharmacopoeia. Fabaceae and Euphorbiaceae include species known to be high in toxic alkaloids, and some (\textit{e.g.}, \textit{Abrus precatorius} L.) contain deadly concentrations (Mabberley 1989). At the same time, species in Fabaceae and Euphorbiaceae are particularly noticeable on account of easily recognizable characteristics (\textit{e.g.}, legume fruits, milky latex). The risks associated with using species in poisonous plant families would theoretically preclude them from being readily adopted into ethnopharmacopoeia through trial and error. More likely, use of such species is based on traditional knowledge that has been transferred over space and time. A reverse example is the avoidance of Ranunculaceae in both Jamaican Maroon and tropical West African ethnopharmacopoeia. Ranunculaceae contains many species with poisonous alkaloids (Stern 2007), yet is highly selected for in North American and Korean ethnopharmacopoeia.

\textbf{Conclusions}

The data provide support for the hypothesis that Jamaican Maroon ethnopharmacopoeia development was influenced by West African traditional knowledge. Unique patterns of plant selection in West African ethnopharmacopoeia suggest that this

\textsuperscript{174} Of course, novel and independent co-discoveries of effective medicinal plants can and do occur, which could explain some cross-regional ethnopharmacopoeia congruencies. For example, according to Warren (1974), Piperaceae was among the most frequently represented plant families in medical preparations sampled in the Bono-Akan ethnic group of Ghana.
region is a source of original ethnobotanical knowledge that has diffused into the Americas.

Noteworthy similarities between Jamaican Maroon, tropical American, and tropical West African medicinal plant selection tendencies suggest that Amerindian and West African traditional knowledge had a significant influence on Jamaican Maroon ethnopharmacopoeia development. These observations indicate that lasting and traceable cultural diffusions occurred among African Diaspora groups in the Americas. Displaced Africans actively developed Caribbean ethnomedicine through retention (e.g., selection of Fabaceae and Euphorbiaceae), adoption (e.g., selection of Araceae and Piperaceae), adaptation (e.g., selection of Verbenaceae), and rejection (e.g., avoidance of Ranunculaceae). Self-determined Maroon ethnogenesis happened despite pressures endured during (and following) slavery.

**Method Limitations**

Original data collected in this study were compared to previously published information. The data collection methods for each study were not uniform and this may have influenced the results. Also, qualitative measures of ethnomedicine were not considered here. Etkin (1988) argued that true knowledge of ethnopharmacopoeia development requires an understanding of how people perceive disease, health, and healing. Carney (2003) argued that researches should consider social and environmental histories in order to more accurately describe and understand cultural landscapes. It is hoped that this work encourages future studies, conducted by members of indigenous communities, which include variables such as ethnotaxonomy, preparation methods, administration technique, oral tradition, and historical biogeographies in order to provide the necessary context for adequate comprehension of the complexities of traditional ethnobotanical knowledge in the historic Atlantic region.
Acknowledgements

Respect and gratitude is given to the honorable Colonels Wallace G. Sterling of Moore Town and Frank Lumsden of Charles Town, Jamaica for their guidance and trust. Appreciation is given to all research participants whom gave generously of their time and knowledge. Also, we sincerely thank Dan Moerman for editorial suggestions, as well as for sharing his original dataset, making this analysis possible. Finally, the support of family, professors, and colleagues, including Guy Ragosta, Nina Etkin, Sterling Keeley, Heather McMillen, Kristine Qureshi, Tom Ranker, Richard Rath, and Robert Voeks has been invaluable.
Literature Cited


Chapter 7
Identification of ethnomedicinal patterns across five regions using cluster analysis

“There are not really any ailments that cannot be healed with herbs. Our culture is when you sick you heal yourself. We know what to eat, what plants are used for bath and drink…physicians heal themselves.”

- Ivelyn Harris, traditional Maroon healer

Abstract

In this chapter I use multivariate analysis to detect cross-cultural patterns of plant use over space and time by comparing congeneric species selection and use tendencies. Presence-absence data generated from original and previously published ethnobotanical studies in five different ethnic regions is analyzed using PAST statistical software and hierarchical dendrogram clusters. Jaccard and Kulczynski indices were selected as measures to explore the hypothesis that patterns of medicinal plant preparation and general indication are similar in Jamaican Maroon and Ghanaian societies. Medicinal plant genera, preparation, and use associations are compared across five regions including two in the West Indies and three in West Africa: Jamaica, Cuba, Ghana, Nigeria, and Sierra Leone. The results suggest that patterns of medicinal plant selection, preparation and general indication for genera present in each of the five regions are similar in Jamaican Maroon and Ghanaian societies.
**Introduction**

This analysis seeks to identify universal patterns of plant selection and use in separate cultures. When universals are acknowledged, theories of knowledge transfer can be developed and supported through identification of shared anomalies (Berlin 1992). Cluster analysis is used here to identify patterns of plant use among Jamaican Maroons, Ghanaians, Nigerians, Sierra Leoneans, and Cubans. The hypothesis states that patterns of medicinal plant preparation and general indication are similar in Jamaican Maroon and Ghanaian societies. Other regions of West Africa and one region in the Caribbean were chosen for comparison. Selection of the other studies was purposive; requirements for collection included the use of ethnographic collection methods, identification of species by Latin binomial, and regions with historical connections to Jamaican Maroons.

Many factors can influence medicinal plant species selection including regional flora, plant chemistry, and culture (e.g., see Gottleib et al. 1995, Huffman 2001, Moerman et al. 1999). According to Berlin (1992), taxa at the biological ranking of genus may be universally recognized as a group of related organisms. Austin (2006) suggests that congeneric species use in diverse regions around the world demonstrates a shared pattern of plant selection among humans (see also Moerman et al. 1999). Beyond plant species selection, shared methods of how plants are used may also indicate knowledge transfer over space and time. Wyndham (2002) emphasizes this point by stating that the ways of knowledge transmission are imbued with culture. In ethnomedicine, the ways are essentially how plants are processed into medicine and for what indications the medicine is prescribed. By coupling multiple ethnomedicinal variables together (plant species, plant part, preparation technology, and indication), comparative studies become more robust.

**Methods**

Jamaican Maroon ethnopharmacopoeia was sampled using ethnographic methods (see Chapter 1 for full description). Information provided by Jamaican Maroon research participants was compiled and compared to previously published studies. Selection of published studies was purposive, based on the following criteria: ethnographic collection methods, plant species identified by scientific name, specified indication (what the
medicine is used for), and a description of the botanical medicine preparation technique. Ethnomedical information was sourced from the following four regions and compared to Jamaican Maroon ethnomedicine, i.e., data drawn from previous published studies combined with my research:

- Cuba (Cano and Volpato 2004),
- Ghana (Abbiw 1990),
- Nigeria (Igoli et al. 2005),
- Sierra Leone (MacFoy 1983).

Only genera present in the ethnopharmacopoeia of all five regions were analyzed. The preparation / administration methods and indicated uses reported in each region were placed into common categories (Appendix A). Criteria for categorical allocation were based on understandings of ethnomedicinal classification systems in Jamaican Maroon communities (see Chapter 3), and the qualitative descriptions provided in each regional report. Descriptions provided in Hocking (1997) helped to identify synonymous terms, as well as to define terms in each published study. Because preparation of aqueous extractions taken orally is not always differentiated between infusion and decoction in ethnobotanical literature (e.g., see Abbiw 1990), they are subsumed under one category here: tea.

For indication categories, it is important to clarify that the objective is not to equate ethnomedical and biomedical terminology. Ethnomedicinal terms were defined within a Jamaican Maroon context (see Chapter 3) and are compared cross-culturally here by subsuming terms and phrases into categories using a systematic and reproducible method based on the World Health Organization International Classification of Diseases (WHO & DIMDI 2007 see Appendix B). This system is “used to classify diseases and other health problems,” and I selected it as a standard way to classify different health related conditions treated with traditional botanical remedies. Stedman’s Medical Dictionary (1918) was consulted to define terms and identify synonyms in the literature. In each of the six selected regions, some terms and descriptions could not be linked to a
specific WHO ICD category\textsuperscript{175} because the exact nature of some indications can only be understood within the context of the culture in which they are employed (\textit{e.g.}, “purgative,” “to clean blood;”) also, some terms do not specify any disease being treated (\textit{e.g.}, “laxative,” “emetic,” “anti-inflammatory,” “wash out.”) Because of this, such terms and phrases were not considered in this analysis.

