

# **"A Banana, a Chicken, and a Gun Wander into a Continent...":**

## **A Reanalysis of Nordenskiöld's 1922 Data on South American Loanwords and Wanderwörter**

by

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## **Abstract**

In 1922 Swedish archeologist Erland Nordenskiöld published his seminal work in linguistic anthropology titled "Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America". In this book Nordenskiöld collected and mapped hundreds of Indigenous words for items brought over to South America by Europeans. In this Research Master's thesis, I have digitized and analyzed the datasets relating to three cultural items collected in Nordenskiöld's book: bananas, chickens, and firearms. The data used for this research was complemented with more novel data to update transcriptions and language names to discern plausible word dispersal. Taking insights from anthropology, this thesis also complements the data by seeking out and analyzing ethnographies for relevant information concerning the various Amazonian communities mentioned in Nordenskiöld's datasets. The results of this thesis yielded updated scans of Nordenskiöld's maps and tables, and a database with updated referents from Nordenskiöld's dataset. Based on the results, I identify new pseudo-cognate groups and calque clusters not elaborated upon by Nordenskiöld and discuss how the different patterns of cultural item dispersal reflect different periods in the Amazon from the beginning of colonization by Europeans, to the subsequent expansion of non-Indigenous settlers.

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## Abbreviations and Symbols

-	Morpheme-boundary
=	Clitic-boundary
*	Reconstructed form
%	Approximate Reconstruction of word form
>	Results in...
<	Is the result of...
<...>	Orthographical transcription
[...]	Phonetic transcription
/.../	Phonemic transcription
CI	Cultural Item
AB	Amazonian Basin
NAB	Northern Amazonian Basin
ATN	Arawakan Trade Network

## Chapter 1. Introduction

When one culture encounters another, items, ideas, and technologies are traded. With these exchanges come new words, leaving traces of language contact. The significance of contact between communities in addition to language spread is a key component of Wave theory, which led to the slogan *Chaque mot a son histoire*, "Each word has its own history" (Campbell, 2013, p. 188). This line of thought was popular in the beginning of the twentieth century, leading researchers to focus on the different forms words take, and why such differences arise. Paired with the cultural-historic approach of the time, these ideals led researchers to investigate how words travel with culturally important items as a means of identifying hidden histories.

In 1922 Swedish archeologist Erland Nordenskiöld published a seminal work in linguistic anthropology titled, "Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America". In this work, Nordenskiöld collected and mapped hundreds of Indigenous words for what he called "cultural elements", or "cultural objects" brought into South America by Europeans. Some of these cultural items Nordenskiöld considered to be completely new, such as chickens, bananas, firearms, horses, cattle, and iron. Other items, like needles, fishhooks, and scissors, were categorized as "partly new", in that they may have existed in some form prior to contact, but not in the same way as the items introduced by Europeans. Nordenskiöld plotted out these words onto maps of the respective linguistic communities and created hypotheses for potential Indigenous trade routes based on word form, potential calques, and his knowledge of South American history.

Nordenskiöld's study is regarded as one of the first works to map out cultural items in South America (Epps & Michael, 2017; Eriksen, 2011). However, at the time of writing this thesis, Nordenskiöld's 1922 work has not been revisited or reassessed. To this day, the histories of the Amazon remain largely understudied and unknown (for more see, Crevels, 2012; Muysken, 2012). Further, many Amazonian communities have since been erased (Campbell & Muntzel, 1989; Crevels, 2012; Harrison, 2011) or merged (Muysken, 2012), leading to an even more obscure depiction of population movements and Indigenous histories. In fact, many of the languages collected in Nordenskiöld's book are now extinct, dormant or are severely endangered, with the words from this collection serving as some of

the last remnants of these languages (Eberhard et al., 2022; Hammarström et al., 2022).<sup>1</sup> However, as stated above, these words used for traded items like crops and technologies can reveal contact histories between groups (Montenegro et al., 2008; Shepard & Ramirez, 2011). Therefore, by analyzing the word form for specific items and how they are borrowed by different communities, historical contact patterns can be revealed (Bower et al., 2014; Haynie et al., 2014).

Documents like Nordenskiöld's "Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America" provide a time capsule of the words used by these communities at a post-colonial time before the hyper globalization of knowledge which we see today. Due to the age of Nordenskiöld's work, a most beneficial framework is to treat the work as a legacy material; that is, an oftentimes unpublished document containing data from a researcher's work. Despite being a published work, Nordenskiöld's data does not follow consistent archival style nor a documentation style (e.g., orthography and transcription), making it sometimes hard to decipher. Therefore the methodology necessary to make Nordenskiöld's data workable aligns this thesis with previous digitizing and unarchiving works (for further examples see, Darnell et al., 2021; Nathan, 2012; Spence, 2018). But first, there is a need for reinterpretation of the data by deciphering the phonemic transcriptions and filling knowledge gaps such as identifying listed communities.<sup>2</sup>

To achieve this goal, Nordenskiöld's data was digitized and reanalyzed with the aid of more novel publications in the fields of linguistics and anthropology. Of course, the reach of Nordenskiöld's work is vast and beyond the scope of this Research Master's thesis. In this regard, this thesis serves as a pilot study for future research that encompasses an interdisciplinary approach to South American history. To narrow down the scope of this thesis, three cultural items (CIs) are analyzed in regard to one of Nordenskiöld's many hypotheses. These CIs are the words for *chickens*, *bananas*, and *firearms* as they are the largest datasets and provide a particular salience in the lives of Indigenous South American

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<sup>1</sup> There is much discourse on the appropriateness of the death metaphor for languages. Based on personal experience in Indigenous circles I avoid this type of comparison, but here I believe the word extinct to be most appropriate as it refers to languages that have disappeared along with their respective cultures and populations. The term dormant refers to languages that have been documented, but the ethnic community has no more fluent speakers. In my experience, this is the preferred term as many communities want to learn their ancestral tongues.

<sup>2</sup> Nordenskiöld refers to many communities in his book, however, not all catalogued names are in contemporary use. In this thesis I identify which contemporary communities align with the Nordenskiöld's data, for more see Chapter 4.



communities. That is to say, all are items that are prevalent in the history of European expansion as they relate to sustenance and commercial activity. Nordenskiöld hypothesized that these CIs were able travel across South America through the Arawakan trade due to their significance and novelty. The Arawakan language family is the biggest family in South America in both language numbers and in spread, spanning throughout the continent and into Central America (Aikhenvald, 1999; Eriksen & Danielsen, 2014; Santos-Granero, 2002). Furthermore, Arawakan trade has played a large role in connecting the continent, and spreading language features across language families, making their trade a plausible candidate for word dispersal. By focusing on this hypothesis and the digitization methodology, this thesis focuses on the following guiding questions:

- What does the historical scenario depicted in Nordenskiöld's work tell us about the spread of CIs in South America?
  - To what extent can Nordenskiöld's Arawak hypothesis on the spread of CIs be confirmed?

To answer these questions this thesis is structured as follows: Chapter 2 defines the terminology used in this paper and introduces the necessary background information about South America's landscape, peoples, and the prevalence of the Arawakan trade network. Chapter 3 provides the historical context of Nordenskiöld's book and the analyzed cultural items. Chapter 4 presents the methodology for digitizing and analyzing Nordenskiöld's work. Chapter 5 presents the results of the work along with plausible connections based on anthropological data. Chapter 6 discusses the data presented in Chapter 5 and a conclusion is given in Chapter 7.

## Chapter 2. Terminology and Background

## 2.0 Introduction

This chapter presents the terminology used throughout and the relevant theoretical background necessary to meet the aims of this thesis. The chapter is organized as follows: Section (2.1) introduces the process of language evolution and how languages change. Section (2.2) discusses the nature of *loanwords* and *calques*, and how languages acquire lexical terminology through cultural exchange. Section (2.3) discusses how words diffuse across languages and how they adapt after borrowing. Section (2.4) defines *Wanderwörter* and discusses how these are different from other types of borrowing. Section (2.5) discusses the history of the Amazon and the peoples who inhabit it, while section (2.6) discusses the Arawakan family and the significance of the Arawakan Trade Network. Finally, section (2.7) concludes this chapter.

## 2.1 Historical Language Development

Languages, as a system of human culture, are continuously evolving as people and communities interact and change. However, these changes are not all linear as languages can go through periods of heavy change, or little change. Historical linguistics studies these progresses and the ways in which languages develop, evolve, and split. Languages can change in one of two ways: through internal developments or through external language contacts. Internal developments refer to phonological, morphological and syntactic changes that over time lead to stable and fixed changes (Campbell, 2013). For example, in Brazilian Portuguese the pronoun *você* evolved from an honorific title *Vossa Mercê* ‘your mercy’ towards a generalized third person singular pronoun, as exemplified in (1).

- (1) vossa mercê > vossamecê > vosmicê > você (> ocê, cê (regional))  
(Zilles, 2005, p. 27)

Externally induced language change comes from language contact; where different cultures meet, trade, and incorporate new elements into their own respective languages and/or cultures. Any linguistic material can be borrowed from one language to another: sounds, phonological rules, grammatical morphemes, syntactic patterns, semantic associations, and discourse strategies (Campbell & Mixco, 2007). For the purposes of this thesis, the focus is on the word level.

## 2.2 Novel Lexical Item Strategies

New lexical items (words) enter languages because of need, such as when a new item or technology is introduced into a community, requiring new terminology either through borrowing or coining of new words. The following section goes over the different strategies available to speakers in these situations, as well as some different scenarios which might lead to borrowing. These strategies are important to distinguish as they provide the necessary terminology for identifying plausible loanword sources.

Further, it is essential to recognize that not all words with a shared origins are cognates. A cognate set is a pair of related words across related languages that have been derived from the same proto-word (or etymon). An example in the Romance family is the Italian *cane* /kane/, Portuguese *cão* /kãũ /, French *chien* /ʃjɛ̃/ ‘dog’, which all descend from the same proto-word, *canis* ‘dog’ (Campbell & Mixco, 2007, pp. 33–34). When a pair of related words exists across *unrelated* languages (i.e., derived from the same etymon but transferred through borrowing rather than inheritance), they are not considered to be cognates in the same sense. Therefore, from henceforth I address these lexical items, which are derived from the same etymon, as *pseudo-cognates*.

As such, the sources consolidated in this section come from historical linguistics textbooks (Campbell, 2013; Campbell & Mixco, 2007; Hock & Joseph, 2019; Roberge, 2010), documentation and corpus building sources (First Voices, 2016; Hillis, 2019; Online Cree Dictionary, 2022; Sapir, 1936; Wall & Morgan, 1958), and linguistic typology articles (Bowern et al., 2014; De Vaan, 2008; Haynie et al., 2014).

