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WHERE HAVE ALL THE INDIANS GONE? NATIVE AMERICAN EASTERN SEABOARD DISPERSAL, GENEALOGY AND DNA IN RELATION TO SIR WALTER RALEIGH'S LOST COLONY OF ROANOKE

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Where Have All the Indians Gone? Native American Eastern Seaboard Dispersal, Genealogy and DNA in Relation to Sir Walter Raleigh's Lost Colony of Roanoke

Roberta Estes

Abstract

The characterization of Y-chromosome and mtDNA haplogroups in Native American and other populations is allowing important new information to be brought to bear on the question of what happened to the 115 colonists who came to the Roanoke colony in 1587, now known as the Lost Colony, because three years later in 1590 all the colonists were gone. DNA projects for Lumbee and other Native American tribes, along with DNA projects for Melungeon, Waccamaw, and other groups who might have taken in Roanoke survivors, are providing important information that bears on the subject of what happened to the colonists. Information on the Native tribes just before and just after first contact with Europeans is reviewed, along with diaries and other contemporary accounts of early English explorations and settlements. Much of the available information provides tantalizing evidence that some of the colonists survived and were assimilated into local Native American tribes.

Introduction

Within genealogy circles, family stories of Native American¹ heritage exist in many families whose American ancestry is rooted in Colonial America and traverses Appalachia. The task of finding these ancestors either genealogically or using genetic genealogy is challenging.

With the advent of DNA testing, surname and other special interest projects, tools now exist to facilitate the tracing of patrilineal and matrilineal lines in present-day people, back to their origins in either Native Americans, Europeans, or Africans. This paper references and uses data from several of these public projects, but particularly the Melungeon, Lumbee, Waccamaw, North Carolina Roots and Lost Colony projects.²

The Lumbee have long claimed descent from the Lost Colony via their oral history.³ The Lumbee DNA Proj-

ect shows significantly less Native American ancestry than would be expected with 96% European or African Y chromosomal DNA. The Melungeons, long held to be mixed European, African and Native show only one ancestral family with Native DNA.⁴ Clearly more testing would be advantageous in all of these projects.

This phenomenon is not limited to these groups, and has been reported by other researchers. For example, Bolnick (2006) reports finding in 16 Native American populations with northeast or southeast roots that 47% of the families who believe themselves to be full-blooded or no less than 75% Native with no paternal European admixture, find themselves carrying European or African Y chromosomes. Malhi et al. (2008) reported that in 26 Native American populations, non-Native American Y chromosomes occurred at a frequency as high as 88% in the Canadian northeast, southwest of Hudson Bay. Malhi's conclusions suggest that perhaps there was an early⁵ introduction of European DNA into that population.

The significantly higher non-Native Y frequency found among present-day Lumbee descendants may be due in part to the unique history of the Eastern seaboard Indian tribes of that area, or to the admixture of European

¹ Native, Native American, American Indian and Indian are used interchangeably to indicate the original inhabitants of North American before the European colonists arrived.

² See the Web Resources section at the end of this article for web addresses of the various projects. Note that participants join these projects voluntarily and are not recruited for specific traits as in other types of scientific studies. Some projects, such as the Lost Colony projects, screen applicants for appropriateness prior to joining.

³ The oral history exists tribe-wide, but specifically involves Virginia Dare and the colonists Henry and Richard Berry. These genealogies are relatively specific about the line of descent.

⁴ The Melungeon DNA project, while initially included in this research, was subsequently removed from the report because of the lack of evidence of Native American ancestry and no direct connection to the Lost Colonists. The Lumbee may be connected to the Melungeons, but that remains unproven.

⁵ In this case, earlier than known, documented European contact about 1780 with the formation of the Hudson Bay Company.

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DNA by the assimilation of the Lost Colony of Roanoke after 1587, or both.

European contact may have begun significantly before the traditionally held dates of 1492 with Columbus' voyage or 1587 with the Lost Colony of Roanoke, which is generally, but inaccurately, viewed as the first European settlement attempt. Several documented earlier contacts exist and others have been the subject of speculation, but the degree of contact and infusion of DNA into the Native population is unknown.

Wave after wave of disease introduced by European and African contact and warfare decimated the entire tribal population. Warfare took comparatively more male than female lives, encouraging the adoption of non-Indian males into the tribes as members or guests. An extensive English trader network combined with traditional Native American social practices that encouraged sexual activity with visitors was another avenue for European DNA to become infused into Eastern seaboard tribes.

What DNA testing offers to the genealogist, it also offers to the historian. With the advent of projects other than surname projects, meaning both geographically based projects and haplogroup projects, historians are offered a new way to look at and compare data. Excellent examples of this type of project are the Lumbee, East Carolina Roots, Melungeon and Waccamaw projects.

A similar project of significantly wider scope is the Lost Colony of Roanoke DNA project. When the author founded the project in early 2007, it was thought that the answer would be discovered relatively quickly and painlessly, meaning that significant cooperation and genealogical research from local families would occur and that the surnames and families in England would be relatively easy to track. Nothing could be further from the truth. The paucity of early records in the VA/NC border region, combined with English records that are difficult to search, especially from a distance, are located in many various locations, and are often written in Latin, has proven to be very challenging. The Lost Colony project has transformed itself into a quest to solve a nearly 425 year old mystery, the oldest "cold case" in America. However, this is not the first attempt. Historical icons David Beers Quinn (1909-2002) and William S. Powell devoted their careers to the unending search for the colonists, both here in the US in terms of their survival, and in Great Britain in terms of their original identities. However, neither of those men had the benefit of DNA as a tool and we are building upon their work, and others.

One cannot study the Lost Colonists, referred to here as colonists, without studying the history of the eastern North Carolina area in general including early records,

the British records and critically, the history of the Native people of the Outer Banks area of North Carolina. We will first review the information available on the various tribes of Native Americans on the Eastern Seaboard just prior to, and just after, first contact with Europeans.

Eastern Seaboard Native Americans

A broad research area for the background of the Lost Colony would be defined as coastal present-day North Carolina and Virginia in the early years (1500-1750) and into South Carolina in the later years (1712 to about 1800). Initially, both Carolinas were in fact Virginia, North Carolina being formed in 1663 as Carolina, and South Carolina split off in 1712. The boundaries of the colonies as of 1763 are shown in Figure 1.

In 1587 when the colony on Roanoke Island was established, the Croatoan Indian tribe was relatively small, having just two villages⁶ recorded during previous military expeditions by Sir Walter Raleigh's captains in 1584 and 1585 while they were scouting potential settlement sites and also in John White's journal. These villages are relatively small as indicated when John White recorded their visits in drawings that showed 10-12 long houses in each village. Journals from the same time period describe a slightly smaller village on Roanoke Island of 5-6 long houses. The number of men in either the military expedition (150-200), or the number of colonists (115), may well have equaled or exceeded the local Croatoan population.

The Croatoan were likely related to Indians living in two other settlements which were initially friendly towards the English. One village was on Roanoke Island, but was abandoned in 1586 after the military fort was built and friction developed between the fort inhabitants and the village. These Indians moved to their sister village, Dasmonkepeuc, on the adjacent mainland. While the Croatoan Indians could not support a large number of "guests" indefinitely, the receiving village would probably have welcomed working tribal members who would serve to increase, possibly double, their population, contribute labor, and provide needed defense.⁷

⁶ Manteo was the head man of the village on Hatteras Island, while his mother was the head of the village opposite on the mainland shore (Kupperman, 2000, p. 188). The village of Dasemonkepeuc is mentioned specifically on the mainland, along with Manteo's (unnamed) village on Hatteras Island and his mother's on the mainland. The Croatoan Indians were also found in Wingina's village at Dasemonkepeuc. There is clearly a relationship between the villages. Wanchese, one of the three Indians who voyaged to England (Manteo and Towayo were the other two), was loyal to the Wingina, although after his return, this village distanced themselves from the English (Ober, 2000).

⁷ The Indian tribes' weapons consisted of wooden swords and shields. Guns and other metal weapons were coveted by the tribes that Raleigh's earliest expeditions came into contact with although the soldiers/colonists refused to provide the Indians with swords or guns. An infusion of metal armaments and weapons would provide the Croatoan with a significant military advantage over other tribes.



Figure 1. Virginia, North Carolina, South Carolina, and Georgia in 1763 (US Tennessee Genweb, Land Cessions)

By the early 1700s, the Croatoan, then probably referred to as the Hatteras, had only a few individuals left on the Outer Banks, but it is likely several had assimilated into various tribes on the mainland (Lawson, 1709). These various tribes, as a result of depopulation and geographic pressure from colonial settlements, joined forces and moved further into the mainland into the swamps. If the colonists survived, it was within this seaboard native population, some of whom possibly became the present-day Lumbee.

The highest frequencies of non-Native DNA found in the Bolnick (2006) and Malhi (2008) studies were 47% and 88% respectively. Similar frequency of admixture would be expected within the Lumbee descendant population, but a significantly higher admixture rate has actually been found. Of Lumbee descendants who have tested,⁸ 96% have non-Native Y chromosomes, and is suggestive of either earlier European contact or a significant infusion of European Y-DNA, perhaps from the Lost Colony.

Eastern Seaboard Native Americans

The Native tribes who called this area their home had no concept of political boundaries, before contact or after,

⁸ Those tested through the Lumbee DNA project.

and really didn't care unless it affected them, such as who they were to negotiate with or who to hold responsible for some malfeasance. Furthermore, the waterways served as early roadways, and in the border area between Virginia and NC, the entire area fed the Albe-



Figure 2. The Albemarle Sound watershed, showing the major rivers and tributaries.



Figure 3. The range of pre-contact Iroquoian languages.



Figure 5. The range of pre-contact Siouian languages.



Figure 4. The range of pre-contact Algonquian languages.



Figure 6. The range of pre-contact Muskogean languages.

marle Sound, creating an interconnected cultural and economic subsystem as shown in Figure 2.

The Native tribes who inhabited this area pre-Colony (1587) and pre-contact (Columbus – 1492) were tribes and sub-tribes who spoke languages of three primary language groups, Algonquian, Iroquoian, and Siouian.

A fourth language group is found significantly further south, the Muskogean language, and does not appear in early North Carolina or Virginia but was significantly involved with the South Carolina traders. The three main language groups held some very different sub-languages, but certainly imply separate major lineages and migration patterns for Native Americans within the US

after their initial entry. The distribution of the different language groups is shown in Figures 3-6.

In terms of the search for the Lost Colony and the Eastern seaboard Indians, the Muskhogean don't play a significant role, but in terms of those tribal groups who were "coastal facing," meaning those would encounter any individuals or groups who were set ashore, intentionally or by accident, the Muskhogean are critically important, as they were the group that first encountered the Spanish and like other tribes encountering uninvited guests, would decide whether to welcome, absorb or repel the intruders.

The "coastal facing" groups are the tribes who stood to either benefit through trade or assimilation (both cultural and physical), depending on the circumstances, and/or suffer through introduced disease and warfare (military or cultural).

The ranges of the pre-contact Native American tribes expanded and contracted as they were both mobile and migratory. When the tribal populations grew, factions split into new tribes and sub-tribes, sometimes retaining an alliance that could be relied upon in times of warfare, and sometimes becoming the enemy. But the language they spoke continued intact whether or not their tribal alliance remained.

One notices on these pre-contact maps (Figures 3-6) that the Algonquian, Siouian and Iroquoian tribes each already had some population representation in the Eastern seaboard area. These tribes would expand to virtually fill this area, and in the words of John Lawson, an early explorer who kept a very detailed journal of his travels and dealings with the Indians in South Carolina, North Carolina and Virginia:

Lastly, the continual Wars these Savages maintain, one Nation against another, which sometimes hold for some Ages, killing and making Captives, till they become so weak thereby, that they are forced to make Peace for want of Recruits, to supply their Wars; and the Difference of Languages, that is found amongst these Heathens, seems altogether strange. For it often appears, that every dozen Miles, you meet with an Indian Town, that is quite different from the others you last parted withal; and what a little supplies this Defect is, that the most powerful Nation of these Savages scorns to treat or trade with any others (of fewer Numbers and less Power) in any other Tongue but their own which serves for the Lingua of the Country, with which we travel and deal; as for Example, we see that the Tuskeruro's are most numerous in North-Carolina, therefore their Tongue is understood by some in every Town of all the Indians near us. (Lawson, 1709, p. 226).⁹

⁹ The complete printed front cover of John Lawson's journal is "A New Voyage to Carolina Containing the Exact Description and Natu-

Lawson died at the hands of an angry betrayed tribe in 1711, an act which in part precipitated the beginning of the Tuscarora War which pitted the Tuscarora and allied Indian tribes against the settlers, lasting from Autumn 1711 through 1715.

Fortunately, through historical reconstruction and remaining language snippets, the tribes are able to be categorized for the most part into their proper language groups (Swanton, 1953).

James Mooney (1861-1921), a noted anthropologist who lived among the Indians provided a great deal of invaluable information for future generations. Beginning in 1978, the first in the multi-volume series, *The Handbook of North American Indians* was released by the Smithsonian Institution (Trigger, 1978). In these volumes an enormous amount of research and information about the early tribes is found, compiled by tribe. Included are references to languages and population numbers that have been found in numerous documents regarding the various tribes from the point of first contact forward. This combined with the *Bureau of American Ethnology Bulletin 145 published in 1953* provides most of the tribal information provided herein.

Interestingly, population numbers are most often given not as a total population number, but as "number of warriors" which in essence means "able bodied men". From that, the balance of the population has to be extrapolated. A reasonable multiplier to use is five for each "warrior." This allows for a wife and three surviving children. This may be low in some cases and high in others, but it's reasonable and the best that can be done with limited information.

Indian population figures are not like US census numbers. In some cases they are very accurate, such as when the Indians resided in missions or when the numbers provided are very precise, such as a non-rounded number like 613. In such cases, an actual count has been provided, although it can't be assured that all tribal segments were included or that the count was conducted uniformly between tribes. In other cases, counts appear to be very rough estimates. Even with the known variations and potential flaws, the numbers are still very interesting.

In a normal, healthy, pre-contraception population, the population doubles itself about every 25 years.¹⁰

ral History of that Country Together with the Present State thereof and A Journal of a Thousand Miles, Travel'd thro' several Nations of Indians Giving a particular Account of their Customs Manners, etc. by John Lawson, Gent. Surveyor-General of North Carolina, London, Printed in the Year 1709."

