

## What is Wrong with African North American Admixture Studies? Addressing the Questionable Paucity of Amerindian Admixture in African North American Genetic Lineages

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### ABSTRACT

African North Americans are primarily an amalgamation of African lineages from West, Central, and Southeast Africa coupled with modest gene flow from specific non-Africans including North Atlantic and Iberian European lineages and Northeast, Mid-Atlantic, and Southeastern Amerindian North American lineages. Little research has gone into discerning the specific Amerindian contributions to African North American lineages because the historically appropriate genetic reference database is lacking. This paper reviews the historically relevant Amerindian populations for this database and discusses the continuing incongruence between the pervasive cultural consciousness of Amerindian ancestry among African North Americans and the current limited evidence for past genetic admixture.

**Keywords:** Native American ancestry, Black Americans, Gene migration, Interbreeding, Microevolution

### INTRODUCTION

Over the last few centuries, North America has been a major site of inter-continental population admixture [1]. Population groups that were previously geographically separated contributed to this admixture, including Amerindian natives, European immigrants, and enslaved Africans who were brought together in North America. Mating between individuals with different continental origins, has produced descendant individuals who carry DNA ancestry markers inherited from multiple continental regions [2]. This is the American experience. Because of this gene flow over centuries, much variation remains to be discovered in African-admixed populations in the Americas [3,1].

For nearly 16 generations of African North American lineages, cultural genealogies have reported Amerindian ancestry, yet when DNA tests are performed, there is little residual evidence of this heritage. African North Americans are reportedly about 85% African ancestry, 14% European ancestry, and 1% Amerindian ancestry [1]. The Amerindian ancestry is a higher percentage than in European North Americans [1] but much less than would be predicted by African North American oral history. Why does this discrepancy exist between tenacious and robust family lore of significant admixture between Amerindians and African North Americans and weak genetic evidence for these admixture events in contemporary descendants? What might

this disparity reflect? How should it be reconciled? This brief report explores the persistent incongruence between self-reported ancestries and computational reconstructions of genetic ancestries among African North Americans, the possible meanings of the incongruences, and the solutions to finally resolving these seeming inconsistencies.

### AMERINDIAN ANCESTRY IN THE CONSCIOUSNESS OF AFRICAN NORTH AMERICANS

African and Amerindian peoples came together in the Americas. Over centuries of coexistence, African Americans and Amerindians created shared histories, developed communities, integrated families (Black Indians), and co-evolved synthetic life strategies, e.g., in agricultural production techniques and crops, shared call and response music, and in the construction and delivery of stories [4].

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Black Indians produce sustained historical and cultural identities which reinforce the concept of Afro-indigeneity [5] to overcome oppressive conditions while creating a foundation for resilience [6]. Both groups encountered prejudicial laws, bias and institutional racism. This either forced them to work together or to work divisively, against each other. Some Amerindians assisted African North Americans in the struggle against slavery while other Amerindian groups enslaved African North Americans, fought to support slavery, and refused to free captive African North Americans until federally mandated after the US Civil War. The mosaic of interactions between Amerindian and African American peoples over hundreds of years of co-residence in North America reduces the utility of generalized statements, but certain historical interactions with strong genetic consequences have persisted. Amerindians quickly became part of the racial legacy of colonial United States and most gene flow between Amerindians and African North Americans occurred during the 17th and 18th centuries. In most African North American genetic lineages, Amerindian sequences appear to have entered the African American gene pool during this time [7,1]. This is consistent with the genealogical research of [8,5]. Native American ancestry in the modern African descendant population does not coincide with local geography, instead forming a single group with origins in the southeastern US, consistent with the Great Migration of the early 20th century [1].

Colonial-era genetic contact between Amerindians and African North Americans may have also been used by the latter group to obfuscate the consequences of undesired gene flow from European males into the lineages of enslaved African North Americans [9]. This gene flow was the product of the cruel, routine rape of enslaved African North American women by European American males and has left its mark in the African North American gene pool. Past and concurrent Amerindian admixture provided psychological cover for the shame of the European-African products of rape. Furthermore, this temporal concurrence of initial Amerindian gene flow with European admixture was a salient feature of the enslavement of African North Americans and may account for the persistence of the memory of Amerindian admixture that is disproportionate to its current genetic evidence.