Using PAST analytical software, four separate cluster analyses were performed, each with genera shared across all five regions; one comparing plant parts used in medicine, a second comparing ethnomedical preparation/administration, a third analysis comparing disease treated, and a final one using three variables together (genus, preparation method, and disease treated). Because the data is binary (presence-absence), Jaccard and Kulczynski measures of similarity were selected (Hubálek 2008, Real 1999, Real and Vargas 1996, Birks 1987). For each analysis, I compared both Jaccard and Kulczynski measures and used the one with the highest cophenetic correlation coefficient.

To prepare the dataset for cluster analysis, a region by variable matrix was first created in Microsoft Excel and then inserted into PAST (\textit{e.g.}, Figure 7.1). To populate the matrix, either a one or a zero was placed in each cell, indicating a presence or absence of each ethnomedicinal measure.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|}
\hline
\textbf{Doublet Measure} & \textbf{JAMaroon} & \textbf{Ghana} & \textbf{Sierra Leone} & \textbf{Cuba} & \textbf{Nigeria} \\
\hline
Carica-toothache & 1 & 0 & 1 & 0 & 0 \\
Carica-abortion & 0 & 1 & 0 & 0 & 0 \\
Carica-headache & 0 & 1 & 0 & 0 & 0 \\
Carica-hernia & 0 & 1 & 0 & 0 & 0 \\
Carica-hypertension & 0 & 1 & 0 & 0 & 0 \\
\hline
\end{tabular}
\caption{Example of region by variable matrix using doublet measure: Genus and Indication}
\end{table}

\textsuperscript{175} According to the World Health Organization website (\url{www.who.int/classifications/icd/en/}) accessed March 2011, “The ICD is the international standard diagnostic classification for all general epidemiological, many health management purposes, and clinical use.”
**Results**

Nine genera are present in the ethnopharmacopoeia of all five regions: *Carica, Citrus, Ficus, Jatropha, Mangifera, Musa, Ocimum, Psidium,* and *Senna*. Only one genus (*Musa*) was also included among the top 15 most salient plants identified from free list interviews with Jamaican Maroon research participants (Chapter 3). The results suggest that there are similarities in medicinal plant species selection, preparation, and use in West African and West Indian societies (Figures 7.2, 7.3, 7.4, and 7.5). When genus and indication are analyzed together, Jamaica and Cuba, as well as Jamaica, Cuba, and Ghana form two clusters (Figure 7.2). When genus and preparation method are analyzed together, Jamaica forms a cluster with Cuba (Figure 7.3). When genus and plant part are analyzed together, Jamaica and Ghana form a cluster (Figure 7.4). When three variables (genus, plant part, and indication) are analyzed as a triplet, Jamaica Maroon data forms a cluster with Cuba and then with Nigeria Igede (Figure 7.5).
Figure 7.2. Genus and Indication: Jaccard similarity index; Paired Group; Cophenetic Correlation = 0.8137
Figure 7.3. Genus and Preparation Methodology: Jaccard similarity index; Cophenetic Correlation = 0.8614
Figure 7.4. Genus and Plant Part used: Jaccard similarity index; Cophenetic Correlation =0.9164
Discussion

The relatively high cophenetic correlation coefficients across all analyses indicate that the dendrogram clusters closely fit the actual patterns in raw data and that this is an appropriate tool for detection of cross-cultural similarities and differences in plant selection and use (Mohammadi and Prasanna 2003). The results support the hypothesis that patterns of ethnomedicine (plant selection and use) are similar in Jamaican Maroon and West African tradition. This analysis also revealed close similarities between the ways that Jamaican Maroons and people living in eastern Cuba use plants for medicine.
The data indicate that Jamaican Maroons use *Carica, Citrus, Ficus, Jatropha, Mangifera, Musa, Ocimum, Psidium*, and *Senna* in similar ways as Nigerian Igede to treat analogous diseases (Figure 7.5). This could suggest a few things; for example, it could mean that people originating from West African ethnic groups have had recognizable influence on Jamaican Maroon ethnomedicine - possibly due to patterns of emigration and immigration from and into the windward Jamaica Maroon community over time.

When the variable of preparation method is removed from the analysis and genus and indication are considered as a doublet measure (Figure 7.2), Jamaican Maroon, Cuban, and Ghanaian ethnomedicine appear to be more closely related to each other than to Nigeria or Sierra Leone. It appears that Jamaican Maroons and Ghanaians use similar parts of plants in ethnomedicinal preparations (Figure 7.4), indicating that Jamaican Maroons use more West African tradition than people in eastern Cuba. Ghana is differentiated from other regions when genus and preparation method are analyzed as a doublet variable (Figure 7.3); and I suspect this may be a factor of the much larger sample size available for the Ghanaian data.

The close association between Jamaican Maroon, Ghana, and Nigerian Igede is not surprising considering that Ghana and Nigeria are located in the two regions from which the majority of people were sourced during the trans-Atlantic slave trade (Gold Coast and Bight of Biafra, see Chapter 2). The close association between Jamaican Maroon and eastern Cuba ethnomedicine was also anticipated, considering the shared location (and therefore similar diseases and flora), as well as the common ethnic influences from African, Amerindian, and European groups that occurred in the West Indies during the trans-Atlantic slave trade era. I expected a closer association between Jamaican Maroons and Sierra Leone because of the historical relocation of Jamaican Maroons to Sierra Leone in 1800, and the documented similarities in Jamaican Maroon Kramanti and Sierra Leone Krio languages (Bilby 1994); however, there were a dramatically lower number of people taken from this region to Jamaica during the major slave trading years (1607-1840), when compared to Gold Coast and Bight of Biafra (3%)

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176 Persons from slave plantations were often brought into or accepted into Jamaican Maroon communities (e.g., see Dallas 1803).
and 59%, respectively), and therefore Sierra Leone ethnic groups (e.g., Mende) likely represent a marginal contribution to Jamaica Maroon ethnomedicinal development.

**Limitations of Analysis and Call for more Research**

This analysis only analyzed nine medicinal genera shared across five regions, used only one study per region, and is therefore not a comprehensive assessment of overall cross-cultural patterns of medicinal plant selection and use. Furthermore, difference in numbers of observations per region may have an affect on the results. For example, Abbiw (1990) listed a much larger number of botanical remedies than any other study, and therefore Ghana had many “present” data, and other regions had lots of “absent” data. Also, it should be emphasized that there are many indications cited for botanical remedies that fall outside the boundaries of disease treatment (e.g., plants taken to prevent disease, or plants used for culture-bound syndromes), which are perhaps best analyzed using qualitative comparative measures (e.g., see Chapters 4 and 5 of this dissertation). Additionally, placement of disease terms into broad categories for comparison is subjective and, in this case, was largely dependent on the terminology and narratives provided by each author. Plus, using the WHO ICD Codes inevitably leads to a lot of “splitting of hairs” for medicinal uses. Finally, the research methods and sampling size across each study were not consistent and this may have affected the results. Continued research using similar ethnographic sampling methods, and inclusion of all genera, preparations, and diseases treated in each of the five regions would help to better define and compare ethnomedicine across cultures. Comparisons with more specific ethnic groups, particularly indigenous Greater Antillean Islanders, Jamaicans (non-Maroon), Jamaica Maroons, and Asante or Fante Akan groups in West Africa would be particularly interesting.
Appendix A: Cross-cultural botanical preparation terminology: a working list for ethnographers

**Internal:**

**Tea** = Infusion or decoction of plant material taken as a medicinal beverage

**Decoction** = plant parts boiled for a period of time in water

**Douche** = aqueous extract of plant material injected into vagina

**Eaten whole or with food** = plant is processed and added into a nutritive meal, such as soup, or plant material is dried and eaten whole (e.g. roots, barks), or plant material is eaten raw (e.g. leaves, fruit)

**Enema** = aqueous extract of plant material injected into anus

**Fermentation** = plant part mixed with water and sugar and allowed to ferment

**Infusion** = plant parts mixed with steaming hot water and allowed to steep

**Inhaled** = plant burned and inhaled or fresh plant parts crushed and patient is made to inhale scent

**Juiced** = plant parts expressed and sap is taken orally

**Maceration** = plant material is soaked in water (no heat applied)

**Powdered** = plant material dried and made into a powder and taken internally

**Snuff** = plant parts dried, powdered, and snorted into nasal cavity

**Nasal drops** = plant parts juiced and or extracted in liquid and then dropped into nasal cavity

**Suppository** = plant parts inserted into anus or vagina

**Tincture** = plant material is mixed with and allowed to soak in alcohol
External:

**Bath** (includes steam bath and sitz bath) = hot aqueous infusion made as bath or external wash; patient or affected part of patient may be immersed in bath water, be washed with it, or immersed in steam coming from it.