¹⁰ Extrapolated from the extremely detailed Acadian census of 1671, 1678, 1686, 1693, 1695, 1698, 1700, 1701, 1703, 1707, 1708, 1714, 1716, 1750, 1751, 1752, 1755, prior to Le Grande Derangement.

In the following tables, charts, and graphs, the tribes are grouped in two ways due to the way the geography and language falls relative to tribal groupings. The tribes are grouped from north to south, beginning with the Algonquian speakers who comprise most of the northernmost tribes in what would become Canada and the northeast United States (US) from New York and Pennsylvania northward. In the Mid-Atlantic region, Virginia and North Carolina are almost impossible to separate both geographically and linguistically, and are very intermixed, so they are presented as a group. South Carolina is fairly easy to isolate and has primarily Iroquoian speaking tribes. The southernmost tier is comprised of almost completely Muskogean speaking tribes.

For each of the four regional groups of tribes, a table showing the language and location of each tribe is presented, along with a population graph. The graph was constructed, using population data from the various sources previously referenced. Tribes with no available population data have been excluded.

For charting purposes, another category has been created referred to as “Major Tribes.” These tribes are omitted from the regional population graphs because they would tend to dominate each chart, making the graphs for the minor tribes unreadable. The tribes that were included in the major tribes category have their entries shaded yellow in each regional language-location table.

Supplementary File A contains tables showing the present-day tribal status of the various tribes discussed in each section. It should be noted that in many cases, the tribe did not survive intact. In the 20th century, some tribes have become reinvigorated and have been regenerated. In many cases, the tribes are unrecognized by governmental units, but that does not make the tribe any less valid in terms of being a social/political entity affiliated with the descendants of the original tribal population. In other cases, there is no official or organized tribal structure, but there are remnant groups who have been noted as belonging to or descended from a particular tribe.

Northernmost Tribes – Primarily Algonquian Speakers

The northern portion of what would become the US and Canada, from New York and Pennsylvania northward are almost exclusively Algonquian speakers. The exceptions are the Beothuk in Newfoundland, although there is some Algonquian language resemblance, the Susquehanna of NY, PA and MD, the Honniason of PA, the Wenrohronon of NY, the Neutrals of NY and Canada, and the Iroquois of the Mohawk Valley who are all Iroquoian language speakers.

Table 1 and Figures 7 illustrate the various tribes and their languages of the northeastern region.¹¹ Not all

¹¹ The maps are courtesy of Northern Plains Archive Project (2009), and represent 1640s Native population locations. The maps them-

tribes shown here have individual population data available. Data from some have been mixed with other tribes as sub-tribes were sometimes very difficult to tell from primary tribes.

The tribes, other than the major tribes highlighted in **Table 1**, living in the Algonquian speaking area for whom population data is available are shown in **Figure 8**.

The majority of these tribes no longer exist. Most tribes whose population fell below 1000 have become extinct except for a few tribes who held land. Few tribes whose population fell below 2000 survived intact. Two critical factors for the uninterrupted perpetuity of the tribes were either land holdings that they managed to retain or that their population never fell much below the critical 2000 threshold.

Of the above group, the Canadian tribes fared far better than those in the US. Population pressure was less pronounced, and there was more room to expand, or retreat.

Today, the Algonkin and the Micmac, both of whom saw population increases in the late 1800s, exist and are strong tribes. The Micmac are the only Native people who were not devastated at some point by diseases introduced by Europeans. Of the other tribes who began with large populations, the Delaware (olive green beginning at 8000) were nearly decimated, but have recovered and remain a tribe today. The Montegnais (darkest blue beginning at 5500) have combined with another tribe in Canada. The Montauk (gray beginning at 6000) and the Wappinger (short periwinkle segment on the left beginning under 5000) are extinct.

Virginia and North Carolina Tribes

The area between the Algonquian speaking area and South Carolina, from the Potomac River and the Chesapeake Bay through North Carolina's border areas with South Carolina includes tribes speaking all three of the major language groups. The locations of the tribes are shown in **Figure 9**. Different interpreters were needed to communicate with the various tribes, and the tribes themselves did not understand each other,¹² even though living in close proximity.

The area that became Virginia and North Carolina functions mostly as a single unit in terms of tribal migrations, hunting, fishing and social activities. There are many records of the various tribes and sub-tribes moving back and forth across what are today political borders.

selves are originally from Swanton (1953).

¹² As reported both by John Smith, leader of the Jamestown settlement, and John Lawson, already mentioned.

Table 1

The Languages of the Tribes of the North Atlantic Region. Rows highlighted in yellow represent major tribes, which are treated separately from the regional population graphs--see Figure 16.

Tribe	Iroq	Sio	Algon	Mus	Uch	Tun	Beot	Location
Montagnais-Naskapi			x					Gulf of St. Lawrence, St. James Bay, Labrador Peninsula
Micmac			x					Nova Scotia, Prince Edward Island, Cape Breton Island, New Brunswick, Bay of Fundy, later Newfoundland
Malecite			x					St. John's River, Canada, into Maine
Cree[1]			x					West of Hudson Bay
Beothuk			similar				x	All of Newfoundland
Algonkin			x					Ottawa River and Northern tributaries, Canada
Penobscot			x					Penobscot Bay, Maine
Passamaquoddy			x					Maine, Canada
Abnaki			x					Western Maine, NH, VT
Pennacook			x					New Hampshire, Mass, Maine
Narraganset			x					Rhode Island
Pequot			x					CT by RI line
Niantic, Western			x					Niantic Bay to Connecticut River
Mohegan			x					Upper Thames River Valley, CT.
Wampanoag			x					RI, eastern Mass, Martha's Vineyard and Nantucket
Pocomtuc			x					Mass, CT and VT
Nipmuc			x					Central Mass, RI and CT
Nauset			x					Cape Cod, Massachusetts
Massachuset			x					Massachusetts Bay
Susquehanna	x							Susquehanna River in NY, PA, and MD
Honniasont	x							W VA, Ohio, PA
Wenrohonon	x							Cuba, NY
Wappinger			x					Hudson River into Connecticut
Neutrals	x							Southern Ontario, western NY, NE Ohio, Michigan
Montauk			x					Long Island, NY
Mahican			x					Hudson River to Lake Champlain
Iroquois	x							Originally Mohawk Valley in NY, but after acquiring guns, from the Atlantic to the Mississippi and north into Canada
Delaware			x					NJ, Delaware, eastern NY and PA
Nanticote			x					Eastern Shore Maryland and Delaware

Notes for Language-Location Tables 1-4: Iroq=Iroquoian; Sio=Siouian; Algon=Algonquian; Mus=Muskhogeian; Uch=Uchian, which bears some resemblance to Muskhogeian, Tun=Tunica, an isolate language found in Mississippi, grouped with Muskhogeian for mapping purposes; Beot=Beothuk, a far-northern language bearing some resemblance to Algonquian.



Figure 7. The general Algonquian speaking area plus some Iroquoian tribes, as they tended to be somewhat intermixed in this geography.

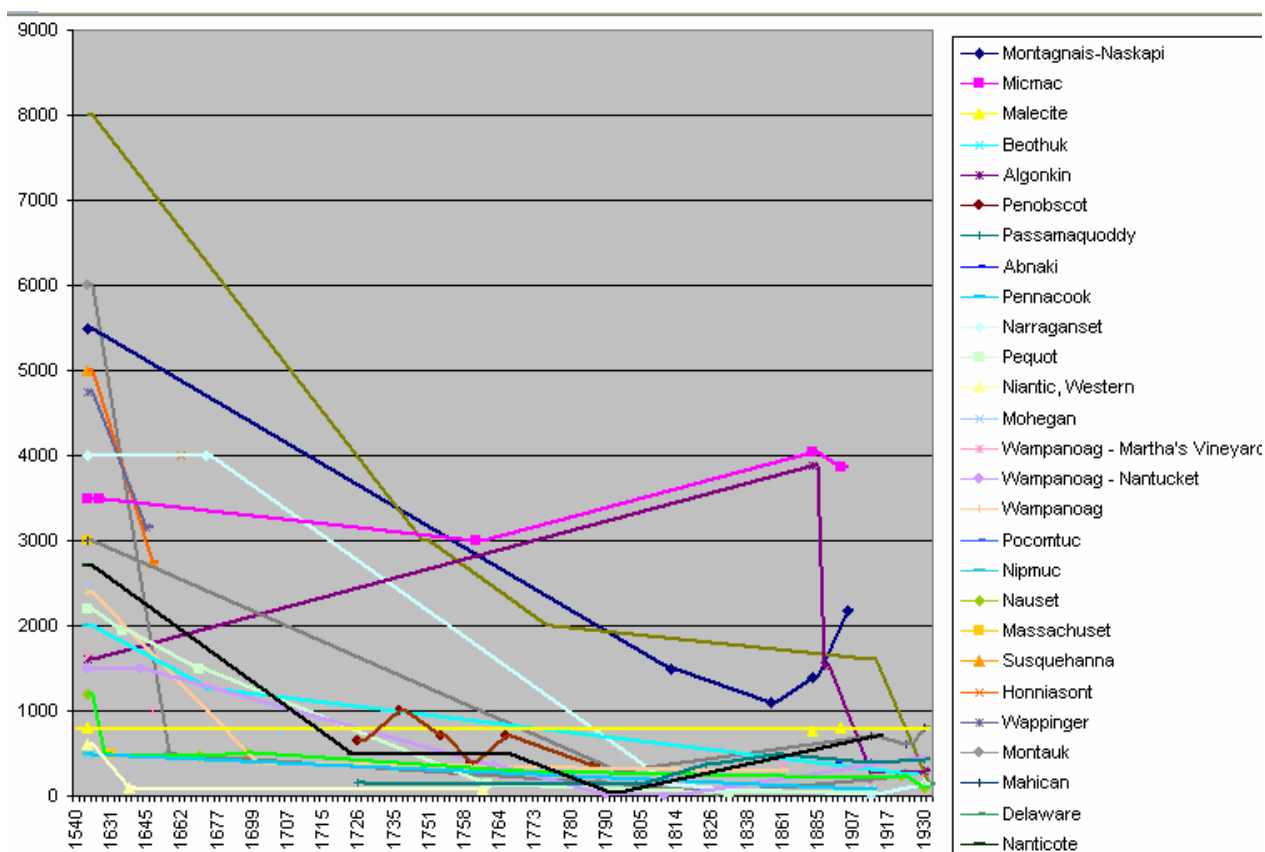


Figure 8. Population by year of various tribes of Algonquian speakers.

From early records, the region appears to have been fairly heavily populated at first contact. The population of the tribes of the Virginia-North Carolina area is shown in Figure 10.

Most of the Virginia and North Carolina tribes are extinct. The Powhatan (light blue beginning at 9000) survive today on two small reservations in Virginia. The Catawba (darkest line beginning at 5000) is now a tribe in South Carolina. The Tuscarora (tall blue line beginning at 5000) sold their North Carolina land and removed to New York in the late 1700s, returning in 1802 to remove their last 100 or so families. The tribe exists today in New York and Canada with five bands in North Carolina. Some Tuscarora are likely among today's North Carolina Lumbee and other tribal populations.

Tribes associated with the Lost Colony include the Chawanac (light purple dot at 3500) who were absorbed into the Tuscarora. The Coree, Machapungo, Mattamuskeet and Hatteras Indians did not survive as individual tribes, but joined others such as the Tuscarora, Catawba or Saponi, dispersed, and/or moved inland (Robeson County) or into South Carolina (PeeDee River

area) becoming today's Lumbee. Two South Carolina tribes are also associated in some degree with today's Lumbee, sharing many common surnames and histories, the Pedee (Peedee) and the Waccamaw.

On these charts, the Lumbee are represented by NC tribes, though several tribes traveled the waterways between the two present states as shown in Figure 11. The Lumbee are believed to be a combination of the Hatteras, Tuscarora, Cheraw, Mattamuskeet, Waccamaw and other smaller amalgamated tribal units such as the Coree, the Saponi and possibly the Eno. The identification of their ancestral tribes is unresolved, remains a heated topic, and may not be equally reflective of all Lumbee.

South Carolina Tribes

South Carolina's tribes were primarily Iroquoian speaking, but there were some exceptions. The Cusabo were Muskogean and the Saluda and Shawnee were Algonquian. The Shawnee were also a highly dispersed Confederation, but had to be grouped in some location where they resided. Figure 12 shows the locations of the South Carolina tribes.



Figure 9. The tribes of the Virginia-North Carolina region.

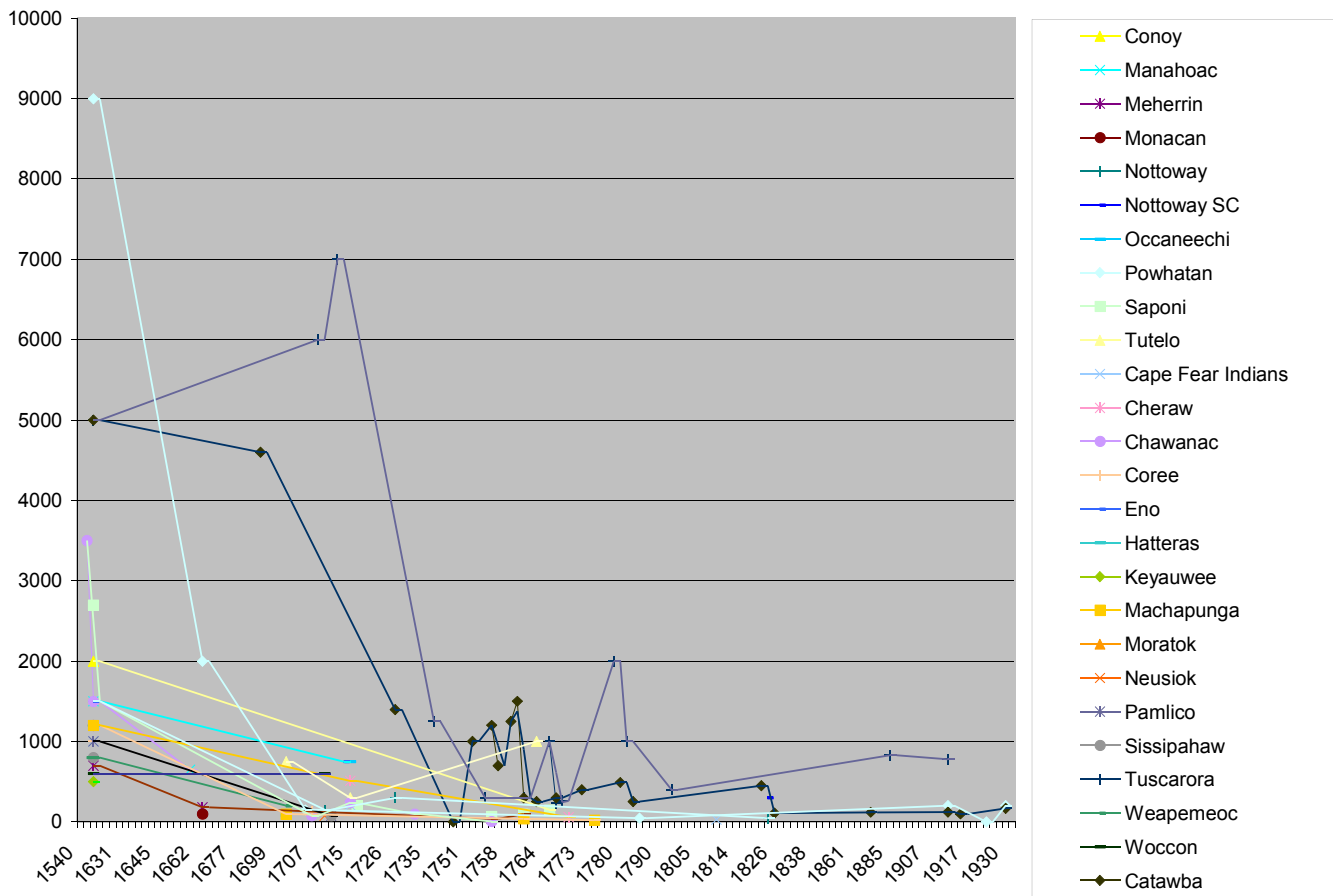


Figure 10. Population by year of various tribes of the Virginia-North Carolina region.