#### **LACK OF SIGNIFICANT AMERINDIAN GENETIC MARKERS IN AFRICAN NORTH AMERICANS**

Parra et al. [10] analyzed mtDNA haplogroups in 10 populations of African Americans and found no evidence of a significant maternal Amerindian contribution in any. Ten years later, Yaeger et al. [11] evaluated African North American ancestries in 50 individuals and determined that they were, on average 83% West African, 15% European, and 2% Amerindian, proportions on par with more recently reported studies [1]. Yaeger et al. [11] further observed that

self-reported ancestry predicted ancestral clusters but did not reveal the extent of presumed Amerindian admixture in African North Americans. In a more geographically proscribed sample of African North Americans however, Parra et al. [10] observed a small but higher Amerindian contribution to the South Carolina African North American gene pool, demonstrating that when geographical substructure was taken into consideration, the inconsistency between culturally ascribed Amerindian ancestry in African North Americans and genetically identified ancestry narrowed, but was not completely resolved.

Five years ago, Bryc et al. [12] studied the genetic ancestries of various North American populations and observed that fine-scale differences in ancestry within and across the United States existed and that these data could be used to inform our understanding of the relationship between ethnic identities and genetic ancestry. Mathias et al. [3] in an expansive study of African-descended groups throughout the Americas reaffirmed the importance of integrating fine-scale population structure in the design of admixture research studies. They also noted that the admixture profiles of the descendants of the transatlantic African Diaspora remain largely uncharacterized.

#### **WHO WERE THE AMERINDIANS THAT WOULD HAVE ADMIXED WITH COLONIAL AFRICAN NORTH AMERICANS?**

The Amerindians groups that resided in the geographical regions that came to be inhabited by African North Americans are numerous and have shifted over time as a consequence of European American and US Government territorial infringements, forced relocations, and the genocide of many Amerindian groups. Of these identified groups, those with an historical record of significant social interactions with African North Americans are highlighted below in bold yet the interactions of many of the smaller and less European assimilated Amerindians with African North Americans remain unrecorded and unacknowledged. Colonialism in a settler state has not ended [5]. Another study [1] report that Amerindian ancestry in the modern African descendant population in the US does not coincide with local geography, instead forming a single group with origins in the Southeastern USA, consistent with the Great Northward Migration of African North Americans between 1916 and 1970. It is significant that no current representatives of any of these Amerindian peoples are reflected in the Amerindian public genetic databases used for comparative studies of African-descended individuals in the Americas.

European colonists and enslaved Africans in the Massachusetts Bay area first encountered the Wampanoag, Massachusett, Nipmuck, Pennacook, Penobscot, Passamaquoddy, Shinnecock, and Quinnipiac peoples. The Mohegan, Pequot, Pocumtuc, Tunxis, and Narragansett were based in southern New England. In the mid-Atlantic region, three distinctive Amerindian tribes dominated the territory

now known as Virginia during the late 16th century through the 17th century. These were the Powhatan, the Monacan and Cherokee, Keetoowah or Tsalagi peoples.

In the Old South, during this same time, Maryland African North Americans encountered the Accohannock, Assateague, Piscataway, Nause-Waiwash, and Pocomoke peoples. In North and South Carolina, the Amerindians of the 17<sup>th</sup> and 18<sup>th</sup> centuries were, In colonial North Carolina, Eastern Band Cherokee, Coharie, Lumbee, Haliwa-Saponi, Sappony, Meherrin, Saponi, Waccamaw-Siouan, Chickahominy, Mattaponi, Monacan, Nansemond, Pamunkey, Rappahannock, and Upper Mattaponi Tribe. In colonial South Carolina, the resident Amerindians were the Ashepoo-Ishpow, Bohicket, Catawba, Chickasaw, Cheraw, Cherokee, Chicora, Combahee, Congaree, Coosa, Croatan, Crusabo, Cusso, Edisto, Escamacu, Etiwan, Hook, Keyauwee, Kiawah, Kusso-Hachez, PeeDee, Saint Helena, Saluda, Santee, Sewee, Shakori, Stono, Sugeree, Waccamaw, Wanto, Wappoo, Wassamasaw, Wateree, Waxhaw, Westo, Wimbee, Womuj, Yemassee, and Yechi.