**Burned** = dried plant material burned as incense, as smoke bath, or for ashes which are then applied topically

**Compress** = cloth soaked in aqueous infusion and applied topically

**Dried Direct** = dried and powdered plant material applied directly to affected area

**Eardrops** = juice, infusion, or decoction of plant parts dropped into ear

**Eye drops/wash** = juice, infusion, or decoction of plant parts as eye drops or eye wash

**Effleurage** = fresh plant material is allowed to soak in cold fat

**Mouthwash** = juice, infusion, or decoction of plant parts swished or gargled in mouth

**Oil Rub** = plant material is burned or dried, mixed with oil and applied to skin

**Poultice** = plant parts (fresh or dried) mashed into a pulp or paste, and/or juiced, and contents applied to or rubbed onto skin

**Salve** = plant parts infused into heated fat

**Sap** = exuded sap applied topically

**Liniment** = plant material is mixed with alcohol; extract or mixture applied topically

**Tied** = plant part is tied around body part
Appendix B: Medicinal terms cited by Jamaican Maroon participants and ethnomedicinal studies analyzed in this paper, and their correlating ICD code

<table>
<thead>
<tr>
<th>ICD Code</th>
<th>Medical and Ethnomedical Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>O06</td>
<td>Abortion</td>
</tr>
<tr>
<td>F52.2</td>
<td>Achieve/maintain erection, impotence, stimulate erection</td>
</tr>
<tr>
<td>J00</td>
<td>Acute Colds (coryza), fresh cold, nasal Catarrh, stuffy nose, colds, heavy colds</td>
</tr>
<tr>
<td>N91.2</td>
<td>Amenorrhea, to bring on menstruation, promote menstrual flow, emmenagogue, force the menses</td>
</tr>
<tr>
<td>B83.9</td>
<td>Anthelminthic, parasites, kill worms in/from system, worms</td>
</tr>
<tr>
<td>M13.9</td>
<td>Arthritis, Joints, cold in joints</td>
</tr>
<tr>
<td>R53</td>
<td>Asthenia, fatigue, health and strength, debility, lethargy, tiredness, tonic, weak back, strength, tone up the system, strengthen body, make you feel alive, invigorator</td>
</tr>
<tr>
<td>J45.9</td>
<td>Asthma, asthmatic bronchitis</td>
</tr>
<tr>
<td>K00.7</td>
<td>Baby teething, teething</td>
</tr>
<tr>
<td>M54.9</td>
<td>Backache, back pain, back a hurt you</td>
</tr>
<tr>
<td>R10.4</td>
<td>Bellyache, belly hurt, colic, gripe, bad belly, stomachache, stomach pain, belly pain, pain in the stomach, stomach problems, belly problems, bowel problems</td>
</tr>
<tr>
<td>R58</td>
<td>Bleeding, hemorrhage, styptic</td>
</tr>
<tr>
<td>N97.1</td>
<td>Blocked tubes in woman, fallopian tube blockage</td>
</tr>
<tr>
<td>L02</td>
<td>Boils, abscesses</td>
</tr>
<tr>
<td>M89.9</td>
<td>Bone pain</td>
</tr>
<tr>
<td>C50.9</td>
<td>Breast cancer</td>
</tr>
<tr>
<td>J40</td>
<td>Bronchitis, catarrh, chest congestion, bronchial trouble</td>
</tr>
<tr>
<td>T14.0</td>
<td>Bruise, insect bite, injury, mosquito bite</td>
</tr>
<tr>
<td>T30.0</td>
<td>Burns, scalding</td>
</tr>
<tr>
<td>C80</td>
<td>Cancer (unspecified)</td>
</tr>
<tr>
<td>H26.9</td>
<td>Cataract</td>
</tr>
<tr>
<td>R07.4</td>
<td>Chest complaints, chest pains</td>
</tr>
<tr>
<td>B01</td>
<td>Chicken pox</td>
</tr>
<tr>
<td>O73.1</td>
<td>Clean out after childbirth, clean out the womb, promote discharge after childbirth,</td>
</tr>
<tr>
<td>B00.1</td>
<td>Cold sores</td>
</tr>
<tr>
<td>C18.9</td>
<td>Colon cancer</td>
</tr>
<tr>
<td>R56.8</td>
<td>Convulsions, fits, seizure</td>
</tr>
<tr>
<td>R05</td>
<td>Cough, coughing,</td>
</tr>
<tr>
<td>R25.2</td>
<td>Cramps</td>
</tr>
<tr>
<td>B73</td>
<td>Craw-craw</td>
</tr>
<tr>
<td>F32.9</td>
<td>Depression</td>
</tr>
<tr>
<td>E14</td>
<td>Diabetes, sugar</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>A09</td>
<td>Diarrhea, dysentery, running belly</td>
</tr>
<tr>
<td>O66.9</td>
<td>Difficult labor (unspecified)</td>
</tr>
<tr>
<td>R42</td>
<td>Dizziness, vertigo</td>
</tr>
<tr>
<td>R60.9</td>
<td>Dropsy, oedema, swelling, tumor, growths inside body, fibroid</td>
</tr>
<tr>
<td>N94.6</td>
<td>Dysmenorrhea, menstrual cramps, painful periods, painful menses, period pain, menstrual pain, menstrual problems, menstrual stress, menstrual disorders</td>
</tr>
<tr>
<td>H92.0</td>
<td>Earache</td>
</tr>
<tr>
<td>H57.9</td>
<td>Eye problems (unspecified)</td>
</tr>
<tr>
<td>R55</td>
<td>Fainting, revive someone that has fainted</td>
</tr>
<tr>
<td>K76.0</td>
<td>Fat in the liver</td>
</tr>
<tr>
<td>R50.9</td>
<td>Fever (non-specific), fever reducer, febrifuge</td>
</tr>
<tr>
<td>J11</td>
<td>Flu</td>
</tr>
<tr>
<td>B49</td>
<td>Fungal infection (unspecified), antifungal</td>
</tr>
<tr>
<td>K82.9</td>
<td>Gall bladder</td>
</tr>
<tr>
<td>K80.5</td>
<td>Gall stones, bladder stones</td>
</tr>
<tr>
<td>R14</td>
<td>Gas, carminative, gas in the stomach, gas in the bowels, flatulence</td>
</tr>
<tr>
<td>F41.1</td>
<td>General anxiety with trembling and shaking</td>
</tr>
<tr>
<td>E04.9</td>
<td>Goiter</td>
</tr>
<tr>
<td>A54.9</td>
<td>Gonorrhea</td>
</tr>
<tr>
<td>M10</td>
<td>Gout</td>
</tr>
<tr>
<td>B72</td>
<td>Guinea worm sores</td>
</tr>
<tr>
<td>B35.0</td>
<td>Head fungus</td>
</tr>
<tr>
<td>R51</td>
<td>Headache</td>
</tr>
<tr>
<td>I51.9</td>
<td>Heart disease, heart trouble, for heart, strengthen muscles of heart</td>
</tr>
<tr>
<td>R00.2</td>
<td>Heart palpitations</td>
</tr>
<tr>
<td>K46</td>
<td>Hernia</td>
</tr>
<tr>
<td>T10</td>
<td>Hypertension, high blood pressure, pressure</td>
</tr>
<tr>
<td>I95.9</td>
<td>Hypotension</td>
</tr>
<tr>
<td>R69</td>
<td>Illness, sickness, not feeling well, complaint inside, healing (unknown or unspecified cause)</td>
</tr>
<tr>
<td>R32</td>
<td>Incontinence of urine</td>
</tr>
<tr>
<td>K30</td>
<td>Indigestion, dyspepsia, upset stomach, improve digestion, digestive, digestive system complaints</td>
</tr>
<tr>
<td>X29</td>
<td>Insect sting, stings</td>
</tr>
<tr>
<td>G47.9</td>
<td>Insomnia, sleeplessness</td>
</tr>
<tr>
<td>N92.6</td>
<td>Irregular periods, to regulate menstruation, to regulate menstrual flow, menstrual irregularity, tardy menstruation</td>
</tr>
<tr>
<td>L29.9</td>
<td>Itch/mange</td>
</tr>
<tr>
<td>R17</td>
<td>Jaundice</td>
</tr>
<tr>
<td>B88.1</td>
<td>Jiggers, chiggers</td>
</tr>
<tr>
<td>N28.9</td>
<td>Kidney problems, kidney infection, renal afflictions, for kidney, Bladder trouble, strengthen bladder, clean urinary tract, kidney disease (unspecified)</td>
</tr>
<tr>
<td>O92.5</td>
<td>Lactogenic, to increase mother's milk</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>A30.9</td>
<td>Leprosy</td>
</tr>
<tr>
<td>K76.9</td>
<td>Liver disease (undefined)</td>
</tr>
<tr>
<td>R03.1</td>
<td>Low blood pressure</td>
</tr>
<tr>
<td>M54.5</td>
<td>Lumbago, lower back pain</td>
</tr>
<tr>
<td>C34.9</td>
<td>Lung Cancer</td>
</tr>
<tr>
<td>B54</td>
<td>Malaria</td>
</tr>
<tr>
<td>B05</td>
<td>Measles</td>
</tr>
<tr>
<td>N95.1</td>
<td>Menopause</td>
</tr>
<tr>
<td>N92.0</td>
<td>Menorrhagia, heavy monthly flow, excess menstruation, retard/reduce period flow</td>
</tr>
<tr>
<td>M62.4</td>
<td>Muscle tension, relax the body, relax the face</td>
</tr>
<tr>
<td>R11</td>
<td>Nausea, vomiting</td>
</tr>
<tr>
<td>R45</td>
<td>Nervous tension, relax the nerves, nervousness, nerves, quiet the nerves</td>
</tr>
<tr>
<td>M79.2</td>
<td>Neuralgia</td>
</tr>
<tr>
<td>C30.0</td>
<td>Nose cancer</td>
</tr>
<tr>
<td>E66</td>
<td>Obesity</td>
</tr>
<tr>
<td>T73.3</td>
<td>Overexertion,</td>
</tr>
<tr>
<td>R52.9</td>
<td>Pain, general pain, pain in the body</td>
</tr>
<tr>
<td>G83.9</td>
<td>Paralysis</td>
</tr>
<tr>
<td>I84</td>
<td>Piles</td>
</tr>
<tr>
<td>N94.3</td>
<td>PMS</td>
</tr>
<tr>
<td>Y34</td>
<td>Poisoning, unknown cause, intent</td>
</tr>
<tr>
<td>I99</td>
<td>Promote circulation, vein blockage, short circulation</td>
</tr>
<tr>
<td>R21</td>
<td>Rash, eruptions, skin rash, pox</td>
</tr>
<tr>
<td>J98.9</td>
<td>Respiratory problems (unclassified)</td>
</tr>
<tr>
<td>F52.4</td>
<td>Retard ejaculation, hold back ejaculation</td>
</tr>
<tr>
<td>E55</td>
<td>Rickets</td>
</tr>
<tr>
<td>M79.0</td>
<td>Rheumatism</td>
</tr>
<tr>
<td>B35.9</td>
<td>Ringworm</td>
</tr>
<tr>
<td>B86</td>
<td>Scabies</td>
</tr>
<tr>
<td>E54</td>
<td>Scurvy</td>
</tr>
<tr>
<td>R06</td>
<td>Shortness of breath</td>
</tr>
<tr>
<td>B36.9</td>
<td>Skin fungus, liver spot</td>
</tr>
<tr>
<td>L08.9</td>
<td>Skin infection (unspecified)</td>
</tr>
<tr>
<td>L98.4</td>
<td>Skin ulcers</td>
</tr>
<tr>
<td>R06.7</td>
<td>Sneezing</td>
</tr>
<tr>
<td>H57.1</td>
<td>Sore eye, red eye, pink eye, conjunctivitis</td>
</tr>
<tr>
<td>K06.9</td>
<td>Sore gums, gum disease, gum problems</td>
</tr>
<tr>
<td>J02.9</td>
<td>Sore throat</td>
</tr>
<tr>
<td>G95.9</td>
<td>Spinal cord (unspecified)</td>
</tr>
<tr>
<td>T14.3</td>
<td>Sprains, strains</td>
</tr>
<tr>
<td>C16.9</td>
<td>Stomach cancer</td>
</tr>
<tr>
<td>K25</td>
<td>stomach ulcer</td>
</tr>
<tr>
<td>R33</td>
<td>Stoppage of water, promote urination</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Z73.3</td>
<td>stress, irritability</td>
</tr>
<tr>
<td>L90.6</td>
<td>Stretch mark</td>
</tr>
<tr>
<td>L55.9</td>
<td>Sunburn</td>
</tr>
<tr>
<td>K00.7</td>
<td>Teething</td>
</tr>
<tr>
<td>G44.2</td>
<td>Tension headaches</td>
</tr>
<tr>
<td>A35</td>
<td>Tetanus</td>
</tr>
<tr>
<td>B37.0</td>
<td>Thrush (baby’s mouth)</td>
</tr>
<tr>
<td>N94.9</td>
<td>Tonic for female organs, strengthen uterus</td>
</tr>
<tr>
<td>K08.8</td>
<td>Toothache</td>
</tr>
<tr>
<td>A59.9</td>
<td>Trichomoniasis</td>
</tr>
<tr>
<td>B56.9</td>
<td>Trypanosomiasis (sleeping sickness)</td>
</tr>
<tr>
<td>A01.1</td>
<td>Typhoid fever</td>
</tr>
<tr>
<td>N39</td>
<td>UTI</td>
</tr>
<tr>
<td>A64</td>
<td>Venereal disease, STD (non-specific)</td>
</tr>
<tr>
<td>A37.9</td>
<td>Whooping cough</td>
</tr>
<tr>
<td>F52.0</td>
<td>Woman’s aphrodisiac, frigidity, aphrodisiac, sexual stimulant</td>
</tr>
<tr>
<td>T14.1</td>
<td>Wound, open wound, cut, puncture wound, vulnerary, sores</td>
</tr>
<tr>
<td>A66</td>
<td>Yaws</td>
</tr>
<tr>
<td>B37.3</td>
<td>Yeast infection (vaginal)</td>
</tr>
<tr>
<td>A95</td>
<td>Yellow fever</td>
</tr>
</tbody>
</table>
Literature cited