Some Lumbee-associated tribal families were found in South Carolina near the Pee Dee River tributaries, in particular the Little Pee Dee in Dillon, Marlboro and Marion Counties. These are the South Carolina counties sharing the PeeDee, Little PeeDee and Lumber River watershed with Robeson County, North Carolina. Robeson, Dillon and Marlboro also abut each other, their boundaries forming the border between the two states.

Most South Carolina tribes were destroyed during the Yamasee War which occurred between 1715 and 1717. This was a devastating war resulting from various abuses of the Indians, including slavery, in which nearly the entire Indian population fought the entire colony of South Carolina. Most colonists abandoned their lands and sought refuge in Charles Town (contemporary Charleston) where supplies were low and starvation set in. The turning point in the war was in 1716 when the powerful Cherokee sided with South Carolina. By 1717, most of the other tribes had been subdued or exterminat-

ed. Some tribes succumbed prior to the Yamasee War and are represented only by dots (single data points in Figure 13). The Waccamaw (rusty burgundy line in Figure 13, beginning under 1000) managed to survive slightly past the Yamasee War, only to be defeated and enslaved about 1720. Remnants were known to live within the white community. The remnant Cusabo after the Yamasee War joined the Creek or Catawba. Unlike other tribes, they had sided with South Carolina. Other than the Shawnee, all of the South Carolina tribes functionally perished. Only the Waccamaw and the Santee have a tribal unit today.

The Shawnee were widely dispersed throughout Eastern North America from the Great Lakes through Georgia and from the Mississippi to the Eastern seaboard. They were more of a confederacy than a specific tribe. Their population numbers are probably low, due to the inability to properly count them. They are probably misplaced in the SC grouping, but I have grouped them with John Swanton's categorization of the tribe, given that

Table 2

Languages and Locations of the Virginia and North Carolina Tribes

Tribes	Iroq	Sio	Algon	Mus	Uch	Tun	Beot	Location
Conoy			x					Potomac River to Western Shores of Chesapeake, MD
Manahoac		x						Northern Va
Meherrin	x							Meherrin River on VA-NC border
Monacan		x						James River, Richmond, VA
Nahyssan		x						James River, Nelson Co, VA
Nottoway	x							Nottoway River, SE VA
Occaneechi		x						Mecklenburg Co, VA
Powhatan			x					Eastern Shore VA
Saponi		x						Albemarle Co, VA, into NC, later in PA, NY
Tutelo		x						Salem, VA
Cape Fear		Probably						Cape Fear River, NC
Cheraw		x						Saluda River, SC, near NC border
Chawanac			x					Algonquin River, NC- VA border
Coree	x							Neuse River, Carteret, Craven Co, NC
Eno		Probably						Eno River in Orange, Durham Co. NC
Hatteras			x					Hatteras Island, Pamlico Sound, NC
Keyauwee		x						Guilford, Davidson, Randolph Co. NC
Machapungo			x					Hyde Co and probably also in Washington, Tyrrell, and Dare Cos, and part of Beaufort Co, NC
Moratok			x					Roanoke River - 160 miles inland, NC
Neusiok	Possibly		Possibly					Lower Neuse River, Craven and Carteret Cos, NC
Pamlico			x					Pamlico River, NC
Shakori		x						Vance, Warren and Franklin Co., NC, generally with the Eno
Sissipahaw		Probably						Haw River, Alamance Co., NC
Tuscarora	x							Roanoke, Tar, Pamlico and Neuse Riv, NC, later in NY, Pa, Canada
Weapemeoc			x					Currituck, Camden, Pasquotank, and Perquimans Counties, and part of Chowan County north of Albemarle Sound
Woccon		x						Neuse River, near Goldsboro, Wayne Co., NC
Yadkin		Probably						Yadkin River, NC
Catawba		x						NC, SC, TN

Note: Tribal names shown in bold font indicate tribes that may be involved with the Lost Colony. Many of these are known to have combined and are now believed to be incorporated at least in part into the Lumbee people.



Figure 11. The Pee Dee River watershed area, linking South Carolina with North Carolina.

Table 3
Languages and Locations of the South Carolina Tribes

Tribe	Iroq	Sio	Algon	Mus	Uch	Tun	Beot	Location
Congaree		x						Columbia, SC
Cusabo				x				SC between Charleston and Savannah River
Pedee		x						PeeDee River, SC
Saluda			x					Saluda River, SC
Santee		x						Santee River, SC
Sewee		x						Berkeley Co., SC
Sugeree		x						NC/SC border
Wacca-maw		x						NC/SC border
Wateree		Prob-ably						Wateree River, SC
Waxhaw		Prob-ably						NC/SC border
Winyaw		x						Winyaw Bay, SC
Shawnee			x					Cumberland River, Tn, but all over eastern seaboard and elsewhere



Figure 12. The tribes of South Carolina

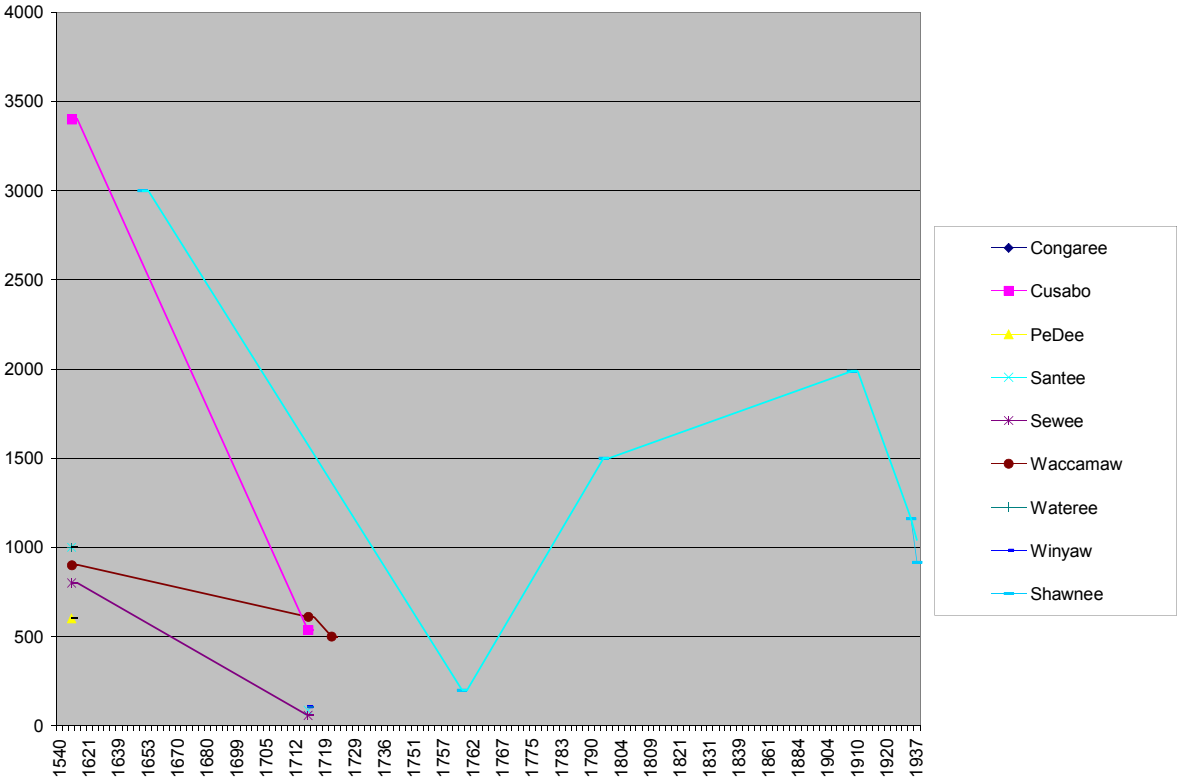


Figure 13. Population of South Carolina tribes.

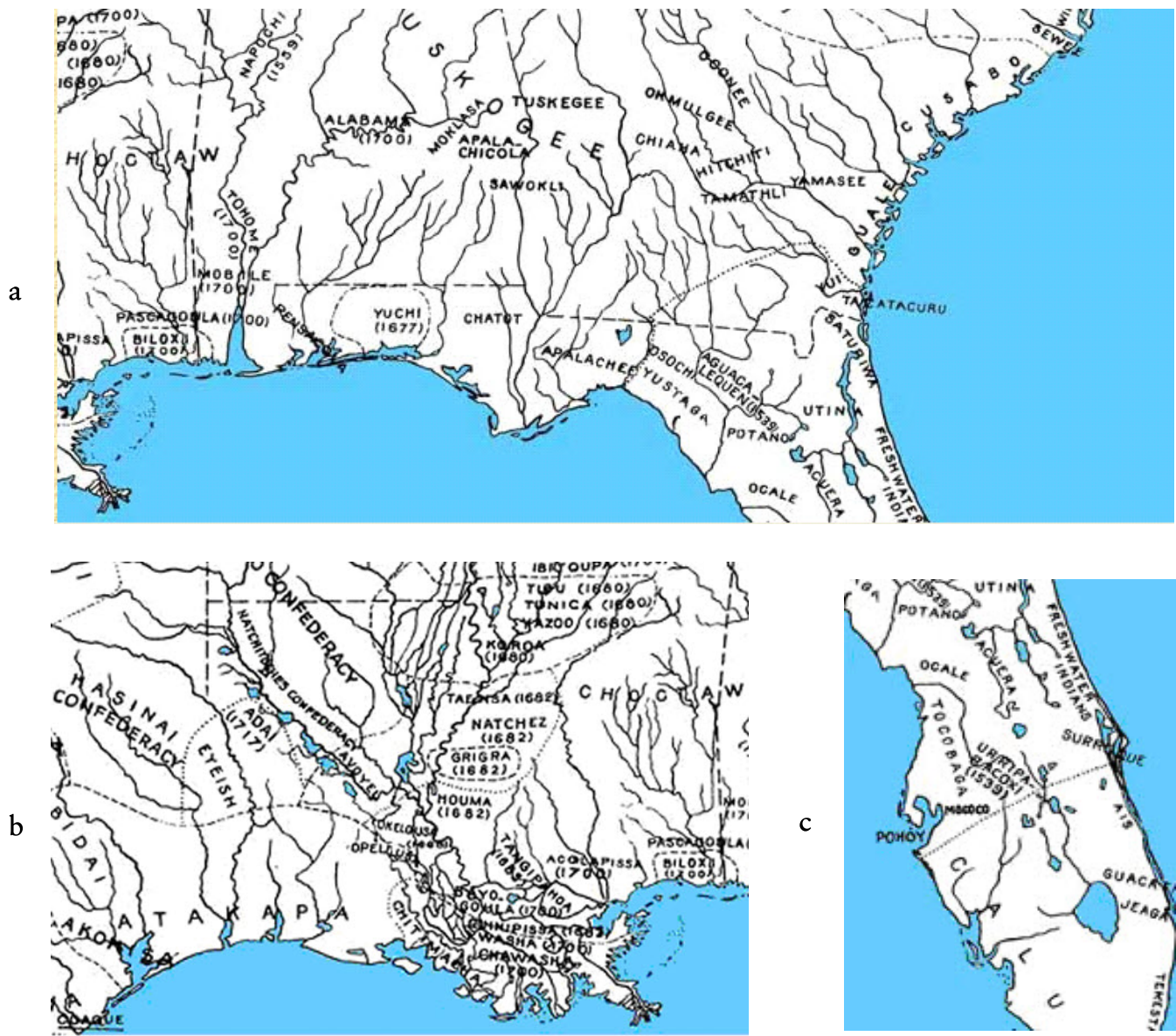


Figure 14. The southern tribes: (a) The eastern part of the Muskogean tribes range, (b) the western part, and (c) the southern (Florida) part.

they were present in SC (Swanton, 1953). They left SC by about 1730. Today's Shawnee tribe is headquartered in Oklahoma.

Southernmost Tribes

The southern tier, from Georgia through the entire state of Florida and the Mobile Bay area, are with only a few exceptions, Muskogean. The Biloxi are Siouian and are believed to have migrated from the Susquehanna River in Pennsylvania shortly after first contact.¹³ The locations of the tribes are shown in Figure 14 and the

¹³ Based upon a 1509 Dutch map.

languages they spoke are shown in Table 4. The population data for the southern tribes is shown in Figure 15.