### 2.2.1 Loanwords

Loanwords can be defined as foreign lexemes which have been borrowed by speakers into their languages. Normally this involves a process in which speakers from language A (the *recipient* language) incorporate and adapt a word from language B (the *donor* language). This can occur for a number of reasons but, as mentioned previously, speakers import loanwords when there is need (Campbell, 2013, p. 58), such as when a new item, concept, or technology is acquired from abroad. In this scenario, foreign names are often acquired along with the new concept such as the word ‘automobile’ which was adopted into several different languages (for example *avtomobilj* in Russian, *auto* in Finnish, and *bil* in Swedish) (Campbell, 2013, p. 58).

Prestige can also play a role in the acquisition of loanwords. Humans are social creatures. Politics, economics, and culture play a role in how speakers choose lexical items

for their own languages. For instance, one famous example is seen in the English words for the varieties of meat, borrowed from French. Although English has words for pig, cow, and sheep as farmed animals, the name for the meat products derived from these animals come from the French words *porc* (pork), *boeuf* (beef), and *mouton* (mutton). This happened because of French's elevated social status and prestige in England during the Norman dominance from 1060–1300, and because of a distinction in which communities were farming the animals and which were eating the products (Campbell, 2013, p. 58).

Additionally, some loanwords acquire a special status when they are borrowed by multiple languages across a large geographical space — this is discussed below in section (2.4).

### 2.2.2 Calques

Calques are a particular type of loan where a recipient language imports the meaning of a word but not the form. Another name for calques is *loan translation* which encapsulates the type of borrowing; the direct meaning without the form. For example, in English the term "black market" comes from the German *Schwarzmarkt* (Campbell, 2013, p. 71). These types of borrowing are quite common and can be seen in (3).

- (3) a) The word for 'railway' ('railroad'), in a number of languages, is a calque based on a translation of 'iron' + 'road/way': Finnish *rautatie* (rauta 'iron' + tie 'road'); French *chemin de fer* (literally 'road of iron'); German *Eisenbahn* (Eisen 'iron' + Bahn 'path, road'); Spanish *ferrocarril* (ferro- 'iron' in compound words + carril 'lane, way'); and Swedish *järnväg* (järn 'iron' + väg 'road').

- b) Several languages have calques based on English 'skyscraper,' such as: German *Wolkenkratzer* (Wolken 'clouds' + kratzer 'scratcher, scraper'); French *gratte-ciel* (gratte 'grate, scrape' + ciel 'sky'); and Spanish *rascacielos* (rasca 'scratch, scrape' + cielos 'skies, heavens')

(Campbell, 2013, p. 71).

These types of semantic borrowings allow for speakers to create a new word while not blurring the lines between languages. This strategy is a common social requirement to maintain distinctions between languages in South American contact regions (for more see section (2.5)).

### 2.2.3 Semantic Changes

Semantic change can occur within a language when a word's meaning changes. Notable examples would be processes like metaphors where the meaning changes due to some sort of semantic similarity or extension. For example, the Latin word *folia* 'leaves' > Spanish *hoja* 'leaf' and by metaphor 'sheet of paper', and French *feuille* 'leaf, sheet of paper' (Campbell & Mixco, 2007, p. 122). Another example is seen in the Spanish word *pensar* 'to think', which came from the Latin *pensāre* 'to weigh' through semantic bridging (i.e. to weigh something mentally) (Campbell & Mixco, 2007, p. 122).

This process is also applicable for how languages choose to import words from a donor language. Whether through metaphor or another form of semantic change, speakers may choose to name an object in relation to some familiar concept, for example a plant or leaf that resembles a new plant.

Narrowing and widening are also common forms of semantic change. As the names suggest, narrowing refers to when a word becomes more specialized and restricted in the contexts it can be used. Such an example includes the word 'meat', which originally meant food in general, but was later narrowed down to mean 'food of the flesh' (Campbell & Mixco, 2007, p. 133). Widening refers to words that have become more generalized to include a wider set of referents. One such example is the word 'dog' which in Modern English refers to any domestic canine, while in Middle English, it referred to a specific breed, *dogge*.<sup>3</sup> Similarly, speakers can extend the meaning of a pre-existing word to include a new item/referent (a process known as semantic extension) or take a generic pre-existing word and narrow down its meaning to fit a new word (also known as semantic narrowing). For example, in Adnyamathanha (spoken in the Flinders Ranges, Australia), the word for bicycle is *mikawiri*, which literally translates to 'bat wing'. The reasoning for this comes from the resemblance of a stretched bat wing's thin bones to the spokes of a bicycle (Hillis, 2019; Mobile Language Team, 2018). The semantic bridge between the two concepts is what allows for the creation of a new word.

### 2.2.4 Lexical innovation

Coining is another way to describe lexical innovation. If speakers of a language choose to create a new word they can do so through the processes of semantic extension of already existing vocabulary like toponyms, acronyms, or personal names (Campbell & Mixco, 2007, p. 138).

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<sup>3</sup> It is unknown which breed was originally referred to as *dogge*.

Moreover, the creation of new words based on combining multiple lexical stems (a.k.a. compounding) is another way to innovate lexical items within a language. Compounding entails the process of joining multiple words together to create a new word. For example, many Athabaskan and Algonquian languages used this process when naming horses: *łįchok* (Dene Sų́líné), *mistatim* (Plains Cree) which literally translates to ‘big dog’ in both languages (First Voices, 2016; Online Cree Dictionary, 2022). In this way speakers can localize a new concept or item into more familiar referents.

One last technique for coinage is to name items on the basis of sound iconicity, that is, a non-arbitrary connection between the form of a word and its referent (sometimes called onomatopoeia). For example, words like *splash* for moving water or the sound made by roosters (*quiquiriqui*, Spanish; *cocoricó*, Portugues; *tuturuwi*, Shawi). Bird names are a particular contender for sound-imitative names, which are sometimes similar cross-linguistically due to distinctive bird cries (Haynie et al., 2014, p. 17).

## 2.3 Word Dispersal, Adaptation and Change

Loanword diffusion is the spread of words across peoples and geographic locations. Along with this spread comes gradual sound changes from one language to another as the lexical item makes its way across different lexicons.<sup>4</sup> In the case of what gets borrowed, one contender is so-called cultural items. Cultural items (CI) have been defined in the literature as "likely candidates for words that have a wide range" (Haynie et al., 2014, p. 10). However, Haynie et al. (2014) state that cultural salience, etymological stability, and novelty must be considered when linking cultural significance (and CI) to the likelihood of widespread diffusion. With that being said, the introduction of new and culturally important items creates a likely scenario for the spread of a word, which is of particular relevance for this thesis. For example, the etymology of the word ‘coffee’ coincides with the drink's spread from North Africa to Turkey, Italy, and then the rest of Europe (De Vaan, 2008).

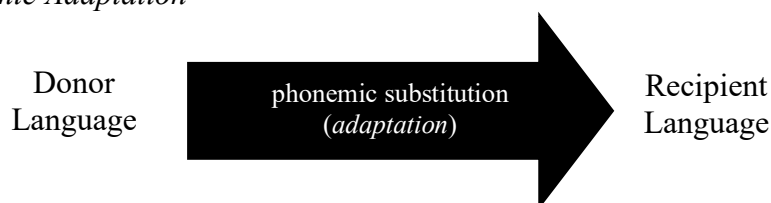
Furthermore, when a word is imported into a recipient language from the donor language, it is usually through bilingual speakers. These loanwords may contain sounds which are foreign to the recipient language, and due to phonetic interference the sounds are changed to conform to native sounds and phonetic constraints (Campbell, 2013, p. 59). This process is called phonemic adaptation or rephonologization and entails the replacements of the nearest phonetic equivalent into the receiving language (depicted in Figure 2.3.1 below).

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<sup>4</sup> This is not to be confused with the term lexical diffusion, which entails phonological changes across a language's lexicon.

**Figure 2.3.1**

*Phonemic Adaptation*



For example, if a language does not permit voiced stops (/b/,/d/,/g/), but has their voiced counterparts, then speakers may substitute the voiced stops for what is perceived as their closest counterpart, in this case voiceless stops. This is the case in Finnish when it borrowed words from Germanic languages like *parta* ‘beard’ (from Germanic \*bardaz) and *humpuuki* ‘humbug’ (from English ‘humbug’) (Campbell, 2013, p. 59).

Non-native phonological patterns are also subject to accommodation where loanwords do not conform to a recipient language's phonological pattern (Campbell, 2013, p. 59). Speakers modify foreign words to fit the phonological combinations of their languages, such as by breaking apart consonant clusters or adding vowels to meet syllabic requirements. For example, Mayan languages do not permit consonant clusters and, as a consequence, either drop a phoneme like in *rus* ‘cross’ (Chol, from Spanish *cruz*) , or break up the consonant cluster as in *kuruz* ‘cross’ (Tzotzil, also from Spanish *cruz*) (Campbell, 2013, p. 59). Another example is the Hawaiian phrase for ‘Merry Christmas’, *meli kalikimaka*, where Hawaiian replaces /ɪ/ with /i/, and /s/ with /k/, while adding vowels to break-up consonant clusters and fulfil Hawaiian's CVCV syllabic structure. The adaptation process is visualized in (5) below.

(5) <merry christmas> /mɜ.ɪ kɹɪsməs/ > /mɜli kalikimaka/ <mele kalikimaka>

While there are typical patterns of substitution for foreign words, as speakers become more familiarized with a foreign language, foreign sounds also get imported with newer words. This makes it so that a language's phonemic substitutions of borrowed words are not always uniform. Older loans may reflect sound substitutions before sustained contact, while more recent borrowings may exhibit the "newer segments or patterns acquired after more intensive contact" (Campbell, 2013, p. 60).

Of course, imported loanwords are subject to change over time after borrowing, as speakers continue to use the new word. However, words can change in processes other than phonological shift. Another common process is known as *clipping*, where the speakers compress or shorten a word such as in English *lab* < *laboratory*, *gym* < *gymnasium*, and *flu* < *influenza* (Campbell & Mixco, 2007, p. 32). Moreover, the introduction of a loanword can

cause lexical change, or lexical replacement, where one lexical item is replaced by another. To return to the example of ‘horse’ (i.e. *łichok*, ‘big horse’) from Dene languages (big dog, in Navajo (Diné) the word for horse is now simply *łłł*, whereas the word for ‘dog’ changed to *łéechq’i*, which literally translates to ‘poop pet’ (*łéé* ‘pet’ + *chq’* ‘excrement’) (Wall & Morgan, 1958). This change is in large part due to the cultural adaptation of horses into Diné society (Sapir, 1936, p. 227), but this can be generalized to other languages. Therefore, sometimes loaned items can outright replace the original referent for a word and take over its meaning.