In the New South, four of the five Amerindian nations that enslaved African North Americans lived: In Alabama these included the Cherokee, Chickasaw, Choctaw, and Creek with the Choctaw the largest Amerindian group in this region. In Mississippi, Amerindians that would have encountered African North Americans include the Acolapissa, Biloxi, Capinans, Chakchiuma, Choctaw, Choula, Grigra, Houma, Ibitoupa, Koasati, Koroa, Mochtobi, Natchez, Ofo, Okelousa, Pascagula, Pensacola, Quapaw, Taposa, Tiou, Tunica, and Yazoo. In Louisiana, the relevant Amerindian groups include the Alabama, Coushatta, Choctaw, Chitimacha, Houma, and Tunica-Biloxi. In Arkansas, the Amerindians who may have had contact with African North Americans include the Caddo, Cahinnio, Cherokee, Chickasaw, Choctaw, Kasinampo, and Michigame. In Kentucky, the Amerindians included the Cherokee, Chickasaw, Delaware, Mosopelea, Shawnee, Wyandot, and Yuchi.

In the colonial frontier regions, there were also opportunities for gene flow between African North Americans and Amerindians. There were approximately seven Amerindian indigenous groups in colonial Tennessee: the Muscogee-Creek, Yuchi, Chickasaw, Choctaw, Cherokee, Shawnee, and Seneca. The precise tribal identities of the 16<sup>th</sup> and 17<sup>th</sup> century Amerindian occupants of Tennessee are disputed but due to forced relocations, land appropriations and genocide against local Amerindians, in the 18<sup>th</sup> century, the only Amerindian peoples living permanently in Tennessee were the Cherokee. In Georgia, the largest Amerindian groups were the Creek and the Cherokee but there were nine other prominent groups that would have had contact with African North Americans. These include the Apalachee, Hitchiti, Oconee, Miccosukee, Timucua, Yamasee, Guale, Shawnee and Yuchi Amerindians. In Florida, the resident Amerindian

groups include the Ais, Apalachee, Calusa, Creek, Miccosukee, Seminole, Timucua and Yemassee.

### WEAKNESSES IN THE GENETIC DATABASES OF RELEVANT AMERINDIAN GROUPS

The absence of data from the most relevant Amerindian groups (those from the Northeast, Southeast and Mid-Atlantic regions) is a recurring problem in African North American admixture studies. What research has been conducted on Northeast, Mid-Atlantic, and Southeast Amerindians suggests that sociocultural factors have played a more important role than language or geography in shaping the patterns of Y chromosome variation in eastern North America and that male and female demographic histories differ substantially in this region [13].

Additionally, Amerindian North Americans demonstrate low levels of genetic diversity (compared to Africans, for example), and have gone through at least two major population reductions. The first was associated with the ancestral migrations into the Americas from Asia which may have included contact with an initial founding population from elsewhere [14]. The other population size depressing event was due to contact with European “arrivants” [15], explorers and colonials. The first event is the more important determinant for the number of gene lineages and founding haplotypes seen in the current Amerindian North American populations while the second event (contact with Europeans) resulted in the significantly decreased survivorship and the emergence of semi-independent gene pools [16] among remaining Amerindian peoples. This suggests that contemporary Amerindian North Americans are genetic islands with important intragroup heterogeneity. This makes using any single group of Amerindians representative of the whole, problematic for the reconstructions of Amerindian gene flow into African North American groups. Current Amerindian genetic reference databases often do not even include any Amerindian North American individuals, so comparisons are being made with South American and Central American Amerindians!

### A WAY FORWARD

Until geneticists have a representative database of Amerindian sequences that reflect the actual historic groups with whom African North Americans may have reproductively interacted, we cannot discount the family traditions and lore of Amerindian admixture in African North American lineages. Researchers at NHGRI question advertisements by direct-to consumer genetic ancestry kits that claim to know what it really means to be American Indian [17]. So, even the geneticists cannot adequately characterize the most appropriate Amerindian North American lineages. The genocide and displacement of Amerindian North American groups has been so profound that genetic identity is not social identity [18] and in the case of contemporary Amerindian admixture in African North Americans, social

identity is not genetic identity. It may be that the Amerindian gene flow in African North American lineages is, by now, more cultural than genetic, more historical than contemporary. It exists as a poignant memory of an alternative to the African-European economic and sociopolitical dichotomy in the United States.

Amerindian admixture in African North Americans reflects the historical empathy of shared oppression in the context of a reactionary and divisive European American colonialism. Throughout the centuries, the US Government made consistent attempts to maintain separations between Amerindians and African North Americans. Yet, African-Amerindian alliances were a constant source of inspiration and encouragement for enslaved African North Americans. Displays of African-Amerindian unity reinforced by intermarriage (e.g., during the Seminole Wars in Florida or during the Cherokee invasion of Charles City, VA) provided a respite from the isolation and disempowerment experienced by many African North Americans during 400 years of European conquest and enslavement.