The Tunica, Yazoo, and possibly Koroa, spoke Tunica, a language isolate with no known connection to any other language. Within this group, dots indicate a single data point. Many of those tribes simply disappeared or were absorbed into larger tribes. Again, few tribes survive into the 1900s. Of the tribes who started with larger population numbers, all experienced dramatic declines. The Apalachee (light yellow line in Figure 15, beginning at 7000) were destroyed. Remnants removed to Louisiana where a small tribe exists today. The

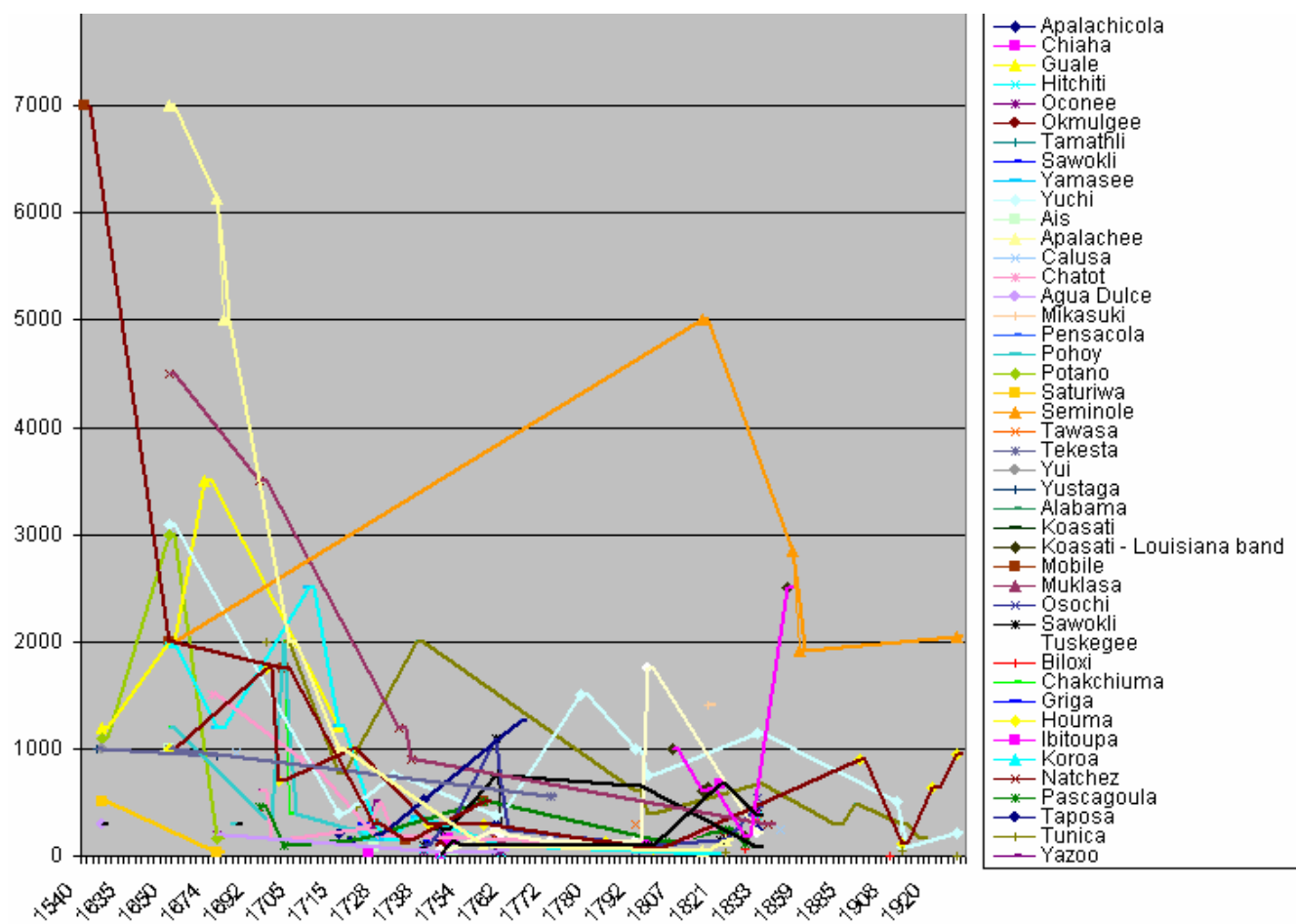


Figure 15. Population of the southern tribes, mostly Muskogean speakers.

Mobile (burgundy line beginning at 7000) are extinct. Although the Natchez (burgundy line beginning at 4500 in Figure 15) were destroyed with survivors taking refuge within the Cherokee and the Choctaw, a current tribe by that name does exist.

The Seminole (orange line, beginning at 2000) are somewhat different. They welcomed many survivors from other tribes as well as free blacks and former slaves. Many Creeks (Muskogee) joined the Seminole tribe. This swelling of tribal members is probably responsible for the survival of the tribe. Some Seminoles were removed, but others remained unconquered in Florida. Today an active tribe survives.

Major Tribes Population Graph

The final population chart in Figure 16 shows the major tribes, which have already been included within the

regional Language–Location Charts where they were designated by yellow shading. The population for these large tribes has been charted separately because their initial populations are high, comparatively speaking, to the other tribes within their language and geographic groups, and would dominate the graphs of the smaller tribes so that they could not be clearly seen.

These are the tribes whose names are by and large household words. Of these populations, the Cree and Neutrals are Algonquian speakers, Iroquois and Cherokee are Iroquoian and the Utina, Muskogee (Creek), Chicasaw and Choctaw are Muskogean.

Of note, the Neutrals (hot pink beginning at 10000) and the Utina (rusty burgundy beginning at 30000) were completely destroyed. The Cree Nations (darkest blue beginning at 20000) exist today in Canada, an amalgamation of sub-tribes, but there was no further historical

Table 4
Languages of the Southern Tribes

Tribe	Iroq	Sio	Algon	Mus	Uch	Tun	Beot	Location
Apalachicola				x				Apalachicola River, Georgia
Chiaha				x				Chattahoochee River, Georgia, into TN
Guale				x				Georgia Coast
Hitchiti				x				Ocmulgee River, then Chattahoochee Co., GA
Oconee				x				Oconee River, Georgia
Okmulgee				x				Macon, GA, Russell Co., Alabama
Tamathli				x				SW Georgia, Florida
Yamasee				x				Ocmulgee River, Georgia, and inland
Yuchi					x			E. TN initially, then KY, then Florida
Ais				x				Indian River, Florida
Apalachee				x				Tallahassee, Florida
Calusa				x				Southwest coast of Florida through the keys
Chatot				x				West of Apalachicola River, Florida
Agua Dulce				x				E. FL coast, St. Augustine to Cape Canaveral
Mikasuki				x				Jefferson County, Florida
Pensacola				x				Pensacola Bay, Florida
Pohoy				x				S. side Tampa Bay, Florida
Potano				x				Alachua County, Florida
Saturiwa				x				Mouth of St. John's River, Florida
Seminole				x				Central FL, then southern Florida, then OK
Tawasa				x				Alabama, West Florida
Tekesta				Proba- bly				Miami, Florida area, also Cuba
Utina				x				Old Tampa Bay
Yui				x				SE GA inland from Cumberland Island
Yustaga				x				Between Aucilla & Suwannee Rivers
Alabama				x				Upper course of Alabama River
Koasati				x				Coosa and Tallapoosa Rivers, Alabama
Mobile				x				Mobile Bay
Muklasa				x				Montgomery County, Alabama
Muskogee				x				From coastal Georgia through central AL
Osochi				x				Russell Co, Alabama
Sawokli				x				Barbour County, Alabama
Tuskegee				x				Coosa and Tallapoosa Rivers in Alabama
Biloxi		x						Pascagoula River, MS, possibly PA before 1700
Chakchiuma				x				Yalobusha River, MS
Chickasaw				x				Northern MS
Choctaw				x				Southeastern Mississippi, into Alabama
Griga				x				St. Catherine's Creek, Mississippi
Houma				x				Mississippi/Louisiana Border
Ibitoupa				x				Holmes County, Mississippi
Koroe						Prob- ably		Mississippi River, LA, then Yazoo River in MS
Natchez				x				Natchez, Mississippi, St. Catherine's Creek
Pascagoula		Pos- sibly		Proba- bly				Pascagoula River, Mississippi
Taposa				x				Yazoo River, Mississippi
Tunica						x		Yazoo River, Mississippi, near it's mouth
Yazoo						x		Yazoo River, Mississippi, near it's mouth

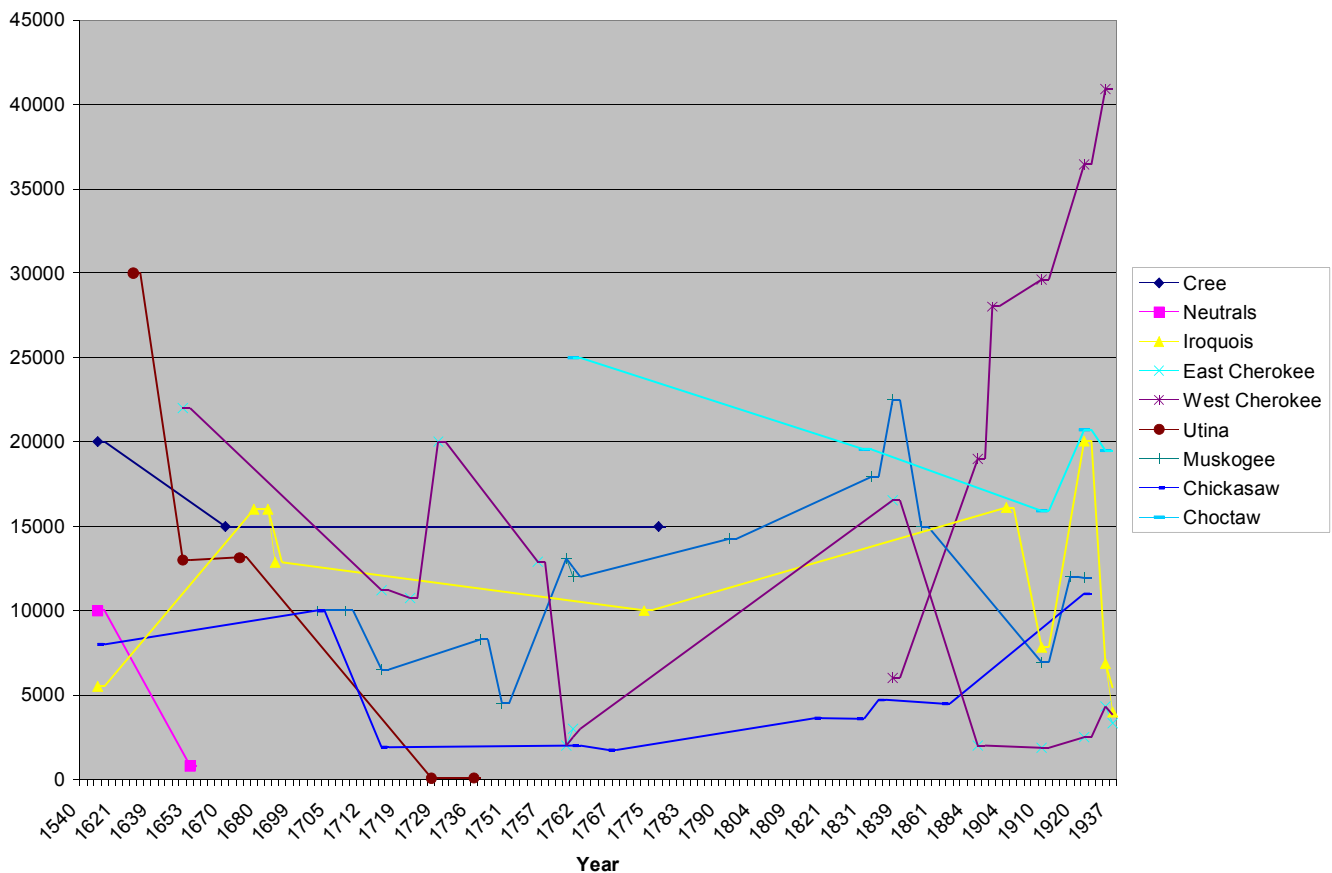


Figure 16. The population of the major tribes.

population data to plot. The Eastern and Western Cherokee are both designated by purple lines as their populations were counted together for a long period and only separately after the removal of 1835-1838. Many of these major tribes exist in some fashion today. They began with large numbers of people and their villages were often dispersed widely, affording some protection from being destroyed in a single attack or wave of disease, although in 1738 the Cherokee reported a 50% population decrease due to smallpox.

What these graphs clearly show is twofold. First, they show that the tribes were not growing at the expected rate after the initial population estimates between 1600 and 1650. Second, and most important, they show that the population of the various tribes declines dramatically immediately after initial contact.

Summing this up succinctly is the following quote by William L. Byrd III (2002):

It has been estimated that before European arrival there were five million Indians living in what would

become the United States. By the year 1800, the estimate dropped to 500,000. In eastern North and South Carolina, the decline in Indian population between 1685 and 1790 was near 97%. This decline was preceded by two earlier centuries that brought disease and devastation. The result of this was that at the end of the 18th century, less than 5000 Native people were left alive in all of eastern Virginia, North Carolina, South Carolina and Louisiana combined.

Inter-tribal warfare is very likely the cause for the lack of initial growth, keeping in mind John Lawson's observations.

After 1600, warfare with the settlers begins and inter-tribal warfare continues, in some cases increasing due to an emerging market for plantation slaves captured during battle. Previously, captives would have been killed, traded or sometimes incorporated into the capturing tribe's families "in place of" members who had been killed. Women and children captives were almost always made tribal members. With the advent of "Indian

slaves” needed by planters beginning in the 1600s, tribes no longer “adopted”, killed or bargained with captives, but sold them. This decimated the populations of both tribes involved, since new “members” weren’t replacing the tribal members lost in warfare or in other ways. In other words, prior to “Indian slavery”, the individual may unwillingly have changed tribes, but they were still within the Indian population. After “Indian slavery” began, they were removed permanently from any tribal population.

Another impact on Indian populations was the advent of European traders. The traders often learned enough of the native languages to be able to communicate with the various tribes. It is speculated that a “trade language” eventually evolved that allowed some level of universal communication (Lawson, 1709). The trader also had to become adept at the social customs of the various tribes involved. A misstep would not only offend the hosting tribe(s), discourage or eliminate trading, but could also cost an unsavvy trader his life. Unfortunately, traders also unwittingly brought diseases along with trade goods.