Hocking, G. M. 1997. *A dictionary of natural products : terms in the field of pharmacognosy relating to natural medicinal and pharmaceutical materials and the plants, animals, and minerals from which they are derived*. Plexus Publishers, Medford, NJ.


MacFoy, C. A. 1983. *Medicinal Plants of Sierra Leone*. C. MacFoy, University of Sierra Leone Botany Department, Freetown, Sierra Leone.


Chapter 8
Presentation of a novel approach to quantification using an adaptation of the Species Use Value

“When people came into the world they had no medicine. No one knew that leaves could cure…The voice said, “Take these leaves, crush them, and mix them with water. Then give some of this to your wife to drink, and use the rest to wash her sores.”

- Excerpt from “Origin of medicine: little folk of the forest give men their gods”
  (Herskovitz & Herskovitz 1958:217)

Abstract

A novel approach to informant consensus is presented here that is designed to reduce bias in analyses of ethnomedical preparation methods and plant part preferences, and enable statistical hypothesis testing of knowledge transfer across space and time. This new method is an adaptation of the “Species Use Value” developed by Phillips and Gentry (1993), and permits quantification of ethnomedicinal preferences without externally-defined categorization of disease. Results suggest that leaves are the most used plant part, and infusion is the most used botanical remedy preparation method cited by Jamaican Maroon research participants. Additional research will enable cross-cultural comparisons in order to test for significant difference in preference of plant part and preparation methods in Akan and Jamaican Maroon ethnomedicine.
Introduction

I learned that asking people in Jamaican Maroon communities about medicinal plants resulted in descriptions of recipes for treatments of ailments. In much the same way that Hun (1982) mentions “recipes for action,” “recipes for healing” are an efficient way of packaging complex cultural information that is, in practice, designed for adaptation in response to change. “Recipes for healing” provide a framework for traditional knowledge perpetuation in variable environments. Recognizing recipes as the sampling unit encourages a methodology that works within a “cultural schema” model (Garro 2000, Bartlett 1932). The “cultural schema” model (also called “cultural models” theory) recognizes that differences in cultural knowledge often indicate specialized knowledge, or knowledge based on personal experiences within a shared cultural setting (Garro 2000). For example, in my research, one medicinal plant expert, healer, and Jamaican Maroon elder stated, “I know lots of herbs, but I do it different… [There are] different ways to prepare herbs because [there are] different tribes of Maroons.” The cultural schema model contrasts with the cultural consensus model (also cultural competence theory), which assumes observed differences in knowledge indicate a deviation from “cultural accuracy” (Romney et al. 1986).

A variation of Species Use Value: the Technology Use Value

I introduce the Technology Use Value (UVt) as a robust measure of ethnobotanical knowledge transfer across space and time that encompasses more than species preference (Figure 8.1). This new quantitative method helps to protect the intellectual property of the people with whom research is being carried out by providing a means to test for significant difference in intercultural ethnomedical patterns without identifying highly valued species - information which may be used by pharmaceutical companies to target plants for drug development without acknowledgement or reciprocity for the people involved in the original study (e.g., see Fabricant and Farnsworth 2001).