Many Amerindian peoples of the Eastern Woodlands, such as the Narragansett, Pequot, Wampanoag and Shinnecock, as well as people from the nations historically from the Southeast, such as Choctaw, Creek, Cherokee, and Seminole, have a significant degree of African ancestry. An 1835 census of the Cherokee showed that 10% were of African descent [19]. Without including these groups in the reference database, we are not able to accurately ascertain the Amerindian component in African North American ancestries. In 2010, the US Census reported that 269,421 US citizens identified as ethnically African and Amerindian [20]. This is probably the lowest estimation of Amerindian admixture in African North American lineages. Developing an historically relevant representative database is essential in these reconstructions. The sooner this is compiled, the more accurate our measures of Amerindian admixture will be in this population.

## REFERENCES

- Jordan IK, Rishishwar L, Conley AB (2019) Native American admixture recapitulates population specific migration and settlement of the continental United States. *PLOS Genetics*.
- Reich D, Patterson N, Campbell D, Tandon A, Mazieres S, et al. (2012) Reconstructing Native American population history. *Nature* 488: 370-374.
- Mathias RA, Taub MA, Gignoux CR, Fu WQ, Musharoff S, et al. (2016) A continuum of admixture in the Western Hemisphere revealed by the African Diaspora genome. *Nat Commun* 7: 12522.
- Tracy BS (2009) Transcultural Transformation: African American and Native American Relations Ph.D. Dissertation, University of Nebraska at Lincoln.
- Mays KT (2016) Black Indigeneity Part II (Or Back to Back). Guest Posts, Uncategorized by Adrien. Available online at: <https://nativeappropriations.com/2016/01/black-indigeneity-part-ii-or-back-to-back.html> Accessed 30 July 2020
- Guthrie R (2016) Embodying an imagined other through rebellion, resistance and joy: Mardi Gras Indians and Black indigeneity. *Alter Native*.
- Baharian S, Barakatt M, Gignoux CR, Shringarpure S, Errington J, et al. (2016) The Great Migration and African-American Genomic Diversity. *PLoS genetics* 12: e1006059.
- Walton-Raj A (2019) Black Indian Genealogy Research: African-American ancestors among the five civilized tribes: An expanded edition. Accessed on: July 30, 2020.
- Zimmer C (2016) Tales of African-American History Found in DNA. *New York Times*. Accessed on: July 30, 2020.
- Parra EJ, Marcini A, Akey J, Martinson J, Batzer MA, et al. (1998) Estimating African American admixture proportions by use of population-specific alleles. *Am J Hum Genet* 63: 1839-1851.
- Yaeger R, Avila-Bront A, Abdul K, Nolan P C, Grann V R, et al. (2008) Comparing genetic ancestry and self-described race in African Americans born in the United States and in Africa. *Cancer Epidemiol Biomarkers Prev* 17: 1329-1338.
- Bryc K, Durand EY, Macpherson JM, Reich D, Mountain JL, et al. (2014) The genetic ancestry of African Americans, Latinos and European Americans across the United States. *Am J Hum Genet* 96: 37-53.
- Bolnick DA, Bolnick DI, Smith DG (2006) Asymmetric male and female genetic histories among native Americans from Eastern North America. *Mol Biol Evol* 23: 2161-2174.
- Skoglund P, Mallick S, Bortolini M (2015) Genetic evidence for two founding populations of the Americas. *Nature* 525: 104-108.
- Byrd JA (2011) *The Transit of Empire: Indigenous Critiques of Colonialism*. University of Minnesota Press.
- Mulligan CJ, Hunley K, Cole S, Long JC (2004) Population genetics, history, and health patterns In Native Americans. *Ann Rev Genom Human Genet* 5: 295-315.
- Carey TL (2019) DNA tests stand on shaky ground to define Native American identity. *NHGI News*. Accessed on: September 15, 2020.

18. Ealajahi H, Wilson DR, Hull SC (2019) Constructing identities: The implications of DTC ancestry testing for tribal communities. *Genet Med* 21: 1744-1750.
19. Katz WL (2012) *Black Indians: A hidden heritage*. Simon and Schuster.
20. Census Bureau (2010) Two or more races population by number of races and selected combinations for the United States. Census 2010 Quicktables US Census Bureau, Archived from the original (PDF) on 30 July 2020.