The best way a trader could demonstrate his commitment and integrity was to take an Indian wife or for shorter visits, just a partner. Often, visitors didn’t just stay for one night, but stayed long enough to repair equipment, hunt for food to take with them, or just to dry out and rest from a long ride. If they were traders, they might remain for weeks or months. Many had a regular “route” and long term relationships within the tribes. Some eventually made their primary home among the Indians.

The English Traders are seldom without an Indian Female for his Bed-fellow, alleging these Reasons as sufficient to allow of such a Familiarity. First, They being remote from any white People, that it preserves their Friendship with the Heathens, they esteeming a white Man’s Child much above one of their getting, the Indian Mistress ever securing her white Friend Provisions whilst he stays amongst them. (Lawson, 1709, p. 29)

These traders were often wealthy planters, and they already had European wives at home, but they apparently did not feel that their Indian wives and children were in any conflict with their “plantation” families. Historians are indeed fortunate that William Byrd recorded in his “secret diaries”¹⁴ a great number of these types of situations, along with other situations involving women who were not Indian, allowing us to view things from

¹⁴ William Byrd’s *Histories of the Dividing Line betwixt Virginia and North Carolina* first published as a portion of the Westover Manuscripts. A second book, *The Secret History of the Dividing Line* publishes William Byrd’s secret journal alongside the “official” published version. The secret diary contains far more explicit details about interactions and behaviors than does the published version, allowing a glimpse unedited.

the perspective of a planter in the late 1600s and early 1700s.

The social custom most dramatically affecting the Indian population was the Native custom of hospitality which included providing a male traveler (there were few if any female travelers in the back country) with a bedmate for the night.

Today, this would be viewed through the filter of Christian morality, but the various Indian tribes had their own versions of religion and morality, and chastity or monogamy under these circumstances was not part of that equation. Having multiple partners made a young woman more desirable, not less-so in the native cultural tradition of the time (Lawson, 1709).

However, given that a woman of reproductive age is fertile approximately 25% of the time (unless she is pregnant), and presuming that pregnant, post-menopausal, or pre-pubescent women were not offered as partners, the opportunity for the woman to become pregnant by the visitor would occur about 25% of the time, unless the visit lasted more than a few nights, in which case the chances increased.

Children born as a result of these liaisons were considered full tribal members. The tribes known to inhabit these areas were matrilineal tribes, meaning that the children “belonged to” the women. Traditionally, the father had little involvement, and the child was “raised” by a combination of maternal uncles. In many cases, the tribal unit or village was relatively small, everyone was related, and the village raised the child. These social customs and structures did not arise at the point of contact, but existed previously. Although clearly after contact this is a primary source for European DNA to be introduced into many “Native” families.

Bolnick et al (2006) report 47% of families who believe themselves to be full-blooded or no less than 75% Native with no paternal European blood, find themselves carrying European or African Y-line DNA.¹⁵ Aside from the fact that no pre-contact Haplogroup R has been discovered in burials that have been analyzed, Bolnick also created haplotype networks which clearly show tight groupings for Haplogroups Q and C, but no clustering for R, indicating a wide range of DNA source input, not a single or small founding group that would have been included in the initial or early Native founding groups. This however, does not necessarily mean that Haplogroup R was not added to the Native gene pool pre-contact (1492), only that it wasn’t an original or early

¹⁵ Data was obtained from 16 populations with northeast and southeast roots including three Chippewa tribes, Cheyenne, Arapaho, Shawnee, Micmac, Kickapoo, Fox, Sioux, Omaha, 2 Cherokee tribes, Chickasaw, Choctaw, Creek and Seminole.

Native American founding haplogroup from a small founder population.

If 47% admixture occurs in a population that has experienced some isolation and believes themselves not to be admixed, it's not unreasonable to surmise that the number would be significantly higher in an area where the tribes are known to have been admixed due to early "trader traffic," admixture with "free persons of color" (pre-1865), and freed slaves (post-1865). Many of the tribes were in essence "color blind" and adopted whomever was in need or available.

Malhi, et al, (2008) indicates that the average of Haplogroup R in Native American males tested was 73% with a maximum in the Northeast (Canada) of 88%.¹⁶

Malhi's study reveals an extremely interesting Haplogroup R distribution map, as shown in Figure 17.

¹⁶ Data were obtained from 26 populations, including Apache, Pima, Papago, Jemez, Tarahumara, Seri, 2 Nahua groups, Cora, Huichol, Mixtec, Mixe, Zapotec, Chipewyan, Dogrib, Tanana, Apache, Navajo, Seminole, 2 Chippewa tribes, Cheyenne, Arapaho, Sioux, Cherokee, Choctaw and Creek.

The Haplogroup R map is quite remarkable in that one would expect Haplogroup R to be found more readily in the Cherokee and Muskhogean tribes who have intermixed heavily both pre- and post-removal (1835-1838), not in the northeast. Malhi in his summary discusses the high incidence of Haplogroup R in the northeast and concludes that this might result from an earlier occurrence of European contact in Northeast America which would have provided a longer period of time for admixture to occur. Unlike the eastern seaboard, in Canada, the tribes were not intentionally destroyed, so the European DNA would be an addition to, not a replacement of Native Y chromosomal DNA.

The Hudson Bay Company (HBC), which specialized in fur trading with the Native tribes, was established in 1780. Figure 18 shows the drainage basis of the Hudson Bay and the York Factory, the HBC headquarters.

The employees of the HBC were involved with the Native women who were crucial to the success of the company and who collected pelts. Many company men and Native women were considered to be married, which further assured the success of the HBC and also

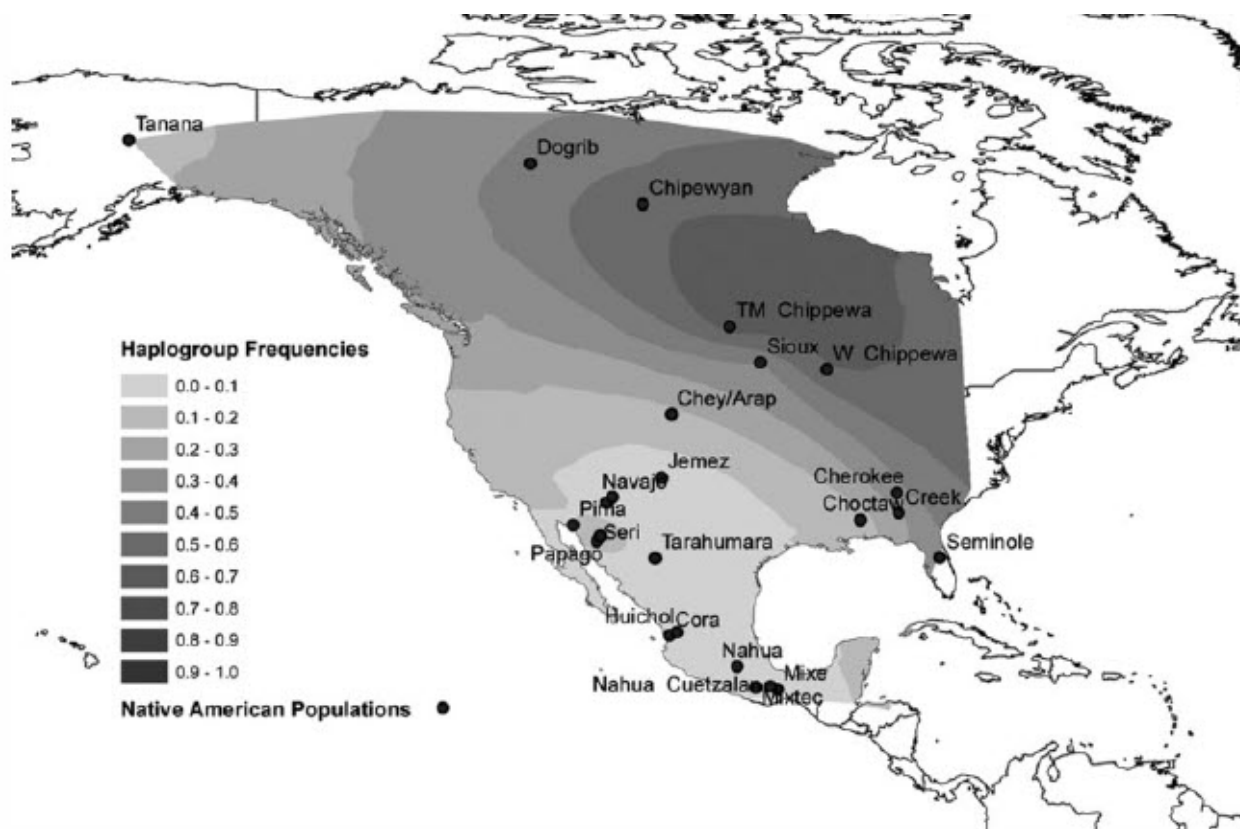


Figure 17. The distribution of Y Haplogroup R in Native American populations.



Figure 18. The Hudson Bay watershed.

provided the opportunity for European DNA to enter the lines of the Natives. However, European DNA displacing 88% of the Native DNA in slightly over 200 years seems unlikely, and indeed, Malhi felt that this was suggestive of earlier contact. Similar situations, such as the Cherokee who were admixed earlier than 1780 through trader contact in the 1600s and early 1700s have not produced such remarkable admixture results, even though the Cherokee were known to intermarry with whites and adopt their cultural practices more than other Southern tribes (Anderson, 1992).

Another known source of European admixture occurred with the Acadian settlement in Nova Scotia, beginning at Port Royal in 1604. The Acadians allied with the Micmac and intermarried freely, resulting in the two becoming inseparable, viewing themselves as brothers. This caused great suspicion among the English and contributed in part to the eventual Acadian deportation in 1755. However, this area with earlier European contact beginning in 1604 does not provide the same degree of admixture as the Hudson Bay drainage basin as shown on Malhi's map. This eastern Canadian area is not shaded on Malhi's map, being to the right of the shading, but it would fall outside of the darkest area southwest of the Hudson Bay that indicates 88% admixture, as the boundaries of the 88% division are entirely shown.

This information is particularly enlightening when reflecting on the fact that at least three northern tribes, the Micmac in Canada, the Wampanoag in Massachusetts, and the Abnaki in Maine, are reported as possibly having had contact with Norse voyagers in the 1000-

1010 timeframe in the *Bureau of American Ethnology Bulletin 145* from 1953 by John Swanton.

We also have the fact that there were almost no women at Jamestown until 1619. There were two women who arrived in 1608, but only one survived. It was only in 1619 with the arrival of 90 women that English women became possible mates for the males of the colony (Brown, 2009).

Figures 19 and 20 are from Malhi (2008), the first showing Haplogroup Q, the most common Native American Y haplogroup, and the second, Haplogroup C, the least common.

Given the dispersals of Haplogroups Q and C, we would expect to find significantly more Haplogroup Q than C in the Eastern Seaboard Native tribes. Surprisingly, only Haplogroup C has been found in the Acadian American Indian project at Family Tree DNA which is reflective of the Micmac population (Rundquist, 2009). In the remainder of the Eastern Seaboard Native descendants significantly more Haplogroup Q has been found than Haplogroup C. In the projects referenced from which data was compiled for this paper, no Haplogroup C was found. The Haplogroup C project itself has only 10 participants of which three are unquestionably European. Haplogroup Q fares much better and the majority of those with Native heritage fall into this haplogroup.

With the continued influence of European culture, many native groups formerly designated as "tribes" disappeared as they became too small to be self-sustaining. Remnant tribes merged and the names began to change. More and more, the question was white or "not", not a tribal affiliation. A good example is the Saponi, a group of various tribal remnants who moved to the area of Fort Christanna in current Brunswick County, Virginia about 1714. A number of remnant tribal units lived in that proximity, but they were all lumped into a group called the Saponi. So who are the Saponi? We know from contemporaneous documents that they consisted at least of the Saponi, Stegaraki, Mepontsky, Ontponea, Tutelo, Monacan, Nahyssan, Keyauwee and the Occaneechi. Their pidgin trade language may have become the language of the Fort Christanna area (Partridge, 2009; Grey, 2001).

Pressure was applied for both Christian conversion and assimilation into the ways of the European culture. It was believed that the way to Christianize the Indians and control them was to exterminate their culture.

Colonies degenerate assuredly when the colonists imitate and embrace the habits, customs, and practices of the natives. There is no better way to remedy this evil than to do away with and destroy complete-

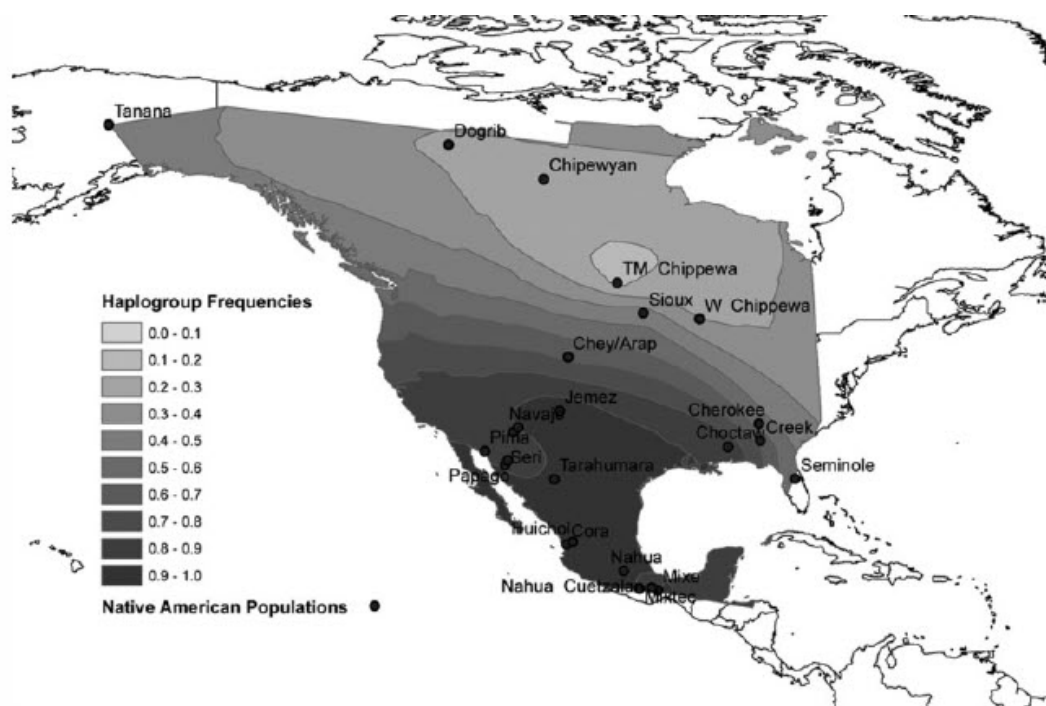


Figure 19. The distribution of Y Haplogroup Q in Native American men.