The Technology Use Value adapts the Species Use Value equation developed by Phillips and Gentry (1993). The basic theoretical assumption of this method is that the practical ways of knowledge transmission are infused with culture (see Wyndham 2002,
Zarger 2002, Berkes 1999, Omaghari and Berkes1997). For example, through her work with the Q’echi Maya in Belize, Zarger (2002) revealed that traditional ecological knowledge transmission is primarily observational in the social and biological environment, and experiential in the individual (individual person’s) environment. Zarger noticed that the most important way Q’echi Maya children learn is when their parents “send them” to gather plants or other items. Traditional Maroon herbalist Ivelyn Harris stated during field interviews that she learned to recognize useful species in a similar way – she was sent to collect certain medicinal plants by her older relatives; when she came back with the right ones she was rewarded with praise. Another Jamaican Maroon research participant stating during an interview, “Our parents sent us out to find bush, but did not really explain; we gradually learn by observation.” Also, evidence gathered by Voeks (1990) during ethnographic fieldwork with Maroons in Salvador, Bahia Brazil suggested that knowledge of plant use, taxonomy, and preparation methodology is transferred orally through chants in the African Yoruba language. Voeks’ research results indicated that ethnobotanical knowledge from Yoruban culture is transferred across space and time by “packaging” tradition into distinct formulas that describe how plants are used. Furthermore, Carney (2001) compared traditional rice processing and cultivation techniques in West Africa with those used in the Americas as a way to link cultures separated by the trans-Atlantic slave trade. Carney’s work emphasized the value of comparing ethnobotanical technologies, along with species, when testing hypotheses of knowledge transfer across space or time.

This new method of analysis uses the knowledge transmission process as a unit of measure. Like the Species Use Value, Technology Use Value allows the researcher to test for significant difference across cultures; however, the Technology Use Value uses the functional recipe (a succinct description of botanical medicine preparation) as the unit of study. Each recipe is a protocol of how to make or apply botanical medicine (e.g., herbal beverage, poultice, compress, rub onto body, etc.). The recipe is analogous to each citation “event,” or “uses cited” in Phillips and Gentry’s equation. Each time a

177 Phillips and Gentry (1993) calculate the “use value” (UV) of each ethnobotanical species (s) per “informant” (i) as: $\sum_{s} UV_{is}/n_{is}$; where $UV_{is} = \sum U_{is}$
participant describes or demonstrates how to make medicine represents a single “recipe event.” Recipe events can be identified by their inclusion of the following three components:

1. One or more plant species and the parts of those plants used in the remedy;
2. A traditional method of processing and/or administering the plants - the “technology;”
3. Mention of indication (what the medicine is used for).

Within each recipe, the preparation method used to administer the medicine is analogous to the species in Phillips and Gentry’s equation. Thus, we are calculating the cultural importance of the preparation method used to make botanical medicine. This formula allows the researcher to test for a significant difference in the ways separate cultures prepare and administer medicine. Here, I combine both the mode of preparation and mode of administration into one category called “technology.” Other scholars, (e.g., see Coe and Anderson 1997) keep the two categories separate. I chose to combine them in order to avoid redundancy. For example, in Coe and Anderson’s categories, “Bath” is found in both the “Mode of Preparation” and the “Mode of Administration” groups.

Ethnomedical technologies may be identified and defined using participant observation and semi-structured interviews. For cross-cultural comparisons, I suggest a standard list of botanical medicine preparation and administration technologies (see Appendix A, Chapter 7). This list can be added to and improved upon as more researchers use this method.

As Moerman (2007) points out, standard cultural consensus measures (e.g., Trotter and Logan 1986, Romney et al. 1986, Phillips and Gentry 1993), take the plant out of its socio-cultural context. In other words, these measures of consensus do not consider the “meaning of medicine;” in large part because history, myth, taboo, religious principles, and the psychophysiological effects that these cultural constructs impart on the patient are not considered. Ethnomedical studies, therefore, need to be holistic and take advantage of utilitarian, cognitive, as well as ecological methods of sampling knowledge.

Where $UV_j$ is the overall use value per species, $UV_{is}$ is the use value for each species per informant; and $n_s$ is the number of informants interviewed for species $s$, and $n_{is}$ is the number of events for species $s$ with informant $i$. 

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The Technology Use Value method of analysis views the recipe as a gestalt mnemonic for ethnomedicine - a practical way to teach people how to heal that goes beyond language, and can be used within a variety of contexts. Infused within each recipe may be knowledge about disease diagnosis, treatment, species identification, harvest, and administration methods. Other scholars have recognized the use of mnemonics in ethnobotanical knowledge transfer. For example, Etkin (1988) and Bennett (2007) point out that, although the Doctrine of Signatures is often dismissed by the scientific community as illogical symbolism, people may actually recognize plant morphology in relation to proven efficacy, essentially using a species form as an efficient way to teach and remember its usefulness. Also, Atran (1999) observed that traditional ecological knowledge is perpetuated in Q’echia Maya culture through stories and myths about the natural landscape. Associating places such as mountain peaks or forest groves with legends helps to instill reverence and foster spiritual connection between people and their environment, encouraging the perpetuation of traditional ecological awareness. Similarly, recipes encapsulate plant-use associations, cultural views of medical efficacy, and disease treatment in a functional step-by-step formula.

The Technology Use Value addresses the issue of practical versus theoretical knowledge (see Reyes-García et al. 2006), which can be difficult to differentiate in methods such as the Species Use Value (Hoffman and Gallaher 2007). By using recipes as a unit of measure instead of cited uses, practice is implied in the knowledge of process. Also, multi-species preparations that accommodate substitutions can be analyzed and compared as units, lessening the artificially over- or under-inflated Species Use Values calculated when species are considered independently. For example, if the researcher approaches a healer about plant X and asks them to cite uses for that species, the healer may cite one specific use. In reality, that species may be included as an ingredient in many treatment protocols for a range of diseases, potentially serving different functions in each recipe. Additionally, the number of uses cited per species could be influenced by the time of the year or what season the researcher interviewed the participant. However, when recipes are analyzed as the unit of measure, seasonality would not affect the results. This method allows the researcher to gather higher quality data in order to better understand cultural contexts through the use of open-ended questions, rather than risk
limited or directed responses gathered through structured and static survey questions. For example, in my research, the participants were not systematically asked about each preparation method as Phillips and Gentry (1993) did with each species in their Peruvian study. Instead, data was gathered through a series of independent semi- and unstructured formal interviews carried out in a variety of settings with Jamaican Maroon research participants. In sum, the recipe is a more robust unit of measure and amenable for comparative analyses because:

- Practice is implied;
- Different medicinal uses do not need to be placed into generalized categories for comparative purposes (e.g., Can a remedy used to purge blood in Jamaica be placed in the same category as a remedy used to clean blood in Ghana? The biomedical effects may be the same, but the cultural context for which these types of remedies may be different (or vice-versa), making cross-cultural categorization of medicine difficult in quantitative analyses);
- Recipes take into account the complex nature of herbal medicine, in which one botanical preparation, made with one recipe, may contain numerous plant species, numerous parts of plants, and be prescribed for numerous ailments.

The Technology Use Value can be further modified to evaluate the importance of plant parts (e.g., roots, stems, leaves, flowers, etc.) in traditional medicine; this measure is called the Plant Part Use Value (UVp) (Figure 8.2). The UVp technique differs from the Plant Part Value and Reported Use calculations developed by Gomez-Beloz (2002) because in the UVp, the sampling unit is the recipe; contrarily, in Gomez-Beloz’s PPV, the sampling unit is the plant species. Unlike the Reported Use Value equation, the importance of a plant part in the Plant Part Use Value (UVp) is a factor of the number of times the plant part (per species) is used in botanical medicine recipes, not a factor of the number of uses cited for each plant part.

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178 Gomez-Beloz’s Plant Part Use Value equation is: \( PPV = \frac{\Sigma RU_{(plant \, part)}}{\Sigma RU} \). The number of uses cited per plant part is divided by the total number of uses cited per plant.

179 Gomez-Beloz’s Reported Use Value is simply an un-weighted count of the number of uses cited per plant part.
Both of the new analytical techniques presented here (UVt and UVp) enable the researcher to examine ethnomedicine from a healing perspective. It may be assumed that humankind’s development of botanical treatments arise from a need to treat disease, not from a need to discover the medical use of plants. Put in other words, people are more likely to ask the question, “How can I treat this disease?” rather than “How can I use this plant to treat disease?” Both the Technology Use Value and Plant Use Value measure ethnomedical agreement and practice in a way that reduces “researcher effort” bias.