## 2.4 Wanderwörter

*Wanderwörter* (singular *Wanderwort*) are a specific type of loanword that come from the German philology school of thought, meaning ‘wandering words’. As mentioned above in section (2.2), *Wanderwörter* are like a special type of borrowing that have a broad diffusion across languages and geographical distribution. The criteria for characterizing *Wanderwörter* have varied, and this section goes over different conceptualizations from Campbell and Mixco (2007), Hock and Joseph (2019), Roberge (2010), and Haynie et al. (2014).

Campbell and Mixco (2007) define *Wanderwörter* as borrowed lexical items diffused across numerous languages (usually to a wide geographical distribution), in which the "origins [are] impossible to determine" (p. 220). This definition is derived from older words such as the word for *pot* in different Eurasian languages. However, the notion of unidentifiable origins has been debated, as it would discount *Wanderwörter* such as those in (2) which have a traceable origin (Haynie et al., 2014; Hock & Joseph, 2019).

- (2) a) catsup, ketchup < likely originally from the Amoy dialect of Chinese *kôe-chiap*, *kè-tsiap* ‘brine of pickled fish or shellfish’, borrowed into Malay as *kēchap*, taken by Dutch as *ketjap*, the probable source from which English acquired the term.
- b) chocolate < Nahuatl (Mexico, the language of the Aztecs) *čokolātl* ‘a drink made from the seeds of the cacao tree,’ borrowed as Spanish *chocolate* from which other languages obtained the term.
- c) coffee < Arabic *qahwa* ‘coffee, wine,’ from an earlier meaning connected with ‘dark’

(Campbell, 2013, p. 57)



Hock and Joseph (2019) describe *Wanderwörter* as *migrating words* that "spread over vast territories through a chain of borrowings" (p. 224). This definition is in line with Campbell & Mixco (2007), but adds the notion of a chain, implying a directionality away from the origins of the word. In this way Hock and Joseph (2019) distinguish *Wanderwörter* from other loanwords, as typical borrowings involve single pairs of languages.

Roberge (2010) classifies *Wanderwörter* as a special category of borrowing that spreads across languages by virtue of their connection to foreign trade of technology and cultural practices. Unlike past definitions, Roberge (2010) focuses on the means by which *Wanderwörter* spread, and the reasons (culture, trade, politics etc.) rather than the frequency of borrowing or areal associations.

Haynie et al. (2014) elaborate on the previous characterizations of *Wanderwörter* in their comparative study of *Wanderwörter* across languages in the Americas and Australia. As such, they define *Wanderwörter* as a subset of loanwords which are borrowed more frequently than typical lexical items through areal chain-like networks. They also note that diffusion is made possible by the spread of cultural items, customs, or ideas, suggesting a link between *Wanderwörter* and cultural diffusion as opposed to a more traditional definition of "loan frequency, areality, and source untraceability" (Haynie et al., 2014, p. 17).

Furthermore, in their analysis they identify three different borrowing chains: long chain networks, star and chain networks, and the supernova pattern. These are each presented below.

#### 2.4.1 Long Chain Networks

The first pattern is long chain networks in which a word is borrowed into a language and then subsequently loaned onto another language. The long chain is a characteristically classical depiction of *Wanderwörter*, as described by Campbell & Mixco (2007). Haynie et al. (2014) describe this chain as in (6) and provide the example of the coca etymon %hipa from South America in (7).

(6)  $A \rightarrow B \rightarrow C \rightarrow D$

(7) coca: %hipa

Boran (Bora *úpií*, Muinane *xíbi-po*) <- -> Witoto (Ocaina *hiibiro*, Witoto *hibi ε*) >  
 Andoke (*hi?pie*), Yagua (*xapatij*), W. Tukanoan (Koreguaje *xipie*), N. Arawak  
 (Resigaró *hiib?é*); N. Arawak (Yucuna *ipatu*, Kabiari *patu*, Tariana *hipatu*,  
 Baniwa *hiipáto*, Kabiari *pátú*) > E. Tukanoan (e.g. Tukano, Waikhana *pátu*),

Carib (Carijona *iihatu*), Nheengatú (*ipadu*) > Nadahup (Dâw *tuʔ*, Nadëb *batoʔ*)  
(Haynie et al., 2014, p. 10)

#### 2.4.2 *Star and Chain Networks*

The star and chain network involve the loaning of an etymon to several languages or all of its neighboring languages. Haynie et al. (2014) describe this as being one of the most common chain styles seen across languages, especially in North America. The name comes from the radial, or star shaped, formation found when analyzing languages as in (8), where language A loans an etymon to languages B, C, and D. Haynie et al. (2014) cite the example of %haju in (9) for ‘dog’ from Proto-Miwokan to all the surrounding languages.

(8)  $A \rightarrow B, C, D$

(9) %haju ‘dog’:

Miwokan \**háju* (Lake Miwok *háju*; Bodega Miwok *hajúu\$*a, Southern Sierra Miwok (Yosemite dialect) *haju*) > (Kashaya Pomo *háju*, Patwin *háju*, Yokutsan \**khay’iw* ‘coyote’, Wappo *háju*) > Huchnom *haNwíce* (source for Huchnom unclear)

(Haynie et al., 2014, p. 7)

#### 2.4.3 *Supernova Patterns*

The supernova pattern accounts for the spread of multiple independent borrowings from related but discontinuous languages (languages that are not in direct contact) (Haynie et al., 2014). As visualized in (10), languages A, C, and E are related but are not geographically close or in direct contact with one another. This type of spread could be the result of long chains that have folded back on themselves or star patterns which have spread to all subsequent languages. Haynie et al. (2014) note that this form of spread could happen in wave-like patterns where every language in a region rapidly adopts a word. This pattern has probably occurred in the Amazon with groups like the Arawakans and Tupi-Guarani who are "widely discontinuous in the Amazon basin but are influential through their large scale trading networks" (Haynie et al., 2014, p. 7).

(10)  $A \rightarrow B, C \rightarrow D, E \rightarrow F$

Haynie et al.'s (2014) definition is the most appropriate for this thesis as it takes into account cultural intricacies and incorporates the significance of the CIs as a driver for their spread. By acknowledging the cultural intricacies involved in the spread of *Wanderwörter*, this definition is most appropriate for a study of words which represent CIs. Further, the insight of different borrowing chains is useful for analysis of Nordenskiöld's South American data, given the South American linguistic landscape. South America, and more specifically the Amazonian Basin, contains diverse and interconnected cultures and languages: the next section introduces this landscape along with the topic of this thesis, the Arawakans.

## **2.5 South America, Language Contact, and Trade**

This section tackles the necessary historical background surrounding South America, the Amazon, and the prominence of the Arawakan family and trade.

### **2.5.1 South America and the Amazon**

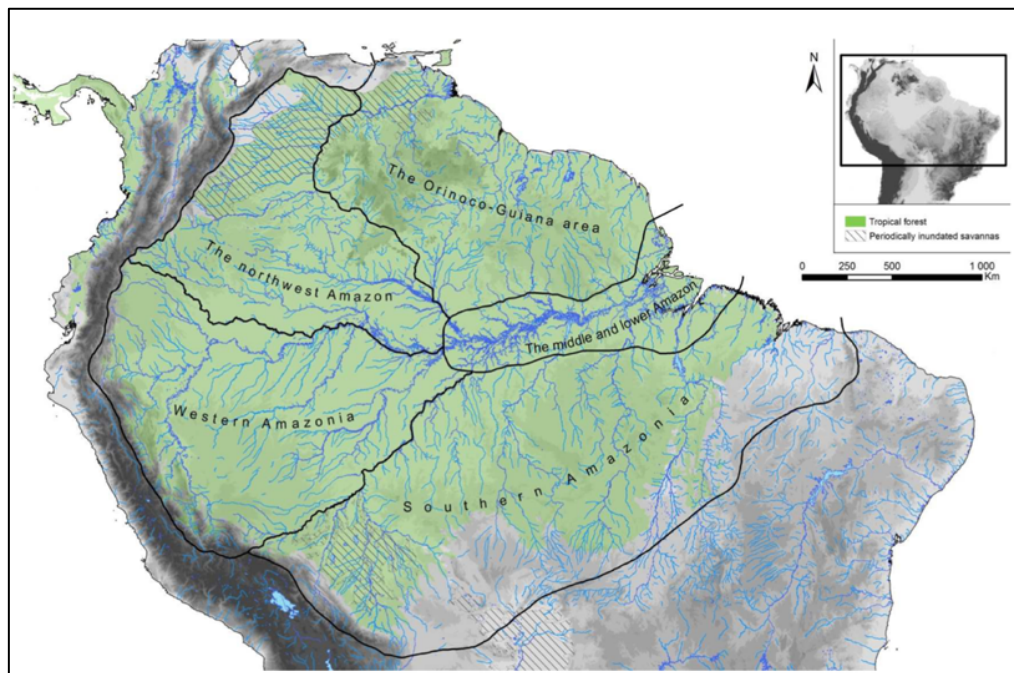
South America is a notable continent for its linguistic diversity, estimated to contain around a quarter of the world's language families (Campbell, 2012; Epps & Michael, 2017). Prior to contact with Europeans, there were an estimated 1500 languages spoken in the continent (Campbell, 2012; Loukotka, 1968), with even greater linguistic diversity than today (Moore, 2007). However, now there are around 420 Indigenous languages spoken in South America with some 108 language families, and 55 isolates (Muysken & O'Connor, 2014). Within South America is the Amazon Basin (AB) which covers ~40% of the whole continent, reaching into the borders of Brazil, Bolivia, Colombia, Ecuador, Peru, Venezuela, Suriname, Guyana, and French Guiana. Geographically, the Amazonian Basin is defined loosely as the lowland regions drained by the Amazon and Orinoco Rivers, which span to the northern and eastern littorals of the continent, and borders the Andean mountains to the west and the Gran Chaco to the south (Aikhenvald, 2012; Epps & Michael, 2017; Rodrigues, 2000).<sup>5</sup> Figure 2.5.1.1 illustrates a general overview of the Amazon Basin as defined in Eriksen (2011).

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<sup>5</sup> Amazonia, the Amazon, or the Amazonian Rainforest are all synonyms for the rain-forested area within the Amazonian Basin. The Amazon Basin refers to the areas in which the Orinoco and Amazon Rivers drain. Although the Amazonian Rainforest makes up the majority of the Amazonian Basin, it is not synonymous with the Amazonian Basin as it does not include the savannah extremities.