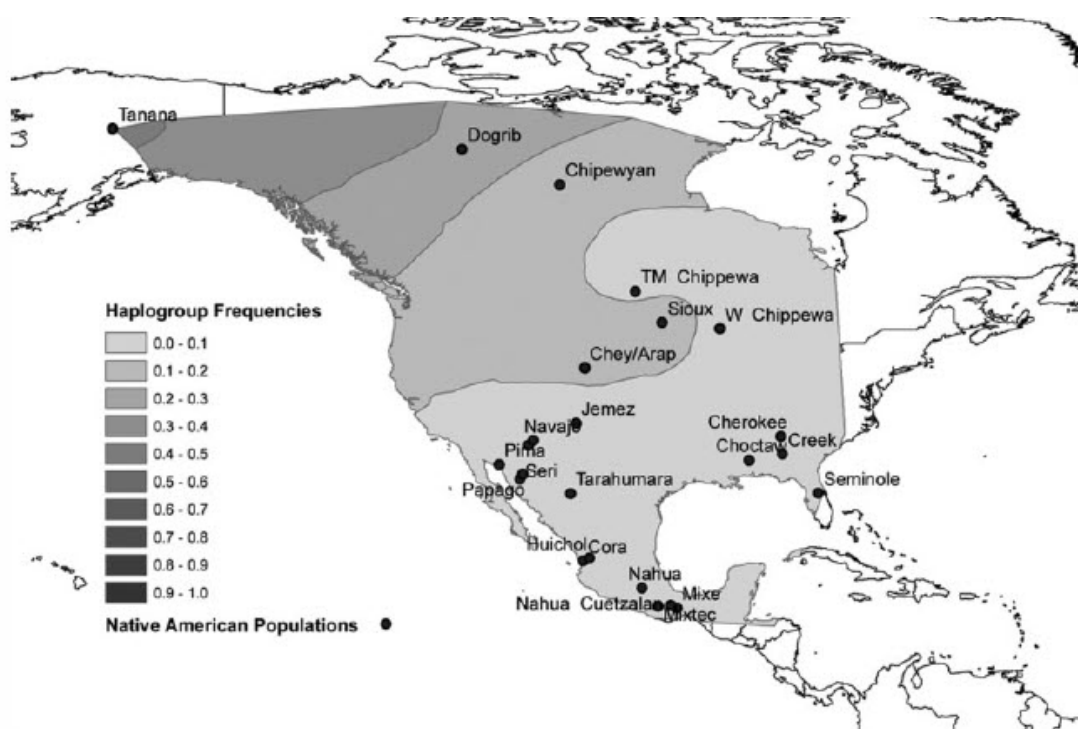


Figure 20. The distribution of Y Haplogroup C in Native American men.

ly the habits and practices of the natives. Sir William Herbert, 1640 (Taylor, 2001, p. 128).

Cultural eradication meant becoming Christian, “white”, and “not different”. Fort Christanna and other locations often removed Native children from their parents in order to “educate” them. In some cases, the “Indians” were already admixed to a degree that becoming white meant a change of clothes and sometimes a change of address. We find many examples of families magically “becoming white” during a move westward.

But the question remains--why were the Native American men affected so drastically, and exactly when did this happen?

Warfare, Invasions and Epidemics

John Lawson reported unending warfare between tribes. Reports exist from the tribes themselves of ongoing warfare. At least 50 individual episodes that occurred both between tribes and in conflicts with European are reported in the *Bureau of American Ethnology Bulletin 145*, beginning in 1521 and finally culminating with the Indian Removal Act which resulted in the event known as the Trail of Tears which occurred between 1835-1839, as detailed in Supplementary File B.

If warfare wasn't enough, the Indian tribes were repeatedly decimated by various epidemics, as many as 93 separate episodes, many lasting for multiple years, all introduced by contact with Europeans. Reports of entire tribes being wiped out were not unusual (Thornton, 1987, p. 45, 64). Typical mortality from a single smallpox epidemic was often more than 75% of the Indian population. Mortality among Europeans during the same outbreaks ran between 10-15% (Thornton, 1987, p. 64). A list of epidemics and the tribes affected is detailed in Supplementary File C.

Why did these diseases so utterly devastate the Indian population, but the colonial population, even though many succumbed, would continue to grow? The colonial population had a constant resupply of new settlers from the old country. The Indian population had no reserve population with which to replace those who died, nor did they have any resistance to the diseases introduced by the Europeans and Africans. Therefore, Indians died in disproportionately high numbers and had no method of population replenishment.

Given the decimation of the tribal population, with men more at risk than women through their positions as warriors, the tribes needed opportunities to replace some of their fallen warriors with new males. One report from a trader turned author tells us that the women in the Indian villages outnumbered men ten to one (Barker 1993, p.153). If this information is even

approximately accurate, it certainly puts into perspective the adoptive and inclusive practices of the tribes towards non-Native males. This begs the question of whether there were opportunities pre-contact (before 1492) and before the Lost Colony (before 1587) for the tribes to assimilate non-Native males, introducing European or African DNA at an earlier date.

Opportunities for Introduction of Non-Native Y-Line DNA

History shows us that there were other opportunities for non-native DNA to be introduced into the Native population. Some opportunities are documented and some are rooted in myth. The further removed in time, the more difficult the proof. However, the sheer number of documented opportunities before Raleigh's first military expedition in 1584 combined with reports of admixed “Native” people certainly suggests that some amount of admixture did occur and given that the European adventurers were men, it would be the Y chromosome that was introduced into the Native population. In Supplementary File D, approximately 50 possible European contacts with pre-contact (meaning pre-Columbus in 1492 and pre-Colony in 1587) North America are listed, beginning with St. Brendan's fabled sixth century voyage from Ireland.



Figure 21. One of Theodore DeBry's prints taken from John White's 1586 map of Virginia.

Other sources of contact likely arose from shipwrecks along the Outer Banks. The Outer Banks is known as the “Graveyard of the Atlantic” and includes Shipwreck National Park. For example, note that the DeBry print shown in Figure 21, entitled “The Arrival of Englishmen in Virginia” shows many shipwrecks (two shown here on part of the print for illustrative purposes, five shown on the original). While it isn’t known if these wrecks are actually depictions of wreck locations or more symbolic in nature, it’s worthy of comment that there were numerous wrecks shown of European vessels at a time when this area was as yet unsettled and purportedly relatively unvisited by Europeans.

The Outer Banks is a stretch of sand bars and barrier islands stretching 80 miles in length and in some places no more than an eighth of a mile wide. The shoals are treacherous near the islands as well as between the islands and the mainland. Sand dunes shift dramatically and outlets are created and closed with the passage of storms. The Gulf Stream draws ships into the area, passing closest to land at the Outer Banks on its circular journey back to southwest England, Ireland and Scotland. There are over 2000 known shipwrecks along the Outer Banks.

Any ship being blown off course in Europe or Northern Africa would stand the chance of becoming shipwrecked on the Outer Banks. It has happened repeatedly in modern times and it surely happened before. The question would be whether the crew could survive the unanticipated journey and whether or not the natives would accept any shipwrecked survivors or kill them.

Shipwrecks were actually viewed as economic opportunities, in fact so much so that North Carolina eventually had to pass laws regulating the disposal of their plunder, including slaves (Byrd, 2004, p 55).

European shipwrecks had indeed occurred by the time that Raleigh’s expeditions arrived on Roanoke and Hatteras Island, as the Indians living there were using iron hardware as tools that had been salvaged from a Spanish shipwreck that had occurred about 20 years before the English arrival. The Indians were very pleased with the opportunity to obtain more iron tools. The Indians told the Englishmen that the shipwrecked Spanish had built another ship and subsequently left the island, but of course, the Spanish could well have left some of their DNA behind if they fathered children while living on the island with the Indians.

The Lost Colony

The timeline involving the Lost Colony begins with the departure of John White for England in August 1587 to procure supplies, leaving 115 people on Roanoke Island

awaiting his return. Among these are his daughter and son-in-law, Eleanor and Ananias Dare, and their infant daughter, Virginia, born August 18, 1587, days after landing at Roanoke and just days before her grandfather’s departure. Prior to White’s departure, the colony had discussed moving “50 miles into the main” to avoid detection by the Spanish who would have destroyed the colony. Unfortunately, neither the colonists, the historical records, nor John White told us the anticipated location.

White and the colonists agreed that they would leave him a clear message as to where they had gone. If they left the island under duress, they would leave as a sign a Maltese style cross, the “cross formee.” The colonists actually went further themselves and directed their expected rescuers to the Croatoan Indians by carving the word “Croatoan” on the stockade post and a partial word “Cro” on a tree. The Croatoan Indians were their friends who lived on (what is now) Hatteras Island, a well known and easily identified location less than 50 miles distant as shown in red on White’s 1585 map—see Figure 22.

Equally as important, John White’s 1590 records indicate that the colonists’ village was actually relocated, the houses disassembled giving no sign of a hurried departure. They moved prior to 1588 when the Spanish note that they found the settlement on Roanoke and it was then abandoned. Most importantly, in 1590, John White found no carved crosses that would have indicated forcible relocation.



Figure 22. Map of Cape Hatteras drawn by John White about 1585, from Wikipedia Commons.

Unfortunately, the rescuers never had the opportunity to check for the colonists on Hatteras Island. John White was able to return briefly to Roanoke Island in 1590, but was caught in a hurricane and was unable to remain long enough to visit Hatteras Island and conduct a search. He tried several times to return, unsuccessfully.

The records of surveyor John Lawson and others report that the Hatteras Indians were the tribe living on Hatteras Island 110 years later in 1701, and they included light skinned, light-haired, gray-eyed people who claimed to descend from white people, specifically, the colonists. Their oral history included stories of Raleigh's ships and a ghost ship that regularly appeared looking for the colonists.

Lawson (1709, pp 43-44) wrote that,

A farther Confirmation of this [Lost Colony ancestry] we have from the Hatteras Indians, who either then lived on Ronoak-Island, or much frequented it. These tell us, that several of their Ancestors were white People, and could talk in a Book, as we do; the Truth of which is confirm'd by gray Eyes being found frequently amongst these Indians, and no others. They value themselves extremely for their Affinity to the English, and are ready to do them all friendly Offices.

He further states: "Hatteras Indians these are them that wear English dress." Lawson was given chickens by the Hatteras, which are not native to America. Lawson's guide, Enoe Will, told him he knew about "talking books and speaking papers" and that some of his ancestors, the Hatteras, were white.

Various records indicate that the Hatteras Indians probably became or integrated with the Mattamuskeet Indians. During this timeframe, significant tribal "reorganization" and warfare was taking place. The tribes divided and many moved to other locations, further inland to safer swamplands that were also less desirable to Europeans. By this time, post-1650, land and other records begin to be kept and become available to use for reference. In addition, and perhaps more important, oral histories of the various tribes and the history of several families exist independently who claim to be descended from the colonists. Given repeated evidence from many diverse sources, it is unrealistic to discount all oral histories from independent sources as unreliable. These people had no motivation to lie.

The circumstantial evidence mounts that some of the Colonists did survive. If they did, their only opportunity for survival was indeed to assimilate into the native culture. They could not remain as separate "colonists."

In fact, in 1888, 1891 and 1914, it was determined by historians and legislators that the Lumbee were likely the descendants of the Colonists, both based upon their own oral history, their language which incorporates 300-year-old English (Elizabethan) words, their last names and their countenance.

Some of the colonists may have been victims of warfare and killed by the Powhatan just before Jamestown was settled or became slaves, or both. There were several reports from those in Jamestown who were hunting the colonists that some yet survived.

While the Jamestown fort was being built, in 1607, George Percy reports:

We saw a savage boy about the age of 10 years which had a head of hair of a perfect yellow and a reasonable white skin, which is a miracle amongst all the savages.

Percy's report was only 21 years after the Lost Colony was left in 1587, so if this were in fact a child of (or related to) the colonists, he would surely have told his parents or other colonists that he had indeed seen non-Native strangers and perhaps their rescue was imminent. If this wasn't a child of the colonists, who was he?

In another report, the Powhatan chief eventually "confesses" that he did indeed kill most of the colonists just prior to the settlement of Jamestown in 1607. The colonists had, according to the Powhatan chief, been living with the Chesepian tribe who refused to join the Powhatan confederacy. Some scholars believe that this confession was either fabricated or enhanced by Powhatan to intimidate the Jamestown colonists. Although Powhatan did display a musket and other artifacts from the colonists, supposedly from the massacre, he could also have obtained those items through trade or other means. There is other information that conflicts with Powhatan's statement and indicates that the colonists had split into two or more groups and colonists elsewhere still survived, some as slaves.

More than 15 of these survival reports exist, including maps, one of which is a clandestine map, known as the Zuniga Map, sent to the Spanish king through an intermediary spy but originating from Jamestown in 1608. The map was later found in the Spanish archives and translated (a redrawn version is shown in Figure 21). It shows three colonist locations, one at Jamestown and two further south.

If some of the colonists did survive to reproduce, it would have been within a predominantly matrilineal Native culture. Given that there were only 17 female colonists and 97 males, the balance of 80 males would have taken Native wives. What results would be expect-

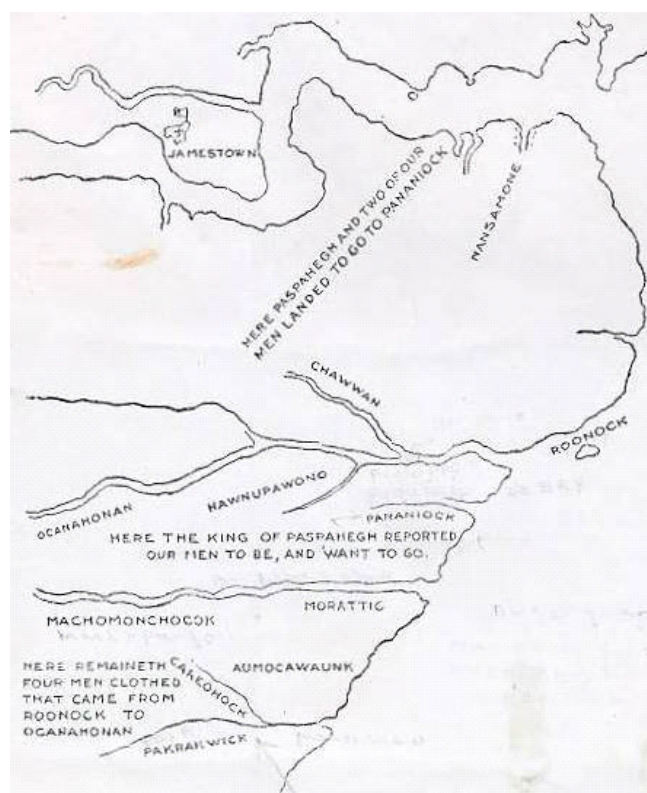


Figure 23. Redrawn Zuniga map of English settlements in 1608.

ed when Y-line DNA of the descendants is sampled today?