The UVt and UVp measures do not obliged herbal medicine to be de-constructed into individual components of plant species, plant parts, applications, and indications; rather, botanical medicine preparations are analyzed as they are used – as a whole unit. Furthermore, knowledge and understanding of cultural views of health and healing are requisite for UVt or UVp analyses, in order to identify individual recipe units. For example, the whole herb, *Emilia sonchifolia*, is dried and infused in hot water and prescribed for healing prostate inflammation, the common cold, shortness of breath, asthma, and to increase urination (Austin & Thomas 2004). To determine whether this should be counted as a single or multiple recipe unit(s) (*i.e.* to ascertain whether or not to lump or split the ailments cited), the researcher must know the Jamaican Maroon cultural context of health and healing. The benefit for cross-cultural analyses using the UVt and UVp methods is that the lumping and splitting of ailments and indications does not have to be uniform across cultures; rather, researchers can use culturally-defined categories of illness and botanical medicine indication for each culture - which is not the case with measures that use the “use cited” as the unit of study.

These newly described quantitative measures provide another tool for cross-cultural ethnomedicinal comparisons in a way that reduces bias due to differences in sample size, and produces data amenable to statistical hypothesis testing. With UVt and UVp, one can statistically test hypotheses such as, “The use of ethnomedicinal technologies (*e.g.*, aqueous infusion, poultice, bath, etc.) in Jamaican Maroon ethnomedicine are significantly correlated with the use of ethnomedicinal technologies in Ghanaian Akan ethnomedicine” or “The use of plant organs (*e.g.*, roots, stems, leaves) in Jamaican Maroon ethnomedicine are significantly correlated with the use of plant organs used in Ghanaian Akan ethnomedicine.” For example, sets of UVp and UVt values
gathered in various regions can be compared using statistical measures of similarity such as the Pearson Product Moment Correlation Coefficient.

<table>
<thead>
<tr>
<th>Technology Use Value: UV&lt;sub&gt;t&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV&lt;sub&gt;t&lt;/sub&gt; = ( \frac{\sum UV_{rt}}{n_r} )</td>
</tr>
<tr>
<td>( n_r = \text{total number of research participants interviewed about ethnomedicine} )</td>
</tr>
<tr>
<td>( UV_{rt} = \frac{\sum U_{rt}}{n_t} )</td>
</tr>
<tr>
<td>( U_{rt} = \text{number of recipes for healing described (or demonstrated) by participant r that employ technology t} )</td>
</tr>
<tr>
<td>( n_t = \text{the total number of recipes for healing described (or demonstrated) by all research participants over time of the study} )</td>
</tr>
</tbody>
</table>

**Figure 8.1. UV<sub>t</sub>**

<table>
<thead>
<tr>
<th>Plant Part Use Value: UV&lt;sub&gt;p&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV&lt;sub&gt;p&lt;/sub&gt; = ( \frac{\sum UV_{rp}}{n_r} )</td>
</tr>
<tr>
<td>( n_r = \text{total number of research participants interviewed about ethnomedicine} )</td>
</tr>
<tr>
<td>( U_{rp} = \frac{\sum U_{rp}}{n_p} )</td>
</tr>
<tr>
<td>( U_{rp} = \text{number of recipes for healing described (or demonstrated) by informant r that employ plant part p} )</td>
</tr>
<tr>
<td>( n_p = \text{the total number of recipes for healing described (or demonstrated) over time of the study} )</td>
</tr>
</tbody>
</table>

**Figure 8.2. UV<sub>p</sub>**
Methods

The ethnopharmacopoeia of Jamaican Maroons was sampled using ethnographic methods (see Chapter 1). The preparation / administration methods and indicated uses reported in each culture/region were placed into common categories (Appendix A). Criteria for categorical allocation were based on understandings of ethnomedicinal classification systems in Jamaican Maroon communities (see Chapter 3), and the qualitative descriptions provided in each regional report. Descriptions provided in Hocking (1997) helped to identify synonymous terms, as well as to define terms in each published study. Technologies (see Chapter 3) and plant parts used in recipes for healing were recorded and Microsoft Excel was used to tabulate UVt and UVp values (Figures 8.1 and 8.2).

Results

I recorded 272 complete recipes from interviews with 21 research participants using purposive sampling to select participants (see Chapter 1 for more details on methodology). Based on the UVt values, the most commonly used method for making botanical medicine preparations described by Jamaican Maroon research participants is by infusion (which is then taken orally) (Figure 8.3). Based on the UVp values, the most common plant part used in medicinal preparations are the leaves (Figure 8.4).
Figure 8.3. Technology Use Values (y-axis) calculated from botanical medicine recipes described during interviews with 21 Jamaican Maroon research participants.

Figure 8.4. Plant Part Use Values (y-axis) for plant parts used in recipes for botanical medicine, cited during interviews with 21 Jamaican Maroon research participants.
Discussion of Results

This quantitative analysis suggests that leaves are the most used plant-part in botanical medicine preparations made by Jamaican Maroon research participants. Congruent with this finding, Appiah-Kubi (1981) states that traditional Akan practitioners use primarily leaves, followed by subterranean parts (roots and rhizomes), fruits, and bark. Leaves also appear to be commonly used in other African Diaspora societies as well. For example, according to Voeks (1990) and Hoffman (2009), leaves are the plant part used most often in the ethnomedicine of Afro-Brazilians and Saramaccan Maroons in Suriname, respectively. In Brazil, Candomble practitioners preferentially select leaves for medicine and prepare them mostly in the form of tea for internal use or as a bath for external use (Voeks 1990). Additionally, the importance of leaves in ethnomedical practice has also been observed in Amerindian cultures (e.g., see Amiguet et al. 2005; Coe and Anderson 1997, and Valadeau et al. 2010). Another potential influence on the widespread preference for leaves is their relatively high level of bioactive compounds (e.g. see José del Baño et al. 2003).

Results suggest that tea made by infusing or boiling plant material in water and then ingesting the contents orally is most common way that Jamaican Maroon research participants prepare and prescribe botanical medicine. Other common methods include application by poultice, bath, and drinking the fresh juice of the plant. In studies of tropical West African ethnomedicine, decoction, maceration, plants eaten whole or with a meal, and poultice are among the most frequently cited methods for preparing botanical medicine (Appiah-Kubi, Abel and Busia 2005, and Igoli et al. 2005). In Appiah-Kubi’s (1981) analysis of Ghanaian Akan ethnomedicinal practices, poultice was the most mentioned method of botanical medicine preparation, and Abbiw (1990) mentions aqueous extractions (infusion and decoctions), poultice, eating, juicing, and baths frequently in his descriptions of methods for preparing medicinal plants in Ghana.

Baths are commonly prescribed in Jamaican Maroon medicine (see also Austin & Thomas 2004, Cohen 1974). Likewise, baths are an important component of healing in other Maroon groups such as the Saramacca Maroons in Surinam (Ruysschaert 2009). In Ghanaian Akan ethnomedicine baths and steam baths appear to be very important,
particularly spiritual baths (Opokuwaa 2005, Warren 1974). Arawak ethnomedicine also uses baths and steam baths quite frequently; in fact, it was the most mentioned preparation method in Yanesha (Peru), followed by poultice, decoction, infusion, and eaten whole (Valadeau et al. 2010).

Baths appear to be a widespread practice in ethnomedicine traditions across the world. For example, baths and steam-baths were an important component of 18th century Egyptian health maintenance (Russell et al. 2003), and in the late 17th century English physician Thomas Trapham recommended “warms baths and a diet consisting of large amounts of cocoa” for optimal health in Jamaica’s climate in (Ashcroft 1979). The therapeutic value of bathing with the water from infused plant material, appears to have been a component of slave medicine in Jamaica, and was at times used to treat the infirmaries of the white slave masters. For example, in early 18th century Jamaica, physician and slave plantation owner Henry Barham (Dunn 2007) described a time when he was suffering from a swollen and painful leg and describes how a man he held as a slave saw his affliction and said, “Master, I can cure you.” The man then brought “the bark of this tree (Myrobalanus sp.), with some of the leaves,” and told Barham bathe with it. Barham “made a bath of them… [and] was perfectly recovered (Lunan 1814).