**Figure 2.5.1.1**

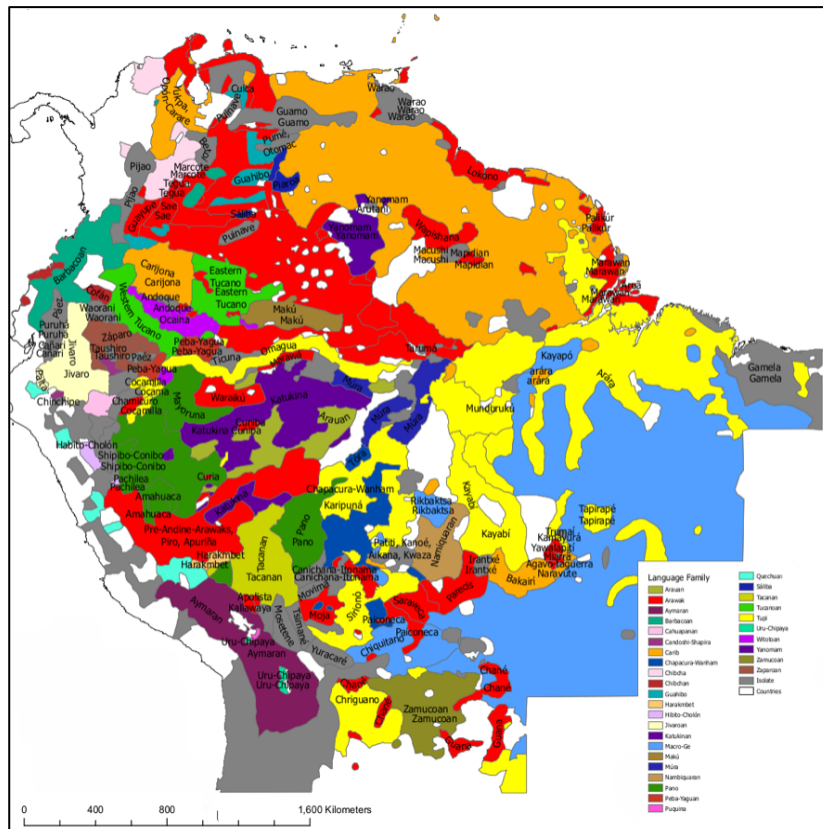
*Map of Amazonian Basin*



*Note.* Map retrieved from Eriksen (2011).

**Figure 2.5.1.2**

*Eriksen's Ethno-linguistic Map*

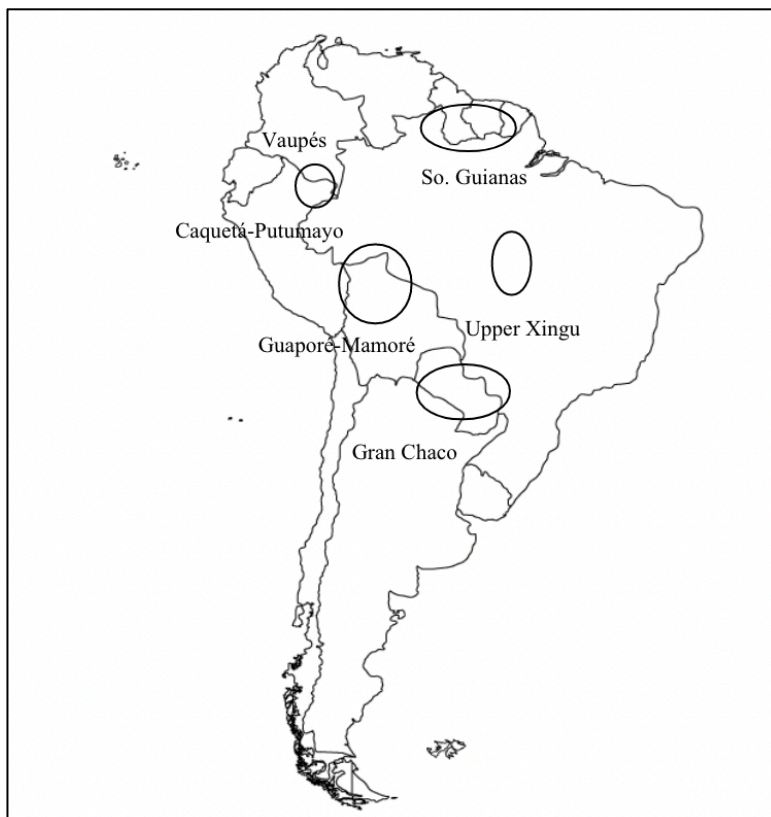


*Note.* Map digitized and consolidated by the SAPHIRE team in Leiden University.

From the time of European contact, the AB has seen great change. Prior to colonization, the AB is estimated to have supported large societies ranging from 4,000,000 to 5,000,000 people, whereas mid-twentieth-century estimates suggest that 200,000 Indigenous people lived in the region (Aikhenvald, 2012). It is estimated that the AB is currently home to 240–300 languages with linguistic areas (see Figure 2.5.1.2) featuring high levels of language contact and multilingualism (Aikhenvald, 2012; Campbell et al., 2020; Crevels, 2012). These linguistic areas of high contact are the Vaupés region, Caquetá-Putumayo region, the Guaporé-Mamoré region, and the Upper Xingu region (illustrated in Figure 2.5.1.3) (Epps & Michael, 2017). These language areas are often characterized by low levels of lexical borrowing but high levels of calquing and grammatical convergence (Campbell et al., 2020; Epps & Michael, 2017). This aversion to borrowing is viewed by Epps and Michael (2017) as a conscious decision by speakers to not mix their languages, as speakers are more aware of the lexical form level.

**Figure 2.5.1.3**

*South American Contact Regions*



*Note.* Map retrieved from Epps & Michael (2017, p. 4)

Despite the resistance to loanwords, many *Wanderwörter* have been identified in the AB languages. Bower et al. (2014) and Haynie et al. (2014) identify several *Wanderwörter* (see (11)) that indicate a wide spread of terms associated with important animals, plants, and food items in the Northern AB. As mentioned above, the aversion to borrowings is viewed as a conscious effort to avoid language mixing. However, the *Wanderwörter* identified in the AB all involve culturally important items within the socio-political lives of speakers. Therefore, it is proposed that if a lexical item is borrowed, it likely travelled a long distance and lost any association to a particular language (and subsequently a cultural identity), making the lexical item "fair game" (Epps & Michael, 2017, p. 6; Muysken, 2012, p. 252).

(11). Widespread terms for ‘spider monkey’ (originally from Arawakan?)

‘iguana’ (ultimately from Cariban?),

‘gourd dipper’ and ‘beans’ (Tupí-Guaraní originally),

‘coca’ (originated in Boran or Witotoan),

‘maize’ (with 2 etyma originally from Quechua and Arawakan)

and ‘signal drum’ (with connections to ‘canoe’, ‘bench’, ‘laurel tree’, and

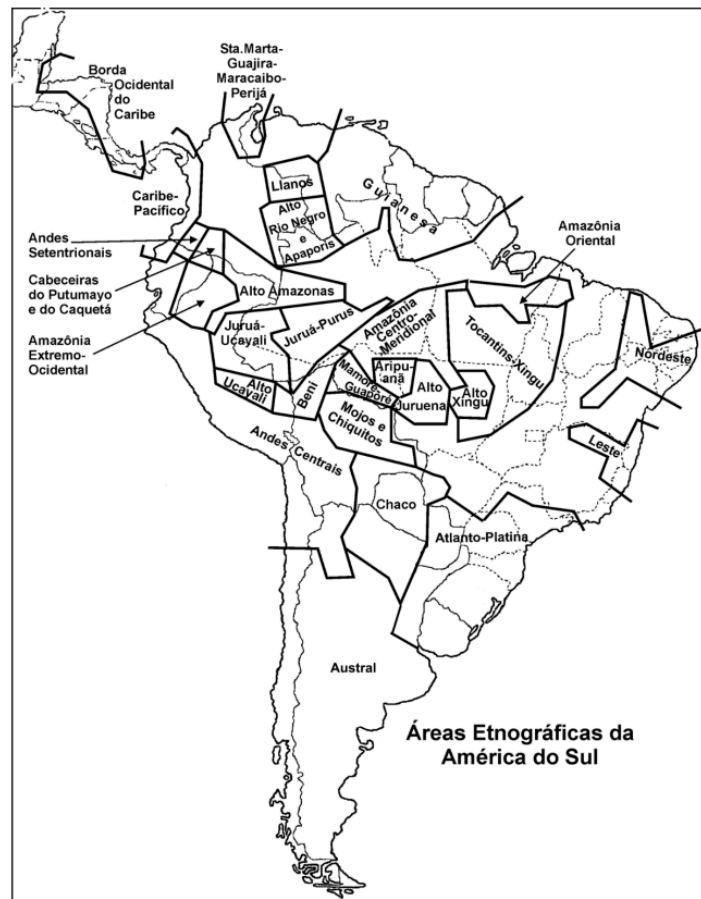
‘shaman/curer’, though an origin is not pinpointed).

(Haynie et al., 2014, p. 11)

The ethnographic landscape of the AB follows the complexity of the linguistics landscape. Although many communities can be grouped on the basis of their linguistic family, there are many ethnographic factors that are missed by the simplification over linguistic similarities (see *Glossary of Power* in the Chapter 4 section, *Community Alignment*). Melatti (1997) addresses these issues in his works on South American ethnographic areas by grouping communities on the basis of their shared cultural history, environment, relations with neighboring communities (both Indigenous and non-Indigenous), and combined history at the hand of state governments. The inclusion of these factors allows for a better depiction of the current ethno-linguistic landscape by taking into account these communities' complex and interconnected histories. Melatti's (1997) ethnographic areas of South America are depicted below in Figure 2.5.1.4.

**Figure 2.5.1.4**

*Melatti's Ethnographic Areas of South America*



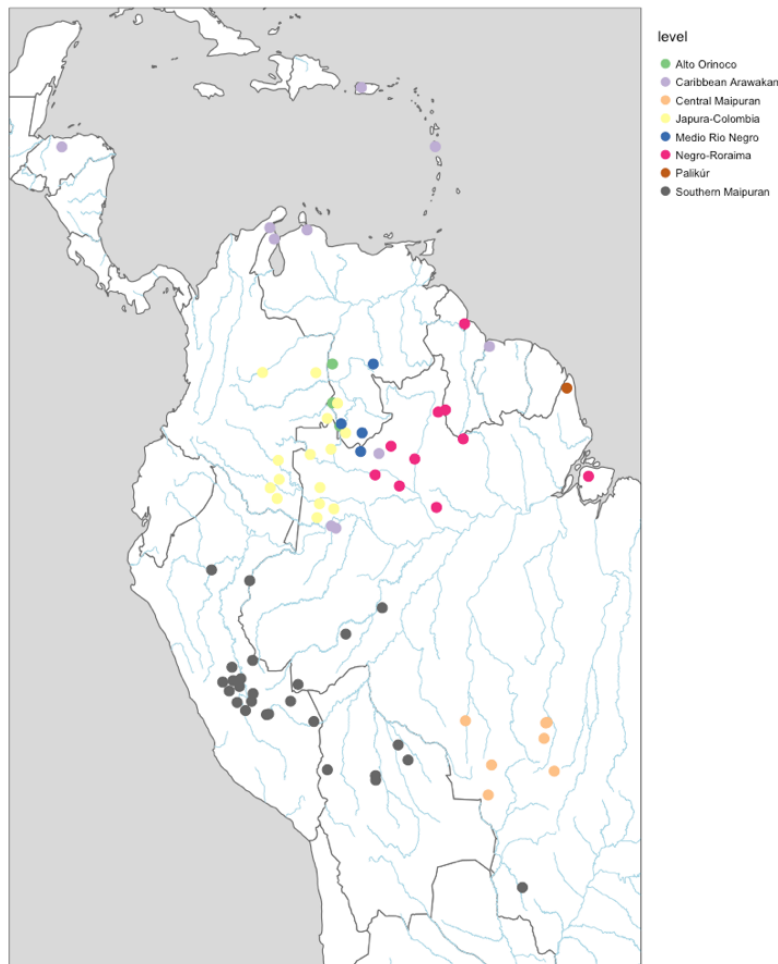
*Note.* Map is an updated version by Melatti based on his (1997) work.