The first thing that might be expected is that not all of the surnames and corresponding Y lines survived, but some may have and may have been adopted intact when surnames were being introduced into the Native tribes. If John Lawson (1709) was correct, the Indians took pride in their English heritage.

There are at least three families with very strong and enduring family histories that claim they are in fact descended from the colonists, are in the right place at the right time, and do in fact carry their surnames. Those families are the Berry, Gibbs and Payne families.

However, in most cases, 110 years later in 1700 or so, or 4-5 generations, when surnames were being adopted by the Indians, the original colonists would have been dead for at least 50 years. Assuming a colonist male was age 30 when he arrived in 1587 and assuming a long life for at least a few, they would have died at age 70 in 1627 or so. A lot of history can be lost in 75 years, but not everything. Most people are aware of at least something of their grandparents' generation, and being English in a Native world is a remarkable heritage, unlikely to be

forgotten as evidenced by the comments made by John Lawson regarding the Hatteras Indians in 1701 and their pride in their English heritage.

The following surnames are found in the very early records, therein identified as Indian and also bearing the surnames of colonists. The surnames bolded appear very early in records along the coastline associated with various coastal tribes, including the Hatteras, Mattamuskeet, Chowan and others. Non-bolded names are also proven among the Natives, but may be later among the Lumbee in Robeson and neighboring counties. Payne, while a good candidate for being a Lost Colonist family, has never been found in a record indicating they were Native, aside from oral history. However, recent DNA matches between the Payne and Berry family are undergoing additional genealogical scrutiny and DNA testing.

Allen	Bennett	Berry
Brooks	Brown	Chapman
Chavis/Chavous/Cheven		
Coleman	Cooper	Gibbs
Harris	Hewett	Johnson
Jones	Lucas	Martin
Pierce	Scott	Smith

There is no guarantee that the above group would retain both their surname and the DNA originally associated with that surname particularly in a matrilineal culture, but to date, these are the only names that are both on the colonist list and have proven Native heritage.

Of course, the other half of this equation is finding the correct English (or Welsh or Irish or Scottish) families to test to see if the DNA matches, and that is another aspect of the Lost Colony project altogether.

What would be expected in descendants of families who did not retain their patrilineal English surnames?

Expected scenarios would be:

1. People who are identified in contemporaneous documents as Indian,
2. Whose descendants today do not carry a native haplogroup,
3. Whose surname (may or) may not match the list of colonists, but
4. Whose DNA does match someone on the list of colonists.

A list of 69 colonist surnames (of 100 total) has been compiled, most of whom have documented native heritage, who meet the first two criteria. That number was

Table 5

Reports that Suggest that Some Roanoke Colonists Survived and Assimilated with the Native American Population

Date	Report	Reference
1588	The Spanish governor in Florida reports to the King that the British are living on an island at 43 degrees.	Flores, 2008
1599	Recounting his time while captive in the hands of the Spanish, David Glavin claims that two additional Spanish ships were provisioned to go to Jacan (Roanoke Island) in 1594, carrying supplies of people, ammunition, clothes, implements, axes and spades for the settlers there. A report from the Florida governor to the king confirms his report.	Miller, 2001; Flores, 2008
1603	Captain Martin Pring sailed to North America and returned with holds full of sassafras. They were reported to have landed north of Roanoke Island. At the same time, many accounts that Sir Walter Raleigh's colony had again been contacted were reported from several sources in England.	Miller, 2001, p. 207
1603	David Beers Quinn (1985) reports a 1603 rumor in England that contact with the colony was made. Capt. Mace was sent to Virginia in 1603 and again in 1604 to obtain sassafras along with a French-English expedition.	Quinn, 1985; p 354-358
1604	George Waymouth presented a treaty called "Jewel of Artes" to King James because he thought the Lost Colonists had been contacted. It appears that Waymouth assumed that King James was already familiar with that information.	Quinn, 1985; p 354-358
1605	Waymouth led an expedition, but by accident or design was not reported to have gone to Croatoan.	Quinn, 1985; p 354-358
1605	In England the play "Eastward, Ho" was being produced by George Chapman, Ben Johnson and John Marston that stated "a whole country of English is there, men bred of those who were left there in '79."	Quinn, 1985; p 354-358
1607	John Smith at Jamestown reports survivors at Panawioc, Pakerakanick and Ocanahowan.	Miller, 2001
1608	John Smith returns to Jamestown from a meeting with the Pamunkey Indians. Of his meeting, he reported, "What he knew of the dominions he spared not to acquaint me with, as of certaine men clothed at a place called Ocanahonan, clothed like me".	Smith, 1608
1608	Later in Smith's travels into the interior at a place called Weramocomoco, the local Indian chief or "Emperour" as Smith described him gave still more information. "Many kingdoms hee described mee...The people cloathed at Ocamahowan, he also confirmed; and the Southerly countries also as the rest that reported us to be within a day and a halfe of Mangoge, two dayes of Chawwanock, 6 from Roonock to the south part of the backe sea: he described a countrie called Anone, where they have abundance of brasse and houses walled as ours." It was thought to be about 10 days or 100 miles through the swamp.	Smith, 1608
1608	As a result, Smith pursued the lead and the King agreed to provide guides. Unfortunately, the results were as follows: "We had agreed with the king of Paspahagh to conduct two of our men to a place called Panawicke beyond Roonok where he reported many men to be appareled. Wee landed him at Warraskoyack where playing the villaine and deluding and for rewards, returned within 3 or 4 days after without going further".	Smith (1608)
1609	John Smith made yet another reference to the search for the lost colony in his Description of Virginia, published in 1612. "Southward they went to some parts of Chanwonock and the Mangoages, to search them there let by Sir Walter Raleigh; for those parts of the towne of Chrisapeack hath formerly been discovered by M. Harriot and Sir Ralph Layne."	Smith (1612a)

Table 5 (continued)

Date	Report	Reference
1609	"Intelligence of some of our nation planted by Sir Walter Raleigh, (yet alive) within 50 miles of our fort...as is verified by two of our colony sent out to seek them, who, though denied by the savages speech with them, found crosses and letters, the characters and assured testimonies of Christians newly cut in the barks of trees."	Stick, 1983
1609	Spanish Expedition by Captain Francisco Fernandez de Ecija on the eastern seaboard ransoms a Frenchman and carries on trade and social interaction with the Indians south of current day Roanoke/Hatteras Island. An Indian woman named Maria de Miranda, who is married to a Spaniard, translates for the Spanish/Indians and tells them that she knows where the French and English are settled but she does not state the location.	Flores, 2008
1609	One of the most telling pieces of information was contained in a series of instructions sent from England in May 1609 by the council of the Virginia Company to the governor at Jamestown. The council proposed establishing a "principal and chiefe seate or headwaurters" of the permanent Virginia colony near "a towne called Oho-nahorn seated where the River of Choanock devideth itself into three branches and falleth into the sea of Rawnocke." Extolling the virtues of this site, generally conceded to have been on the west side of the Chowan River in what is now Bertie County, NC, the council concluded as follows; "besides you are neere to riche cooper mines of Ritanoc and may passe them by one braunche of this River and by another Peccarecamicke where you shall finde foure of the englishe alive, left by Sir Walter Rawely which escaped from the slaughter of Powhatan of Roanocke, upon the first arrivial of our colonie, and live under the proteccon of a wiroance called Gespanocon, enemy to the Powhatan, by whose consent you shall never recover them, one of these were worth much labour."	Miller, 2001
1612	Another clue in the literature of the Jamestown settlement appeared in a report prepared by several leaders of the colony and published in 1612 under the title "The Proceedings of the English Colony in Virginia". In referring to one of Capt. Smith's journeys mention is made of his dealings with an Indian chief. "The Captain thanked him for his good counsel, yet the better to try his love, desired guides to Chowanoke where he would send a present to that king to bind him his friend. To perform this journey was sent Michael Sicklemore, an honest, valiant and painefull soldier, with him, two guides, and directions howe to search for the lost company of Sir Walter Rawley and silke grasse." The results of Michael Sicklemore's journey are given later in this report, together with reference to yet another search party. "Mr Sicklemore well returned from Chawanock but found little hope and lesse certaintie of them that were left by Sir Walter Rawley."	Smith, 1612b
1612	"So that Nathanel Powell and Anas Todkill were also, by the Quiyoughquohanocks, conducted to the Mangoages to search them there. But nothing could we learne but they were all dead."	Smith, 1612b
1608-9	The Powhatan told John Smith to search among the Chowanoc for the colonists.	Miller, 2001
1608-9	The Powhatan say the colonists settled at Ohanoac, in Chowanoc territory, slightly more than 50 miles inland.	Miller, 2001
1608-9	Powhatan's servant named Weinock told William Strachey that "Houses are built like ours, which is a ten days march from Powhatan".	Miller, 2001
1608-1612	A notation in the margin of a volume entitled Hakluytus, Posthumus or Purchas His Pilgrimes. "Powhatan confessed that he had been at the murder of the colony and showed a musket barrel and a brass mortar, and certain pieces of iron which had been theirs."	Pate, 2008
1608-1612	Gates (at Jamestown) was instructed to find the colonists who "escaped from the slaughter of Powhatan of Roanoke". It is believed that the Mandoag attacked the Powhatan and took some colonists as slaves.	Miller, 2001

Table 5 (continued)

Date	Report	Reference
1612	Strachey's report: "At Peccarecamick and Ochananoen by the relations of Machumps, the people have howes built of stone walls, and one story above the other so taught them by those English who escaped the slaughter at Roanoke...At Ritanoe, the Weroance Eyanoco preserved 7, of the English alive, fower men, twoo boyes and one young maid (who escaped and fled up the River of Chanoke) to beat his copper of which he hath certain mynes at the said Ritanoe." Ritanoc may be the mines of Chaunis Temoatan, controlled by the Mandoag, 20 days journey overland.	Strachy, 1612
1608-1612	Arrohattoc (Powhatan confederacy) was reported to have 1 boy	Miller, 2001
1608-1612	Panawiock was reportedly housing many lost colonists.	Miller, 2001
1608-1612	English, a man and woman, are rumored to be alive among the Tuscarora. North of the Roanoke, it is noted that men have beards and the people have copper.	Miller, 2001
1614	A group of deserters from Jamestown head for the Tuscarora village of Ocamahawan, where the inhabitants had built two-story stone houses, raise tame turkeys, and used brass utensils .	Johnson, 1983
1621	Expedition to the Potomac River, in a native King's house a china box is seen. The King says it was sent him from "a king that dwelt in the west, over the great hills, some 10 days journey away, he having that box from a people as he said that came thither in ships, that wear clothes, crooked swords and somewhat like our men, dwelt in houses and were called Acanack-China".	Miller, 2001
1622	John Pory of Jamestown, brother to Anne who married colonist Robert Ellis, continued to look for the colonists. He is told they live "10 days journey westward" but cannot pursue the lead due to fighting between the Powhatan and the English.	Miller, 2001
1650	Merchant Edward Bland acting upon a rumor that Englishmen are alive to the south deep in the interior in a village called Hocomawanank hires an Appamattoc guide. This could possibly be the location of the Occaneechi trading village located on the Roanoke River.	Miller, 2001
1669	Historian James Sprunt says, "The Cape Fear Coree Indians told the English settlers of the Yeamans colony in 1669 that their lost kindred of the Roanoke colony, including Virginia Dare ...had been adopted by the once powerful Hatteras tribe and had become amalgamated with the children of the wilderness. It is believed that the Croatans of this vicinity are descendants of that race."	Sprunt, 1896
1671	First expedition to the Blue Ridge Mountains in Tutelo Indian Territory, initials MA and NI (or J which was an indistinguishable letter from I at that time) are found carved into trees. Morris Allen and Nicholas Johnson? Five days to the west they again find MA and other scratchments on the trees.	Miller, 2001
1701	John Lawson reports the Keyauwee to be a "nation of bearded men". Native men have little or no facial or body hair. It is believed that this location is near current day Ashboro, NC. These bearded men were first described by Lederer in 1670 but not encountered until 1701 by Lawson.	Dial and Elia-des, 1996
2009	The Cora (or Core) tree, 1000 years old, stands in Frisco on Hatteras Island with another message engraved. Cora or Core is thought by some to be another message from the colonists as to where they were relocating on the mainland.	Dawson, 2009, p. 142 and 147

further reduced to a manageable group and further analysis performed.

Given the matrilineal social customs of the tribes, one might also expect to see men who descend from the same surname who are clearly associated with the same tribal family who carry different Y-line DNA. In other words, one would expect to encounter what are typically referred to as nonparental events.

Surnames were foreign to Indians and the supposition that the surname and the DNA follow the same branching tree is a result of contemporary and historical English-based social structure, not the Indians' tribal social structure and customs. Conversely, multiple surnames from within the social group may carry identical or closely related Y-line haplotypes.

Multiple factors will have affected the Indians during this timeframe:

- Reduction of male tribal members through warfare

- Waves of disease
- Adoption practices of adopting non-Native males into the tribe
- Matrilineal social structure
- Hospitality-based social customs including female bed-partners for visitors
- Sale of Indian captives as slaves replaces earlier tribal assimilation customs

One would expect to see a pattern that would include a few Native haplogroups, assuming cultural assimilation (not replacement) in a matrilineal society, but mostly European haplogroups, especially in the families that can be identified very early. As these families evolved, in later generations, one would expect to see the addition of some amount of African DNA in some family lines as the tribes adopted "free persons of color", freed slaves and other "mixed" race or "mulattoe" individuals. Given the social customs and matrilineal culture, African DNA could well have been assimilated later into lines that were previously either Native or European.