**Summary and Conclusion**

The results presented in this chapter support the hypothesis that Jamaican Maroons, Ghanaian Akans, and Arawak use similar ethnobotanical medicinal technologies. The results also support the hypothesis that Jamaican Maroons, Ghanaian Akan, and Arawak use similar plant parts in their traditional medical practices. The UVt and UVp measures presented here can be used as a baseline for cross-cultural comparisons, such as testing for statistically significant correlations between Jamaican Maroon and Ghanaian Akan ethnomedicine. This new quantitative method can be used as a tool in cross-cultural studies to help investigate varying preferences for plant parts and methods of botanical medicine preparation. With additional use of this method in many regions, universal ethnomedicinal traits may be identified.
Limitations of Methods

The UVp and UVt methods assume that intra-cultural consensus is an accurate measure of importance. Furthermore, the relevance of preparation/administration methodology in ethnomedicine is questionable when assessed independently (Etkin 1988), and therefore should only be viewed as one part of the entire process used in traditional healing. Also, the UVp and UVt analyses have limited value if not used in conjunction with qualitative descriptions of culturally constructed perceptions of healing and botanical medicine efficacy, and may even be misleading if used without cultural context.
Literature cited


Dunn, R. S. Demographic contrast between slave life in Jamaica and Virginia, 1760-1865. *Proceedings of the American Philosophical Society*.


Hocking, G. M. 1997. *A Dictionary of Natural Products: Terms in the Field of Pharmacognosy Relating to Natural Medicinal and Pharmaceutical Materials and the Plants, Animals, and Minerals from which they are Derived*. Plexus Publishers, Medford, NJ.


Chapter 9. Synopsis

“Jamaica is just like a piece of Africa tear off”

-Ivelyn Harris, Jamaican Maroon Herbalist

Summary of research and contribution to literature

Results from this research support previous findings of scholars who have worked with Jamaican Maroon and other African Diaspora people (e.g. Bilby 2005, Carney 2001, Zips 1998, Obasare 2006, Rath 1993, and Voeks 1997), and reveal that lasting and traceable cultural diffusions have been maintained in African-American societies, backing Herskovits’ argument that Africans were not stripped of their cultural heritage, despite the oppressive and inhumane constraints of slavery. I feel that this work is unique and contributes to the existing literature because I used both qualitative and quantitative data analyses, oral traditions, and the most reliable records of numbers and origins of people who were transported across the Middle Passage, the Trans-Atlantic Slave Trade Database, to investigate historical influences on Jamaican Maroon ethnomedicine. Furthermore, I contributed original data to Moerman and Leonti’s regression analyses in order to improve our understanding of global patterns of ethnomedicinal knowledge. Additionally, I developed a novel way of comparing ethnomedicine across cultures that is amenable to statistical hypothesis testing, in a way that does not require externally-defined disease categories (UVp and UVt). Finally, I contributed an historical biogregraphical analysis of Jamaican Maroon ethnopharmacopoeia species in order to assess ethnomedicinal knowledge origins and give credit to developments that occurred on the African and American continents prior to European contact.

Evidence presented in this dissertation indicates that Jamaican Maroons practice ethnomedicinal customs which can be traced back to Akan regions of tropical West Africa. Also, species-use overlaps in Jamaican Maroon and Arawak ethnopharmacopoeia suggest that Jamaican Maroons have perpetuated indigenous Greater Antillean Islander
traditions that were practiced in ancient Jamaican society. The early “formative years” of Jamaican Maroon societal development, from c. 1575-1674, saw relatively little immigration of Africans to the island. It is during this time that the Arawak Taíno influence on Maroon culture may have been established. Then, towards the latter half of the 17th century, continuing throughout the 18th century, and well into the 19th century, over one million people were brought to Jamaica from West Africa, with most originating from the areas known as Gold Coast (Ghana region) and Bight of Biafra (south-eastern Nigeria, Cameroon, equatorial Guinea, and Gabon regions).

The ancestors of Jamaican Maroons were forced to leave their African homelands. In Jamaica they formed new and independent communities in rural mountainous areas of the island’s interior. Traditional West African ethnomedicinal principles transferred to the New World by Maroons were apparently flexible enough to incorporate indigenous Amerindian knowledge, as well as to develop novel uses for many species.180 Windward Jamaican Maroons have a deep connection to their lands in the Blue and John Crow Mountain regions of Jamaica, as well as to their ancestral homelands in West Africa. These deep and trans-oceanic links are illustrated in traditional accounts of sacred places in Jamaica where Grande Nanny fought for, nurtured, and sustained her people (e.g., Pumpkin Hill, Watch Hill, and Toney River), and oral histories of where some of the original Maroons came from (e.g., Kormantse and Anomabo, Ghana), as well as in their rich traditional knowledge associated with the medicinal uses of plants.

Jamaican Maroons have not forgotten their ancestors; they are often honored, and in many ways. Cultural congruencies in Jamaican Maroon and West African Akan culture were identified; including language, plant selection, ethnomedicine preparation, concepts of health and healing, and plant parts used for medicine. These parallels suggest that Akan tradition had a significant impact on the development of Jamaican Maroon

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180 In this way, Jamaican Maroons are akin to other indigenous groups that have migrated to new lands. For example, Polynesian voyagers brought traditional knowledge from their homelands in the South Pacific and applied it to a new landscape, sustained this knowledge, developed new traditions, and adopted many new species endemic (and later introduced) to the islands of Hawaii; these are traditions that have evolved (and are still evolving) into what is now a unique Hawaiian culture. So too did forced African migrants; they liberated themselves, transferred, adopted, adapted, and created a new culture now known as Maroon.
ethnomedicine. Additionally, overlaps in ethnotaxonomy,\textsuperscript{181} as well as patterns elucidated with cluster analysis, suggest a connection between the ethnomedicinal traditions in Jamaican Maroon and other West African ethnic groups as well (\textit{e.g.}, Yoruba, Igede, Hausa). A majority of the top fifteen most salient medicinal plant species in Jamaican Maroon ethnopharmacopoeia (53\%) are also used for medicine in traditions practiced in tropical West Africa. Regression residual analyses indicated that patterns of medicinal plant species selection in Jamaican Maroon and tropical West African, and more specifically, Ghanaian ethnopharmacopoeia, are indeed significantly correlated. Unique overlaps in Jamaican Maroon and Amerindian plant species selection, preparation, and use suggest that ethnobotanical traditions of indigenous Greater Antillean Islanders (Arawak Taíno) also influenced Jamaican Maroon ethnopharmacopoeia development. Descriptive and historical biogeographical analyses suggested that West African Akan and Amerindian traditional knowledge is practiced today in the form of Jamaican Maroon recipes for healing and sustenance. Principle areas of overlap in Jamaican Maroon and Ghanaian Akan ethnopharmacopoeia include the tendency to select plants in Fabaceae and Euphorbiaceae. Principle areas of overlap in Jamaican Maroon and Arawak ethnopharmacopoeia include the tendency to select plants in Piperaceae. The importance of ethnomedicinal baths appears to be a trait common to Jamaican Maroon, West African Akan, and Arawak tradition.

The incredible flow and exchange of plant material and human culture around the world, starting roughly 6,000 years ago with Arawak migrations from continental to insular Caribbean regions, and c. 4,000 years ago with Bantu migrations from West to East Africa, Indonesian and Southeast Asian spice and goods exchange (beginning c. turn of the first millennium), and trans-Saharan trading between southern Europe, North Africa, and West Africa c. 4\textsuperscript{th} to 12\textsuperscript{th} centuries, continued simultaneously, yet primarily\textsuperscript{182} independently, in the Old and New Worlds. Then, relatively suddenly, and with great

\textsuperscript{181}For example, \textit{cacoon} and \textit{kakoba} are vernacular used for \textit{Entada gigas} in Jamaican Maroon and Nigerian Yoruba tradition.

\textsuperscript{182}The possibility of pre-Columbian trans-Atlantic voyages between West Africa and the Americas by West Africans and/or indigenous Americans must be considered as a means for cultural and botanical dispersals during this era of intense trade and travel in both the West Indies and tropical West Africa; botanical diffusions, favorable oceanic currents, and traditional open-water navigation skills in West African and West Indian places support this theory.
consequence, beginning around the 15th century with the onset of major trade routes between Mediterranean and Indonesian areas for spice and other commodities, and the massive movement of people, culture, and plants from West Africa to the Americas, formed two major crossroads: one in the West Indies, and one in tropical West Africa (Figure 9.1). Approximate percentages of Jamaican Maroon ethnopharmacopoeia species known to have arrived in Jamaica as a result of these trade routes include ~ 3% from the Pacific Islands, ~ 18% from tropical America, ~ 1% from Europe, ~ 7% from West Africa, and ~ 8% from Indonesia and Southeast Asia. Numbers and types of some of the plants in the Jamaican ethnopharmacopoeia involved in this global exchange are presented in Table 9.1.