### **2.5.2 The Arawakan Family**

Of all the language families present in the AB, the biggest include Arawakan, Cariban, Tupian, and Macro-Jêan, which are characterized by "predominantly non-contiguous distributions, with their members interspersed by many other smaller families and isolates" (see Figure 2.5.2) (Epps & Michael, 2017, p. 1). The Arawakan family is the largest family within South America in both number of languages and geographical spread (Ramirez, 2020). Currently, the family consists of 56 languages, of which 27 languages are now extinct (Ramirez, 2020). However it is historically believed that the family was once much larger, with a potential 80 attested languages (Michael, 2021). Figure 2.5.2 below maps out the Arawakan family as it is categorized in Glottolog (4.6).

**Figure 2.5.2**

*The Arawakan Language Family*



*Note.* Sub-families are based on Aikhenvald (1999) and Kaufman (1994). Map was generated with the Glottospace R package (Norder et al., 2022)

Internal classification of the Arawakan family has been debated over the years. The low level sub-groupings of the Arawakan family are largely agreed upon, after Kaufman's (1994) and Aikhenvald's (1999) analyses on the languages. However the higher level familial grouping has been debated, with the latest proposal coming from Ramirez (2020). Aikhenvald's (1999) grouping is the most influential classification based on low level areal groupings as well as grammatical similarities. One agreed upon split in the language family is the top-level split between the Northern and Southern branches (Michael, 2021), as defined by both Kaufman (1994) and Aikhenvald (1999).

Despite the widespread range the Arawakan languages cover, the homeland is tentatively identified between the Rio Negro and the Orinoco rivers based on the density of Arawakan languages in the area, and origins myths (Aikhenvald, 1999, 2012). A significant



proposal for the history of the Arawakan family is that it is part of a cultural package spread through trade networks, referred to as the Arawakan linguistic matrix hypothesis (ALMH) (Eriksen & Danielsen, 2014; Santos-Granero, 2002). This scenario along with its implications are discussed below.

### **2.5.3 The Arawakan Trade Network**

Under the ALMH, Proto-Arawakan spread through cultural and trade diffusion, such as a trade language or lingua franca, rather than through population movement. The cultural expansion is hypothesized to have been made possible due to the Arawakan trade network (ATN), as different groups would "opt-in" to the new technologies and cultural practices. In this way the Arawakan speakers are joined by two main factors: that their languages are derived from the same proto-language, and that they all share a set of cultural features, both material and non-material (Eriksen & Danielsen, 2014, p. 157).

Eriksen (2011) traced anthropological, archeological, and geological data to track the expansion of the ATN and concluded that the expansion started with the spread of *terra preta* land management strategies and ceramic artifacts along the Orinoco, the Guiana coastline, and the Essequibo River around 900BCE) (Eriksen, 2011, pp. 269–270).<sup>6</sup> The Arawakan Matrix grew from this initial expansion, reaching from the rest of the Orinoco to the Savannas of the Llanos de Mojos, where further land management technologies, such as raised fields called *camellones*, were developed for soil quality, drainage, water management, and food production (Eriksen & Danielsen, 2014, p. 156). Beyond land management, traces of Arawakan Matrix expansion is apparent through other management strategies, such as fish trap technologies, geoglyphs, organization through sacred geometry, and ceremonial practices, which are further "important nodes" in the Arawak regional exchange system (Eriksen, 2011, p. 271). Through incorporation into the Arawakan Matrix, communities would shape their landscapes and adopt a socio-religious and economic exchange system (Eriksen & Danielsen, 2014, p. 163). For example, the Curripaco (Wakuénai) have an initiation ceremony in which a series of place names along the rivers of northern South America are chanted, representing both a trade network constructed on the basis of physical travels over centuries, but also a "collection of mythological places where Arawakan shamans head on their transcendental journeys during séances" (Eriksen & Danielsen, 2014, p. 162). In this way, the Arawakan Matrix is not just a trade network but also a cultural one, which

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<sup>6</sup> Man-made fertile earth, for more see Glaser et al. (2004), Lehmann et al. (2004), and Woods and Denevan (2009).

incorporates aspects of trade, culture, and religion together. The Arawakan Matrix expanded throughout the AB to its peak in 1000CE, with trade spanning the continent (see Figure 2.5.3) (Eriksen, 2011).

The middle Amazon was an important segment in the Arawak regional exchange system (ARES) (Eriksen, 2011, p. 270) as two of four major trade routes crossed the area in pre-Columbian times (Eriksen, 2011, p. 116). The first crosses the continent, "reaching highland Ecuador via the Napo River, connecting lowland Amazonia with the Andean societies", while the second route connects the Amazon "with the Orinoco River through the Río Casiquiare and reaches the Guiana coastline east of the Orinoco Delta" (Santos-Granero, 1992 cited in Eriksen, 2011, p. 116).<sup>7</sup> These trade ways went between several groups and eased the transportation of goods across the Amazon, and incorporated other areas of South America such as the Andes (Eriksen & Danielsen, 2014).

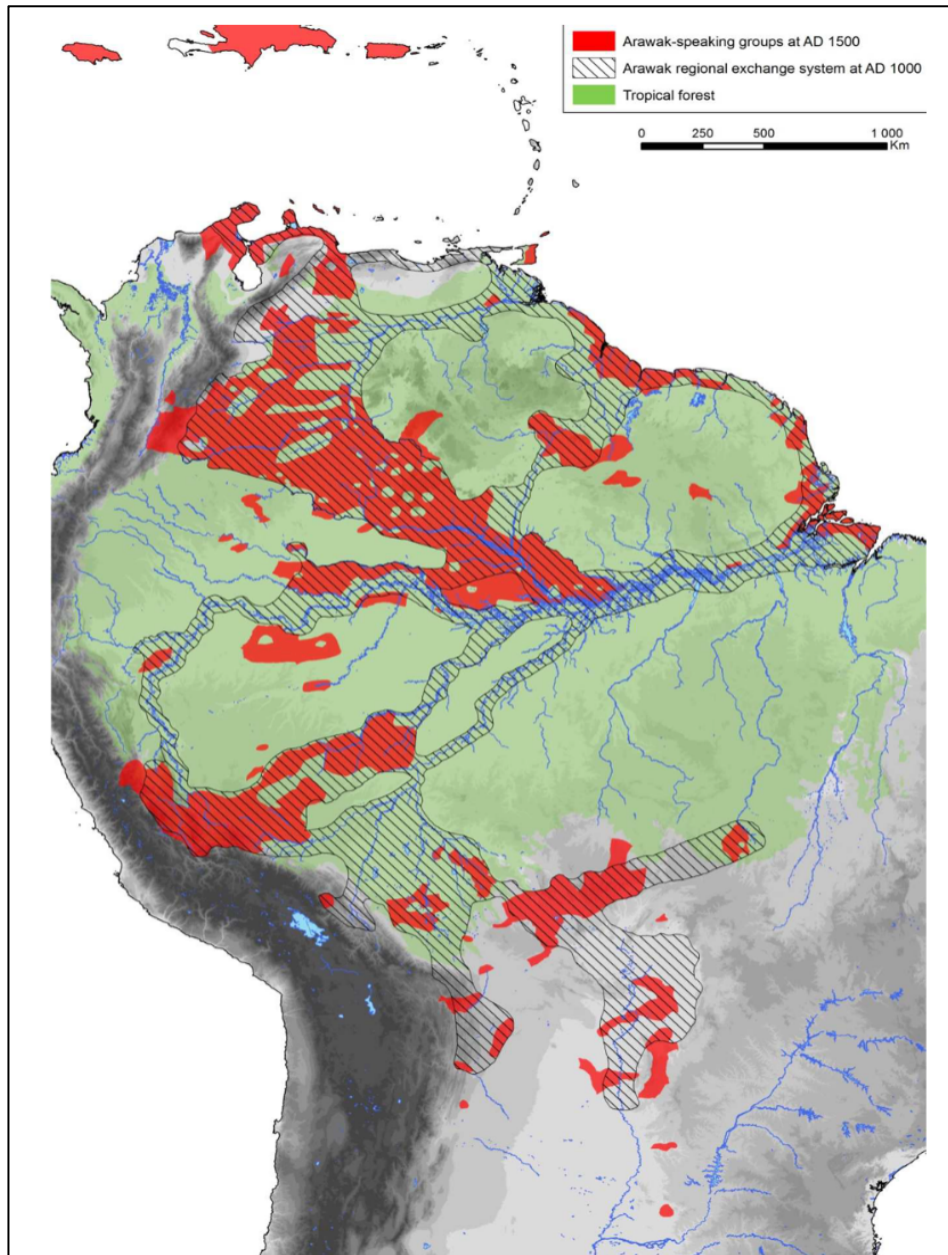
The span of Arawakan traders was known to Nordenskiöld (1922) as he discusses accounts of the ATN in his book from previous surveyors stating that "[t]heir trading expeditions took them over 300 [leagues] -1500 kilometers - along the coast. They would come in fleets of 50 to 60 canoes, and piraguas with a crew of 500 to 800 warriors, well provided with provisions" (Nordenskiöld, 1922, p. 7). The trade relations of the Arawakans are what led Nordenskiöld to hypothesize them as the main distributors of CIs like chickens, firearms, and bananas. Undoubtedly, the significance of the ATN cannot be understated as it linked and spanned all of the AB. Although the expanse of the ATN was no longer at its peak at the time of European contact, there were still connections from which Nordenskiöld's CIs could have been diffused. Along with the noted connections between Arawakan traders and other communities, the ATN is a likely candidate for the distribution of bananas, chickens, and firearms. The history of these CIs and Nordenskiöld's hypotheses on how they were traded in the AB is discussed in the following chapter.