Table 6
Predicted or Confirmed Haplogroups for 396 Lost-Colony Related Participants

Haplogroup	Number	Percent
Unable to predict	17	4
B – African	2	<1
E (x E1b1a, E1b1b)	8	2
E1b1a - Sub-Saharan	24	6
E1b1b1 - North African, Mediterranean, Balkan	8	2
G - Caucas Mountain region (30%), Mediterranean (8-10%), Eurasia (1-2%)	9	2
I - European (15%)	57	15
J - Middle Eastern (28%), European (2%)	9	2
Q - Native American	7	2
R1a – East European (50%), West European (4%)	12	3
R1b - West European (65%), East European (11%)	238	61
T – Middle East, N Africa, Mediterranean	1	<1
Total African (B, E*, E1b1a)	34	9
Total Native (Q)	7	2
Total Mediterranean (G, J, T, E1b1b1)	30	8
Total European (G, I, J, T, E1b1b1, R1a, R1b)	308	82

Note: Haplogroups are as predicted by Family Tree DNA with no additional predictions by third party tools.

DNA results are recorded in a multi-project spreadsheet that includes qualifying participants from the Lost Colony, Lumbee, Waccamaw and Eastern Carolina Roots projects with a total of 396 nonduplicated individuals. Their haplogroups are shown in Table 6.

All of these participants have some connection with the Lost Colony, Lumbee, Waccamaw or Eastern Carolina Roots projects and many expected to find Native American Y-DNA. Surprisingly, only 2% was found, far lower than would be expected in a founder population.

Breaking this down further, colonist surnames with a proven Native American connection were isolated. "Proven" in this context means the existence of a legal document that states this particular surname is Indian.

It should be noted that the Lumbee DNA Project is not affiliated with the Lumbee Tribe itself. Individuals who join the project feel that they have Lumbee heritage and are asked to submit confirming genealogical records, but generally they either are not members of the tribe, and/or their tribal status is unknown to the project administrator. The Lumbee are currently seeking Federal tribal recognition (Lumbee Tribe, 2009), after which it is hoped that they will actively participate in the Lumbee and Lost Colony DNA projects. Perhaps a DNA project endorsed by the tribe would produce more participants with possibly a higher frequency of Native haplogroups.

Of 107 different surnames represented within the Lost Colony project, 32 are not proven Native, meaning that 73 are proven Native. Of the 32 who are not proven Native, 10 are strongly implied as Native, but with no specific documentation available. That leaves only 22 surnames that are questionable and 79% who are either proven Native or strongly implied. There is a vast difference between 2% (Native by Y DNA) and 79% (historically proven or highly inferred Native ancestry).

Of the 100 colonist surnames only (eliminating non-colonist surnames), the following information is found. 77 have proven Native connections, five have some indication of a Native connection, seven have some early information that might indicate Native heritage, and 11 have no Native information.

If the colonists DNA survived, along with the associated surname, one would expect to find very low amounts of sub-Saharan African DNA, E1b1a, if any. If Haplogroup E DNA were present, it would be most likely E1b1b from the Mediterranean area. One would expect some (assuming cultural assimilation, not replacement) Native Y chromosomal DNA, but surprisingly little is found.

The surnames Johnson and Pierce are associated with the Y Haplogroup E1b1a, which is a sub-Saharan hap-

logroup. It is most likely that these lineages are from African slave or freedman admixture. The Lucas and Stevens surnames are associated with the Y Haplogroup E1b1b, which is primarily a north African or Mediterranean haplogroup, but occurs in England at the same frequency as in the Lost Colony-related projects. The occurrence in England was perhaps as a result of Roman soldiers retiring and remaining in England (Bird, 2007), or early slave trade from West African to England which has been documented by 1555, but may have occurred as early as the 9th century with slaves being imported by Vikings (King, 2007). It is likely that this simply represents European admixture. On the other hand, the surname Scott is associated with Y Haplogroup Q, the most common Native American haplogroup. Haplogroup Q also occurs in Britain at about 0.4% frequency, but these Haplogroup Q haplotypes likely represent Native American lineages.

These surnames are not proven genealogically to the specific colonist family, so some could simply be different families. Native families often took the surname of a neighboring or European family that they respected. Africans were typically imported as slaves and had to take a surname at the point when they were freed, some taking the surname of their former masters and remaining in the same geographical area. Others selected different surnames of their choosing.

If the colonists survived, one would expect them to assimilate into the Native population, and one would expect to find oral histories of Native ancestry, but the DNA would reflect European heritage. This is exactly the scenario that is being found within this group.

Breaking this down one step further, there are several families who are strongly associated very early with the tribes on the Outer Banks, and have distinctive surnames, with very strong genealogies back to the ancestral families.

In Table 7 the Outer Banks surnames that match colonist surnames are bolded. Additional information is also provided regarding any associated Native records, haplogroup information and other surnames from the Lost Colonist roster that these families match.

Given that the above families have strong genealogies, these intra-family results "should be" one haplotype, but they aren't, possibly reflecting the matrilineal cultural component of Native ancestry. In some cases, there is only one participant for a particular surname, but additional participants are being sought.

The Lumbee DNA Project is focused on people associated with that tribal group, and their English versus Native numbers are also highly skewed. Their Native component is 4%, twice that of the combined project spreadsheet (2%), and four times that of the Lost Colo-

Table 7

Surnames that are strongly associated with Native Americans on the Outer Banks

Outer Banks Surnames	Genealogy	Haplogroup	Colonist Surname Matches
Barbour	In 1712 named as a Tuscarora	R1b1b2	No additional colonist surname matches
Beasley	1734 Chowan Chief	R1b1b2, two separate groups	Matches Pearce and Stevens at 37 markers
Berry	Bought Indian village land on Hatteras Island. By 1730 found with Lowry in Lumbee area on PeeDee River. Strong oral history of colonist ancestry in different lines.	R1b1b2	Matches Coleman, Payne, Chavis, Smith, Brooks, Jones, Pearce, Harris, Wilkinson, Brown, Nichols, Wright, Johnson and more at 12 markers
Blount	1711 Tuscarora Chief	R1b1b2	E. Carolina project
Buck	1777 Alligator River, assoc with Elks family	I1	Matches Chapman and Johnson at 37 markers
Carawan, Carroon, Carrow	1749 Arrowmuskeet Lake	R1b1b2	Matches Brown, Jones, Johnson, Coleman, and more at 12
Chavis (Cheven)	Lumbee later	R1b1b2 and J2	No additional colonist surname matches
Elks	1684 indenture, 1756 grant for Indian Town	R1b1b2	Matches Martin at 12 markers
Gibbs	1699 named as Chowan, 1733 map at Indian town on Hatteras Island	J2 and R1b1b2	J2 matches Buck and the R1b1b2 family matches Martin at 12 markers
Gurganus	Possibly tracked from Jamestown	Predicted E1b1b	No additional colonist surname matches
Locklear	Exclusively Lumbee name	J2a2, R1b1b2, and I1	No additional colonist surname matches
Lowrey, Lowry	Lumbee later	R1b1b2, two separate E1b1a groups	R1b1b2 matches Scott at 12 markers, no other colonist surname matches
Skipper	Chief of Nottoway	G	Waccamaw Project
Squires	1705 Mattamuskeet King	R1a and R1b	R1a matches Drake at 67, R1b matches Chandler at 12 markers

ny project (1%). Their African component (all Haplogroup E and E1b1a combined) is 15%. All of their Haplogroup E combined, with one exception, is sub-Saharan E1b1a, not Mediterranean Haplogroup E1b1b.

The higher 4% Native American Y chromosomal DNA in the Lumbee project, compared to the 47% to 88% non-Native findings in the Bolnick (2006) and Malhi

(2008) papers, respectively, infer that perhaps the colonists did survive, given that the Lost Colony DNA project is working with a group of surnames localized to a specific area with 79% proven or highly inferred native history and only 1% of them have Native American patrilineal ancestry as shown by DNA testing.

Discussion

Where have all the Indians gone, in this case, meaning those with Y-line Haplogroup Q-M3 or C-P39? It appears they are not strongly represented in the Lost Colony project, although the colonists most certainly may be among them. A few appear among the Lumbee, but less than would be expected given the Malhi (et al, 2008) graph of the 70-80% band that reaches into this area or even a higher 80-90% band, although this may in part be explained by the lack of tribally sanctioned participation. The Lumbee at 96% non-Native Y DNA are higher even than Malhi's (et al, 2008) highest finding of 88% in Northeast Canada, a result he suggests may infer earlier European contact. In the case of the Lumbee, the earlier contact could be a combination of the Lost Colonist community and pre-Colonist, primarily European contact, combined with post-Colonist European intermarriage.

It has been documented that the males of the various tribes suffered disproportionately from warfare and alcohol followed by waves of disease. Warfare was a way of life for the Eastern Seaboard tribes and had been affecting the male populations of the tribe before known European contact was established.

There were many documented opportunities for the introduction of non-Native DNA into the paternal lines of the tribes prior to both the 1492 previously presumed first contact and the 1587 Lost Colony. The resulting children were considered Native by the tribe, and therefore by the Europeans in their legal documents as well. Malhi (et al, 2008) has documented that the tribes further west carry a higher frequency of Native American DNA, but those tribes were never "coastal facing" and did not face either the opportunities or the risks involved with being the greeting committee for anyone who happened onto their shores. Those with a north-east or southeast heritage carry higher frequencies of non-Native American DNA, 47% (Bolnick, 2006) and 88% (Malhi, 2008) respectively.

Surprisingly, the tribes one would expect to carry the lowest amount of Native American Y DNA, such as the Cherokee, carry higher amounts than northeastern Canadian tribes (Malhi et al, 2008), implying that the northeastern tribes may have had earlier and prolonged contact with Europeans than is documented in existing historical records.

The Lost Colony project, which is looking for "Europeans among Native Americans" and the Lumbee project which is looking for proof of "Native American heritage via DNA" both carry a significantly lower frequency of Native Y-line DNA than one might expect. A finding of 2% (one surname) might be expected for the Lost Colony project, especially if the colonists did

survive. However, this extremely low frequency of Native haplogroups still leaves the question unanswered of what happened to the Croatoan/Hatteras men. Were they already admixed before the colonists arrived?

A 96% non-Native Y frequency is unexpected high within the Lumbee project, a group who is unquestionably of Native origin, and significantly higher than the Malhi (2008) project's highest admixture finding elsewhere of 88%. This rate may imply either earlier or more pronounced non-Native admixture, one source of which could be the Lost Colonists, who also figure prominently in the oral history of the Lumbee, a Native group who claims to descend, in part, from a group of Europeans.

Future Direction

The Lost Colony Genealogy and DNA Research Group project has focused in five areas.

1. The first focus area is to narrow the search to a group of surnames that are the most promising. Those surnames are derived from two sources previously discussed in this paper. The first group consists of the surnames that are colonist surnames and proven to be Native. The second group is the list of Outer Banks and coastal surnames. Two additional surnames are Payne and Dare. The combined list is as follows:

<u>Allen</u>	<u>Bennett</u>	<u>Berry</u>
<u>Barbour</u>	<u>Beasley</u>	<u>Blount</u>
<u>Brooks</u>	<u>Brown</u>	<u>Buck</u>
Chapman	<u>Carawan/Carroon/Carrow</u>	
Chavis/Chavous/Cheven		Coleman
Cooper	<u>Dare</u>	<u>Elks</u>
<u>Gibbs</u>	<u>Gurganus</u>	<u>Harris</u>
<u>Hewett</u>	Johnson	<u>Jones</u>
Locklear	Lowery, Lowry	
Lucas	Martin	Payne
<u>Scott</u>	<u>Smith</u>	<u>Squires</u>

The underscored names in the above list are names that are proven to be Native at an early date in the Outer Banks coastal area. Surnames without an underscore are also proven Native, but at a later date (except for Dare and Payne), typically in connection with the Lumbee. Surnames in bold, as above, are Lost Colony surnames.

Given the analysis, the most promising surnames for research and DNA testing are those that are both proven to be Native in the early records in the Outer Banks areas and who are also colonist surnames. This group consists of Allen, Bennett, Berry, Gibbs, Harris, Hewett, Jones, Scott and Smith.

2. The second focus area is to research the appropriate NC county and other early records for all references to the above surnames.

3. The third focus area is to begin English research on the colonist surnames, shown in bold above. Fortunately, the Lost Colony Project has recently established a liaison in England who is facilitating research.

4. The fourth focus area is to continue to work with surname administrators to attract appropriate participants and to work with those participants on their genealogies.

5. The fifth focus area is to collect family histories of candidate families from eastern North Carolina, working with local genealogy groups and individual families. There is still a great deal to be learned.

Each year the Lost Colony Project's research goals are reevaluated and efforts are refocused appropriately.

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Lumbee Project – Rob Noles, administrator

Waccamaw Project – Derrick Keith, administrator

East Carolina Roots – Sara Whitford, administrator

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Web Resources

Acadian Indian Project

<http://www.familytreedna.com/public/AcadianAmerIndian/default.aspx>

African DNA Project

<http://www.familytreedna.com/public/African.DNAProject/default.aspx?section=yresults> and private site, <http://africandnaproject.homestead.com/>

American Indian DNA Project

<http://www.familytreedna.com/public/AmericanIndian/default.aspx?section=yresults>

American Indian Q3 Haplogroup Project

<http://www.familytreedna.com/public/AmerInd%20Y/default.aspx?section=yresults>

Cumberland Gap Y-DNA Project

<http://www.familytreedna.com/public/CumberlandGapYDNA/default.aspx>

East Carolina Roots DNA Project

<http://www.familytreedna.com/group-join.aspx?Group=EastCarolinaRoots> and private site, www.eastcarolinaroots.com

Haplogroup Q Project

http://www.familytreedna.com/public/yDNA_Q/default.aspx?section=yresults

Lost Colony DNA Project

<http://www.familytreedna.com/public/LostColonyYDA/>

Lumbee DNA Project

<http://www.huxford.com/Genetics/Lumbee/Results.htm#Y-DNA>

Lumbee Tribe Web Site

<http://www.lumbee-tribe.com/index.html>

Melungeon DNA Project

<https://www.familytreedna.com/public/coremelungeon/default.aspx> and private site, www.jgoins.com

Northern Plains Archive Project

<http://www.hiddenhistory.com>

Waccamaw DNA Project

<http://www.familytreedna.com/public/CapefearIndians/default.aspx?section=yresults>

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