**Figure 9.1.** Origins and major routes of dispersal of species in the Jamaican Maroon ethnopharmacopoeia.
Table 9.1. Origins and types of some introduced plants in the Jamaican Maroon ethnopharmacopoeia

<table>
<thead>
<tr>
<th></th>
<th>Introduced to Jamaica from Africa</th>
<th>Introduced to Europe</th>
<th>Introduced to Pacific Islands</th>
<th>Species Native to Asia – route to Jamaica unclear</th>
<th>Introduced to West Africa from tropical America</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTALS</strong></td>
<td>13</td>
<td>2</td>
<td>5</td>
<td>14</td>
<td>29</td>
</tr>
<tr>
<td><strong>Edible</strong></td>
<td>7</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>(4 fruit trees, 1 annual herb, 1 perennial herb, 1 vine)</td>
<td>-</td>
<td>(2 fruit trees)</td>
<td>(fruit tree)</td>
<td>(5 fruit trees, 1 shrub)</td>
<td></td>
</tr>
<tr>
<td><strong>Ornamental</strong></td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>(herbaceous shrub)</td>
<td>-</td>
<td>(shrubs)</td>
<td>(shrubs)</td>
<td>(4 shrubs, 3 herbs)</td>
<td></td>
</tr>
<tr>
<td><strong>Spice</strong></td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>(tree)</td>
<td>-</td>
<td>-</td>
<td>(3 perennial herbs, 1 grass)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Weedy</strong></td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>(herbaceous shrub)</td>
<td>(herb)</td>
<td>-</td>
<td>(2 herbs, 2 trees)</td>
<td>(1 tree, 1 shrub, 7 herbs)</td>
<td></td>
</tr>
<tr>
<td><strong>Cultivated</strong></td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>(herb)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(2 shrubs, 1 vine, 1 tree)</td>
<td></td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>(1 oil plant, 2 psychoactive plants)</td>
<td>-</td>
<td>-</td>
<td>(2 perfume plants)</td>
<td>(1 dye plant, 2 psychoactive plants)</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusions**

Through a variety of qualitative and quantitative analyses, I have presented data which supports the hypothesis of knowledge transfer from West African Akan ethnic groups to Jamaican Maroon societies, as well as influences from indigenous Amerindian culture. The combined results of this research provide evidence to suggest that ethnomedicinal uses associated with at least 29 species and 15 congeneric species...
(~ 30%\textsuperscript{183} of the sampled Jamaican Maroon ethnopharmacopoeia) likely originated from West African traditions that were transferred to Jamaica during the trans-Atlantic slave trade. At least 25 species and four congeneric species (~ 16 \%\textsuperscript{184} of the sampled Jamaican Maroon ethnopharmacopoeia) are used by Jamaican Maroon and Arawak Amerindian groups in similar ways. Fifteen species in the Jamaican Maroon ethnopharmacopoeia (~ 9 \%) were identified as probable links to ancient Arawak tradition based on their unique presence and use in Jamaican Maroon and Amerindian ethnopharmacopoeia, and absence in West African ethnopharmacopoeia.

At least 85 medicinal species (48 \% of the sampled Jamaican Maroon ethnopharmacopoeia) may represent unique innovation by Jamaican Maroon people, as well as possible influence from other ethnic groups.\textsuperscript{185} For example, in addition to exploiting African people for labor, the British also brought various other ethnic groups to Jamaica under conditions of forced servitude, including East Indians, Chinese, and Irish (see Northrup 1995, Beckles 1990). Additional comparative studies could sort out the possibilities. For example, leaves of *Saccharum officinale* L. are used in Jamaican Maroon traditional medicine, but apparently this species not selected in Ghanaian ethnopharmacopoeia, suggesting either innovative use, or knowledge transfer from India,\textsuperscript{186} where it is also used for medicine (see Pandey *et al.* 2008).

\textsuperscript{183} Includes only species with overlapping uses in Jamaican Maroon and tropical West African ethnomedicine; additional species were identified that are included in both ethnopharmacopoeia, but uses differ.

\textsuperscript{184} Includes only species with overlapping uses in Jamaican Maroon and Arawak ethnomedicine; additional species were identified that are included in both ethnopharmacopoeia, but uses differ. Also, some of the species included in this percentage are also used in West African ethnopharmacopoeia.

\textsuperscript{185} For example it is possible that East Indian and/or Irish indentured servants (see Northrup 1995, Beckles 1990) fled from their conditions of forced labor and joined with Maroons, potentially bringing in new customs.

\textsuperscript{186} Indian and Southeast Asian culture likely influenced both West African Akan and Jamaican Maroon ethnomedicine due to the long history of trade between West Africa and Asian places, and the importation of East Indians to Jamaica following emancipation.
Figure 9.2. Approximate percentages of species and congeneric species in the Jamaican Maroon ethnopharmacopoeia with overlapping medical uses in ancestral ethnic regions.

**Call for More Research**

I would like to remind the reader that participant selection for this study was purposive (not random), and interviews took place in only three out of the nine windward Jamaica Maroon villages. Furthermore, there are many other Maroon villages across the island, including Accompong and Scott’s Hall, that I did not work in. Therefore, conclusions from this study cannot be viewed as representative of the entire Jamaican Maroon culture.
It is my hope that this dissertation inspires Jamaican Maroons to carry out additional research, both within their communities, as well as further comparative studies with ancestral places. For example, this paper has outlined specific examples of traditional knowledge continuity between tropical West Africa and Jamaica. Oral tradition and recent biogeographical studies indicate that long-distance oceanic dispersals occurred more frequently (and much earlier) than previously thought in Atlantic regions. A research team of Jamaican Maroon, indigenous Greater Antillean Islander, and West African herbalists would be particularly suited to test hypotheses arising from these observations, due to their ability to recognize medicinal species in both landscapes. The calculation of Technology and Plant Part Use Values presented in this dissertation can support such endeavors by facilitating statistical hypothesis testing for comparative studies in and between Jamaica, Ghana, Nigeria, the Congo region, Mali, Gabon, Amazonia, and elsewhere.

Also, more work needs to be done to document the sustainable environmental practices of Maroons. By recognizing specific ways in which Maroon traditional knowledge plays a role in both perpetuation of culture and protection of natural resources, community-based development of articulated land management principles and practices can be incorporated into local school curricula. Interactions between farmers, teachers, herbalists, and environmental protection authorities can be more productive and beneficial for all parties when sustainable traditional practices are communicated. Field-based training programs could be funded that pay Jamaican Maroon herbalists, community elders, farmers, and traditional leaders to share knowledge of sustainable harvesting / land management practices with young persons in the villages. Collaboration with anthropologists and botanists would facilitate skill transfer to local youth such as videography, plant collection, and interviewing techniques. With increased community participation in ethnobotany projects, more robust sampling measures, including random sampling, may be possible. Increasing opportunities for interaction between community elders and youth could help perpetuate traditional knowledge over time by increasing recognition and respect for Jamaican Maroon traditions at the local level.

Additional ethnographic research is needed in both West Africa and the West Indies at the community level for better understanding of emic perceptions of disease,
health, healing, ethnotaxonomies, and to facilitate cross-cultural studies. Results of such work could be used to support the on-going efforts of traditional healers who act as the primary health care providers in many communities throughout the Caribbean and West Africa. For example, during an interview with Asante Akan herbalist Oppong Ankrah in Kumasi, Ghana, one of his statements particularly struck me. He said, “I walk so far [to collect my medicinal plants] yet I charge nothing.” He was explaining to me how he goes to great lengths to make herbal medicine, purely out of the desire to help people in need. He told me that he has helped many people, especially children, to survive the devastating effects of HIV AIDS, without expectation of monetary gain. Helping Jamaican Maroons re-connect with ancestral homelands may inspire additional collaboration among people in the Diaspora. With a shared heritage and common knowledge about plants, research in Atlantic places that is designed and led by West Indians and West Africans can help propel ethnobotany to the next level of participatory research.

Jamaican Maroon ethnomedicine is complex and cannot be defined. Maroons and the knowledge they possess are unique and at the same time represent a link to both African and Arawak tradition. Through incredible adversity Jamaican Maroons have triumphed. In the face of oppression they prevailed. In spite of constant aggressive forces trying to break them down, they have remained true and strong. I hope this work helps people to recognize that, through unspeakable circumstances, Jamaican Maroons have successfully perpetuated their traditions over time and space - and for this they deserve a tremendous amount of respect. Jamaican Maroons continue to use the wisdom of their ancestors; wisdom to heal.
Literature cited