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<sup>7</sup> The other two trade routes are the regions of the upper Ucayali, Purús, and Madre de Díos Rivers, and the lower Ucayali river to Cuzco connecting the Andes highland to the Amazonian lowland.

**Figure 2.5.3**

*Arawakan Trade Network*



*Note.* Map was retrieved from (Eriksen, 2011, p. 222)

## 2.6 Conclusion

This chapter has discussed the ways in which language can develop and, more specifically, how and why languages borrow loanwords. This chapter has also served to introduce the Amazonian Basin, the people who characterize it, and the prevalence of the Arawakan family in it. The next chapter serves to discuss the historical context of Nordenskiöld's books, and the cultural items chosen from them.

## **Chapter 3. Historical Background**

### **3.0 Introduction**

This chapter presents the historical context necessary to discuss Nordenskiöld's data. Section (3.1) discusses Nordenskiöld's career in relation to the release of "Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America". Section (3.2) deals with the cultural items chosen for this research and explores their histories and introductions to South America.

### **3.1 Nordenskiöld: Background**

Before discussing the contents of Nordenskiöld's book, it is important to contextualize it and the time in which it was written. "Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America" is the fifth volume in Nordenskiöld's ten volume series called "Comparative Ethnographic Studies" published from 1919 to 1938.<sup>8</sup> These books included archeological and ethnographical studies heavily influenced by the culture-historical approach which dominated archaeological theory at the time (Trigger, 1989, pp. 148–206).

The culture-historical approach asserts that "archeological cultures" are closely tied to ethnic identities as well as to specific biological populations which are regarded as the keepers of different cultures (Trigger, 1989, p. 150). Since archeological cultures were linked with specific populations, migration was then viewed as an "important mechanism in the spread of cultural features to new areas" (Eriksen, 2011, p. 2). This view of archeological cultures as being spread through migrations is what influenced Nordenskiöld's extensive comparative studies of material culture in South America. As such, Nordenskiöld's Comparative Ethnographic Studies series created broad comparisons of material culture based on previous literature and materials gathered in "field trips lasting for years" (Eriksen, 2011, p. 3).

Another significant concept at the time was known as "the standard model" in which Anthropologists attempted to classify Indigenous groups into cultural zones, thereby building on the framework of cultural ecology (Eriksen, 2011, p. 4). These methods explain complex cultures as adaptations to local ecology, reducing cultural phenomena to variables of the environment. In other words, researchers at the time viewed South America, and especially

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<sup>8</sup> Of which the last book was completed posthumously by Henry Wassén due to Nordenskiöld's death in 1932.

the Amazon, as an untouched primal landscape of which Indigenous communities lived in without alterations or land management.

Nordenskiöld himself played a role in the perception of lowland communities as less "civilized" than those of the highlands; a notion that is still sometimes echoed in contemporary literature (DeBoer, 2021; Rybka, 2020, p. 127). It is important to challenge the perpetuated "savage" myth of the lowland communities in relation to their Andean neighbors. Although not always outwardly stated, Nordenskiöld clearly discriminates between lowland and highland communities with the assumption that the Andeans were "more civilized" in comparison to the communities that live "in the wilds" (Nordenskiöld, 1922, pp. 11–12). All of this is to say that Nordenskiöld, along with his contemporaries, held disparaging views and biased opinions which must be borne in mind when reviewing his hypotheses and conclusions.

In contrast to Nordenskiöld and his contemporaries' beliefs, more contemporary archeological research (Glaser & Woods, 2004; Heckenberger, 1996, 2002; Lehmann et al., 2004; Woods & Denevan, 2009), historical ecology research (Balée & Erickson, 2006; Eriksen, 2011), and Amazonian settlement research (Fisher, 2022; Prümers et al., 2022) have produced evidence of large-scaled societies that sustainably molded their surroundings to suit their needs according to substance demands and other cultural criteria. Therefore, the history of the AB and its peoples is more complex than historically thought in the Western cannon, thus opening the gates for critically driven future avenues of research.

### ***3.1.1 Nordenskiöld: Data***

In his 1922 book, Nordenskiöld uses linguistic distributions of cultural items (CIs) to analyze post-Columbian items (which were "undoubtedly" introduced to South America) and partially post-Columbian items (which existed in some form before contact). These items consisted of chickens, bananas, horses, cows, iron, firearms, and scissors (definite post-Columbian CIs), and fish-hooks, European knives, and needles (partial post-Columbian CIs). By mapping out and examining the range of these CIs, Nordenskiöld hypothesized how trade networks and contact may have influenced their spread.

These data enable comparisons of the distributions of post-European CIs as well as the locations where their terminologies were adapted or coined. Further, Nordenskiöld's approach was novel at the time of publishment as it allowed for a general overview of CI spread throughout South America. Of course, Nordenskiöld's data are outdated and requires some updating—this is further discussed in the next chapter.

## 3.2 Origins of the CI in South America

The introduction of chickens, bananas and firearms to South America is more complex than initially proposed by Nordenskiöld. This section discusses these histories along with possible alternative introductions. As such, the information below is structured as follows: first the history of the CI prior to its introduction in SA is presented, followed by Nordenskiöld's historical research, and hypotheses concerning CI dispersal; then additional information regarding the CIs is presented from novel sources to supply further context and hypotheses.

### 3.2.1 Chickens

The domesticated chicken (*Gallus gallus domesticus*) is part of the *Galus* genus and is believed to be primarily a descendant of the Red Junglefowl, originally spanning the jungles of South and South-East Asia (Lawal & Hanotte, 2021; Pitt et al., 2016). The subsequent dispersal of the domesticated chicken occurred due to human migration and trade through sea and terrestrial routes. After arriving in Europe, the spread of the domesticated chicken greatly increased following its use as a "domestic poultry for food production" (Lawal & Hanotte, 2021, p. 388).

The introduction of the chicken to South America is a contested account. One explanation is that of a European introduction, of which Nordenskiöld is a proponent, while another possibility is an introduction from the east from Polynesia. Figure 3.2.1 displays different accounts for chicken introduction from Storey et al. (2010) where:

" triangles denote introductions: gray is European, white distinguishes the [potential] pre-Columbian introduction ... and the striped shapes denote the inability to determine the origins of the chickens for Cortés's poultry farm. Circles represent reported sightings of chickens in the literature. Numbers in brackets represent numbers of chickens introduced, when the data is available."

(p. 139)

**Figure 3.2.1**

*Accounts for Chickens in South America*



Note. Map retrieved from (Storey et al., 2010). Triangles denote introductions: gray are European, white is the El Arenal location, and the striped shapes denote chicken records of unknown origins. Circles represent reported sightings of chickens in the literature. Numbers in brackets represent numbers of chickens introduced when the data is available.

Nordenskiöld relies on previous accounts of European surveyors to lay claim to a European introduction. Numerous times Nordenskiöld states chickens were taken to South America early on by Europeans and stating that there is "no mention of domestic fowls among the Indians in the writings of or on Columbus, Nino, Guerra, Pinzon, Hojeda, or Vespucci" (Nordenskiöld, 1922, p. 2). Nordenskiöld also uses the accounts of surprised Indigenous peoples to justify the novelty of the bird, quoting Cabral's 1500 account, "the Indian was evidently afraid of this to him strange bird, and at first would not touch it" (Nordenskiöld, 1922, pp. 1–2). Accounts from other European surveyors such as Ferdemann 1531 near the Rio Orinoco (in modern today Northern Venezuela), confirm the novel presence of roosters among an Indigenous community. To Nordenskiöld this suggested that

Indigenous groups did not have access to chickens prior to 1531, as Indigenous traders told Ferdemann that they had traded the chickens with men that had come by water in "a big house", of which Nordenskiöld interpreted to be the Rio Amazonas, or its mouth (Nordenskiöld, 1922, pp. 5–6). The next account recorded by Nordenskiöld is by Orellana's crew in 1541-1542 when they came to a village near the mouth of the Rio Negro and found *gallinas de castilla* (Nordenskiöld, 1922, p. 6), which is the same route the chickens mentioned by Ferdemann had allegedly come from.

Nordenskiöld does not identify many etyma for chickens in relation to the AB as most of his focus was on the potential trade of chickens by the Guarani traders in the south of the continent to the Inka Empire in the west. The few etyma Nordenskiöld identifies are cognates with the Spanish/Portuguese word *gallina/galinha*, a chain of cognates that correspond to the forms /takara/ and /karaka/, as well as other words he considered onomatopoeic.

Nordenskiöld presumes that the chickens' distribution was possible in the Amazon in part to trade by the Arawakans who, as mentioned in Chapter 2, had a trade system that spanned a large part of the AB. Within the lowland populations, Nordenskiöld states that the populous did not eat the chickens they kept, but rather used them for companionship and to hatch other birds such as the *hocco* (*Crax rubra*) (Nordenskiöld, 1922, p. 12).<sup>9</sup> As for motivation, Nordenskiöld proposes that the novelty and hatching utility, along with the bird's white feathers, may have been contributing factors for the rapid spread of chickens among Amazonian populations (Nordenskiöld, 1922, p. 12).<sup>10</sup>

The alternative pre-Columbian introduction of chickens comes from remains discovered in El Arenal 1 in modern day Chile. Storey et al. (2007) discovered bones have been carbon dated to no later than the year 1424 CE. The discovery of these chicken remains is part of a larger narrative connecting Polynesian trade to South America. Other studies suggest a pre-Columbian connection between South America and Polynesia, such as the dispersal of the sweet potato in Polynesia (a crop native to South America) (Montenegro et al., 2008). This spread is tied in with the apparent cognates for sweet potato, *\*kumala* in Polynesian with the Quechuan word for sweet potato, *cumal/kumara* (Adelaar, 1998). Further points of contact come from a recent genetic study finding a haploid connection between Indigenous Columbian communities and Eastern Polynesian communities (Ioannidis et al., 2020). However, despite the above evidence, Storey et al.'s (2007) findings are deemed

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<sup>9</sup> Nordenskiöld constantly differentiates between highland and lowland populations and clarifies that although the lowland populations do not eat chickens or their eggs, highland populations such as the Inkas did.

<sup>10</sup> Despite this claim, Nordenskiöld also admits that he did not notice a preference among lowland communities to house white chickens specifically (Nordenskiöld, 1922, p. 11).



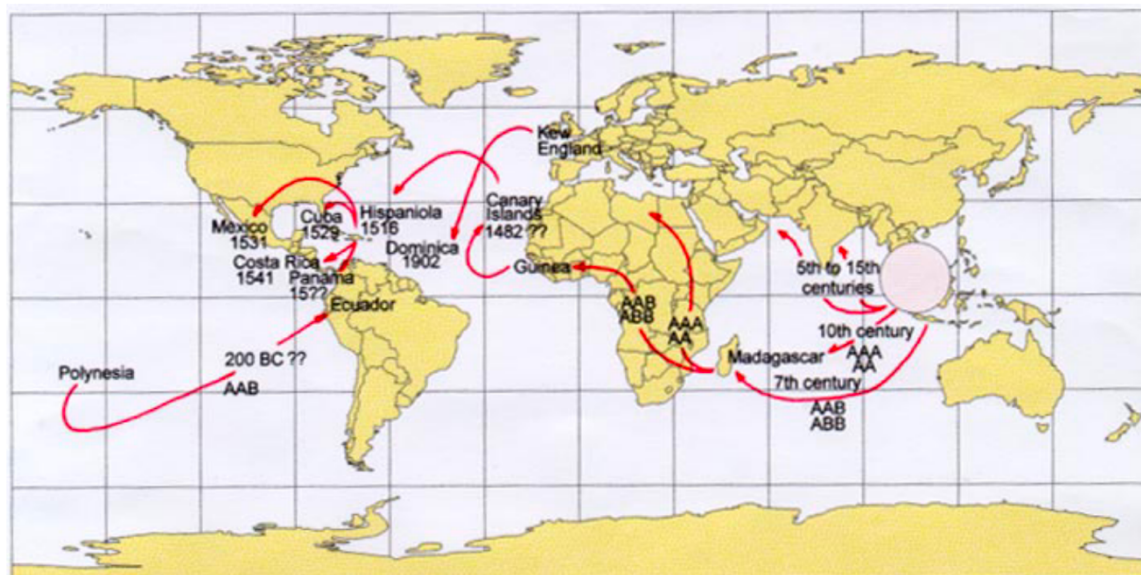
inconclusive by other researchers as it was based on a singular bone, presented non-diagnostic DNA sequence information, and was alleged of conducting non-standard isotopic signature practices (Lawal & Hanotte, 2021, p. 4; Thomson et al., 2014). What *is* known from genetic analysis is that modern day chicken populations are likely from European and Asian origins (Herrera et al., 2020).<sup>11</sup>

### 3.2.2 Bananas

Bananas are part of the *Musa* genus, originating from Southeast Asia from the wild *Musa acuminata* species (Langhe et al., 2009). Most cultivated species of bananas are triploid hybrids from the species *Musa acuminata* (genome A) and *Musa balbisiana* (genome B), and are essentially sterile clones from one another. Therefore, most cultivated banana plants rely on non-sexual reproduction via rhizomes which grow from the tree's stem. The taxonomy of bananas is further distinguished by differentiating from the different hybrid types with AAA corresponding to most sweet varieties of bananas and AAB corresponding to plantains (Langdon, 1993). The domestication history of the banana is not fully understood; however, the dissemination is somewhat known. As Figure 3.2.2 below shows, the banana made its way to West Africa where it was then spread by the Portuguese and Spanish to the Americas (Marin et al., 1998, p. 19).<sup>12</sup>

**Figure 3.2.2**

*Spread of the Banana from the Indo-Malay Region*



Note. Map is retrieved from (Marin et al., 1998, p. 968).

<sup>11</sup> The Asian chicken contribution does not mean pre-Columbian Asian contact, merely that modern day genetic stock hails from this chicken population.

<sup>12</sup> The possible origins for the word "banana" comes from Wolof name *banaana*.

Nordenskiöld also had difficulties discerning if bananas were present in South America prior to European contact or if they were a recent introduction. To strengthen his claim that bananas were indeed introduced by Europeans, Nordenskiöld relied on early contact accounts of whether bananas were found among Indigenous groups. Based on the early records of Columbus, Magellan, Ramírez, Núñez Cabeza de Vaca, Orellana, Palomino, Salinas Loyola, Ortiguera, Robedo, and Federmann, Nordenskiöld concludes that bananas were not present or cultivated by Indigenous peoples (Nordenskiöld, 1922, p. 70).

Nordenskiöld identifies a few possible banana etyma throughout the AB. These groups are the *paco/pacoba* etymon (likely from the Macro Ge languages), the *parou/paruru* etymon (likely a semantic extension of a Carib word for a similar plant), and the *palatana/banana* pseudo-cognates which Nordenskiöld states were borrowed from the Spanish and Portuguese words *plátano* and *banana* (Nordenskiöld, 1922, pp. 75–76).

Alternatively, it is proposed that a variety of plantain made its way to South America prior to European colonization, based on remains found in pre-Columbian graves, as well as popular South American banana varieties with "obscured origins" (Marin et al., 1998, p. 696). These are also linked with pre-Columbian contact between South America and Polynesia, but more recent research has not focused on this possible link.

### 3.2.3 Firearms

Unlike the previous CI examples, firearms were definitely brought over to South America by Europeans. However, what is less clear is the history of firearm trade, especially as it pertains to the AB. The historical records do not mention when firearms were introduced, and what evidence exists is well after the point of contact. Nordenskiöld does not give any examples of when firearms were introduced to South America but does outline possible borrowings. These are: *arcabuz*, a Portuguese/Spanish word referring to a model of gun used in the sixteenth century (Figure 3.2.3) (Nordenskiöld, 1922, p. 97); *\*mboca* which Nordenskiöld hypothesizes comes from “boca de fogo/boca del fuego” (“mouth of fire”), an old name for firearms (Nordenskiöld, 1922, p. 96).<sup>13</sup> Pseudo-cognates of *\*mboca* are more prevalent in the south (Paraguay, South of Brazil, Northeast of Argentina) among Guaraní communities rather than in the AB. Nordenskiöld interprets that the NAB community with this pseudo-cognate (Wapishana) originally lived further south and then migrated to their current location (Nordenskiöld, 1922, p. 97). Many communities seem to have semantically

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<sup>13</sup> *arquebuses* from *hākebusse*: haak "hook" + bus "canon" *lit.* *box* [Middle Dutch] > *harquebusche* [Middle French] > *arcabuz* [Spanish/Portuguese], *arquebus* [English].

extended their name for lightning/thunder to encompass firearms, likely due to the semantic connection between the loud sounds they both produce. Lastly, Nordenskiöld notes that some communities would extend the word for arrow, or blowgun, or create a compound with their languages' word for white (Nordenskiöld, 1922, p. 98).

**Figure 3.2.3**

*Harquebus Firearm*



*Note.* By Sailko, 2016, digital image.

## Chapter 4. Methodology

### 4.0 Introduction

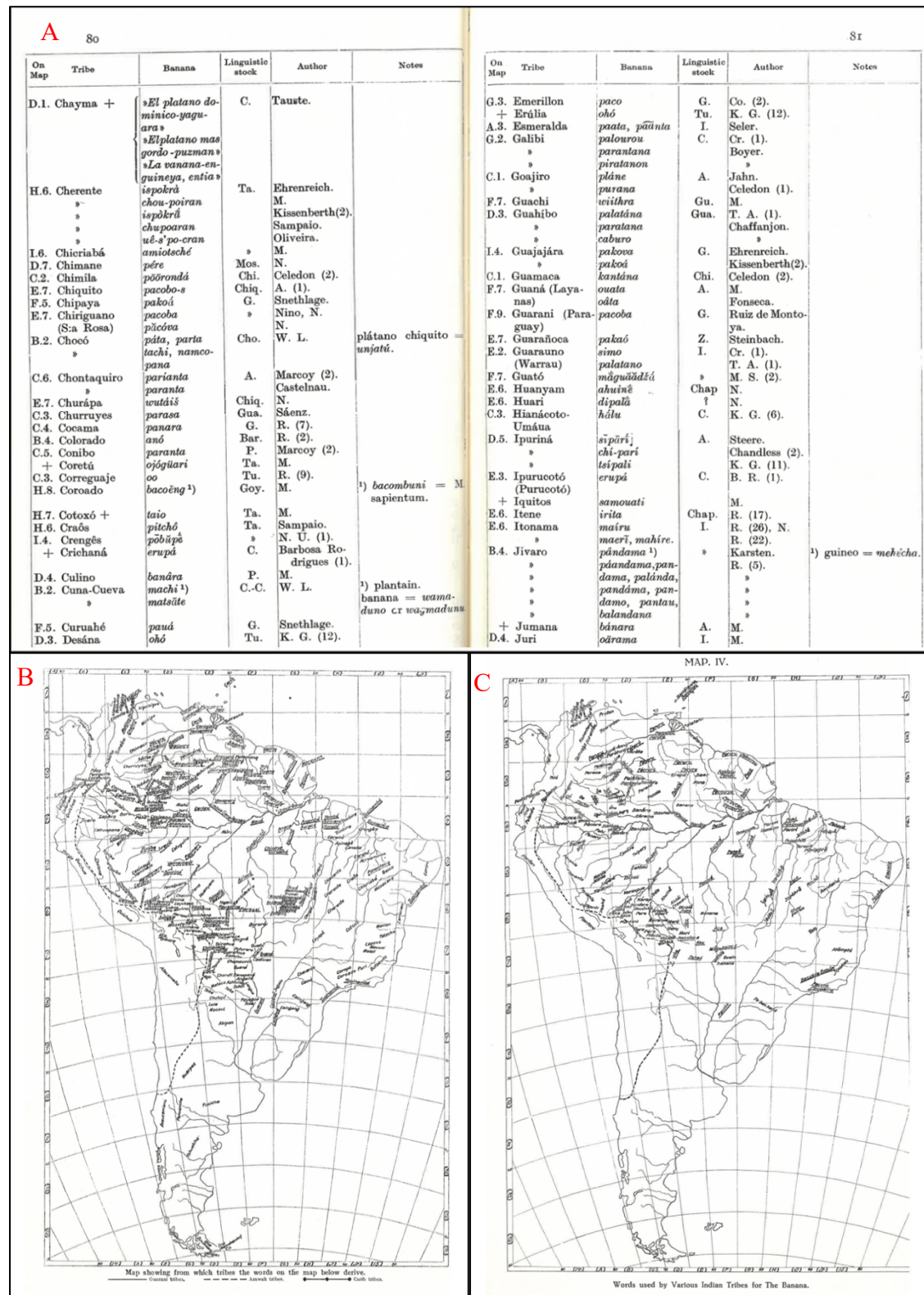
This chapter discusses the methodology used to: (1) digitize Nordenskiöld's data, (2) align and update data, and (3) analyze the information based on linguistic and anthropological data. Section (4.1) discusses the digitization process and how Nordenskiöld's book was digitized in accordance with archival best practice. Section (4.2) describes the process in aligning Nordenskiöld's data with Glottolog's data, and the transcription process. Section (4.3) explains the overall analysis process, including how words were analyzed, how ethnographies were searched out, and how maps were created.

### 4.1 Digitizing Process

"Deductions suggested by the geographical distributions of some post-colonial words used by the Indians of South America" was digitized using archival standards as described by the American Library Association's (2013) recommendations for minimum digitization capture. Therefore, the physical book was scanned with a 400ppi (pixel per inch) for writings and tables, and a 600ppi for maps. These parameters mean the images maintain their integrity when zoomed in and are legible for computer software programs. The scanned pages were then saved into a .jpeg file to ensure future access for researchers. Although all pages were digitized, not all the tables found in Nordenskiöld's book were used for this thesis. Only tables and maps which refer to the CIs of *chickens*, *bananas*, and *firearms* were fully digitized in a computer using excel, which were then saved as a .csv file. A large part of the digitizing process consisted of manually inputting the data within Nordenskiöld's book, which entailed typing the data for "Tribe", CI, "Linguistic Stock", "Author", and the notes written by Nordenskiöld. An example of the original scans from Nordenskiöld's book can be seen in Figure 4.1.1 (for the full scanned book please see the Supplementary Materials).

Figure 4.1

Scanned Pages from Nordenskiöld 1922



Note. A) Scan of Nordenskiöld's tables for the word banana, B) Map showing the Indigenous groups sampled, C) Map showing the words by Indigenous community for the words catalogued.

#### **4.1.1 Data Management Plan**

The data management plan (DMP) was created using Radboud's Research Information Services' DMP tool. The ethics committee was not consulted as no personal data was collected for this thesis. Furthermore, all collected data is open access and free of copyright. The data gathered from Nordenskiöld's book, along with relevant sources, were integrated into a database and stored in excel and CSV files, which were then analyzed and used to create novel maps. These raw and processed data are stored in workgroup folder using Radboud University's network drive and will be stored for a minimum of 10 years following the completion of this thesis. All data gathered and analyzed in this thesis is made available with open access at the Radboud Master's Thesis repository.

#### **4.2 Realigning and updating the data: "filling in the gaps"**

The next step towards making the data workable for the purposes of this thesis includes updating the data in a process often characterized as "filling in the gaps" (Nathan, 2012). These gaps include updating the communities mentioned in the tables, transcribing the words into IPA (International Phonetic Alphabet) when possible, and identifying faulty information such as "phantom languages" (Campbell, 2012, p. 131).<sup>14</sup>

##### **4.2.1 Community Alignment**

There are a multitude of names for a given Indigenous community in South America. This name variety makes the updating of metadata more complex as many groups have used (or were given) different names throughout the past two centuries. For example, a community may have been given a name by Europeans where it did not originally use one as an identifier, but then assumed it as proper. This type of scenario is quite common and has happened throughout the time of colonization as Europeans, with Eurocentric conceptualizations of language and culture, tried to categorize different groups in South America. This phenomenon has been dubbed the *Glossary of Power* by Rojas Berscia (2021) as a way to describe the homogenization process Europeans imposed on Indigenous peoples in South America, but also, throughout the world. All in all, this has created a complex scenario when identifying the names communities use today, based on the names they were given in the past.

To resolve this issue, a systematic comparison was created to identify and align the different languages mentioned in Nordenskiöld's book to more contemporary and registered

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<sup>14</sup> Phantom communities/languages are defined as groups documented in old texts to which there seems to be no real referent. Sometimes these groups are also called fake languages.

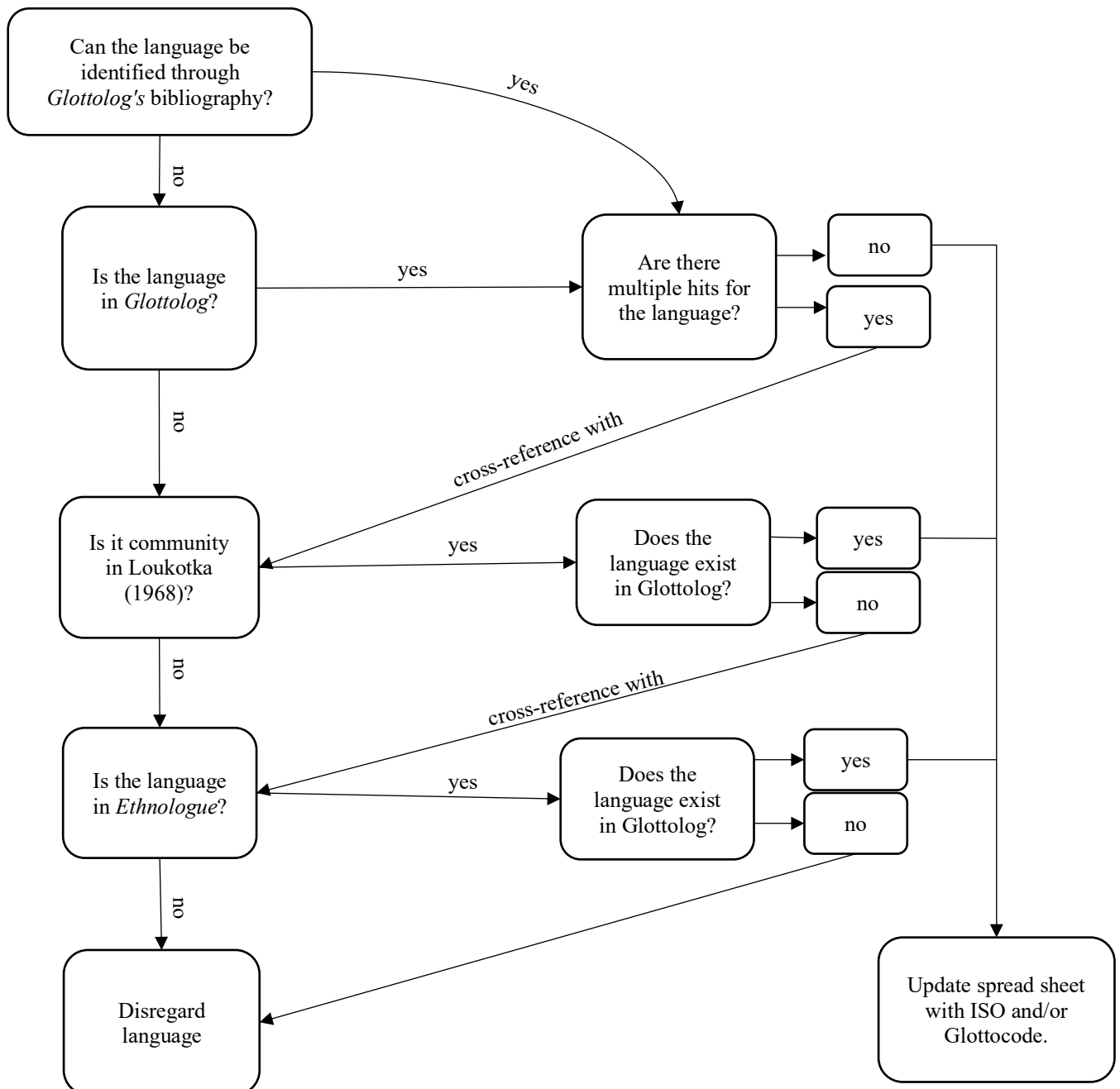
names (illustrated in Figure 4.2.1.1). Realigning Nordenskiöld's "tribe" names to documented groups/languages included the use of the website Glottolog (Hammarström et al., 2022), a bibliographic database for the world's languages that includes geolocation and language family information.<sup>15</sup> Glottolog uses unique identification codes called *glottocodes* to catalogue different language communities. These glottocodes are used as the point of reference for later analyses, making Glottolog the main source for typological data. Of course, not all the data contained in Glottolog encompasses all alternative names associated with a particular community. Therefore, it is necessary to cross-reference with other sources to properly identify the communities mentioned in Nordenskiöld's data. Two strategies are implemented to fully align communities. One includes searching through Glottolog's bibliography for previously attested alignments, as displayed in Figure 4.2.1.2. The second strategy includes cross-referencing with other categorizing sources, namely, Loukotka's (1968) catalogue of South American languages. The last resort is cross-referencing Ethnologue' database (SILS, 2018). The outcome of this process is visualized in Figure 4.2.1.3, for a detailed description of how each language was aligned see the Supplementary Materials.

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<sup>15</sup> In this thesis I use the term "alignment" and "realignment" to describe the process of identifying the Tribe mentioned in Nordenskiöld's book with more contemporarily used names.

**Figure 4.2.1.1**

*Workflow for Aligning Data*





## Figure 4.2.1.2

### Glottolog Document Alignment

The screenshot shows the Glottolog website interface. A document entry for 'Schomburgk, Richard Moritz 1847, 1848, 1848' is selected. A red arrow points from this entry to a table that lists the 'Name in source' and the corresponding 'Glottolog languoid'.

Name in source	Glottolog languoid
Il:515-521: Macusi	<a href="#">Macushi</a>
Arekuna	
Arawaak	<a href="#">Lokono</a>
Warrau	<a href="#">Warao</a>
Caraiben	<a href="#">Galibi Carib</a>
Akawai	<a href="#">Akawaio-Ingariko</a>
Atorai	<a href="#">Atorada</a>

*Note.* Metadata of documents in Glottolog in which languages in the documents ("language in source") are aligned with Glottolog's catalogue (Glottolog languoid). Not all languages are identified however, as demonstrated by the blanks under Glottolog languoid demonstrated in the red box.

## Figure 4.2.1.3

### Language Scan Along with Digitized Data

On Map	Tribe	Banana	Linguistic stock	Author	glottocode	ISO	tribe	cognate	linguistic stock	banana	page	Author
G.3. Emerillon		paco	G.	Co. (2).	macu1260	myy	Erúlia	o	Tukanoan	ohó	81	Koch-Grünberg, Betóya-Sprachen Nordwestbrasilien.
+ Erúlia		ohó	Tu.	K. G. (12).	atac1235	na	Esmeralda	f2	Isolate	paata, pāanta	81	Seler, E. Notizen über die Sprache der Colorados von
A.3. Esmeralda		paata, pāanta	I.	Seler.	gali1262	car	Galibi	d	Cariban	palourou	81	Crevaux, J. Sagot, P. Adam, L. Grammaires et vocabu
G.2. Galibi		palourou	C.	Cr. (1).	gali1262	car	Galibi	a	Cariban	parantana, piratanon	81	Boyer, Paul. Veritable relation de tout ce qui s'est fai
*		piratanon	*	Boyer.	wayu1243	guc	Goajiro	u	Arawakan	pláne	81	Jahn. A. Parauhanos und Guajiros und die Pfahlbauten
C.1. Goajiro		pláne	A.	Jahn.	wayu1243	guc	Goajiro	d	Arawakan	purana	81	Celedon, Rafael. Gramática Catecismo i Vocabulario
*		purana	Gu.	Celedon (1).	guac1239	na	Guachi	u	Isolate	wiithra	81	Martius, Carl Freidrich. Beiträge zur Ethnographie un
F.7. Guachi		wiithra	Gu.	M.	guah1255	guh	Guahibo	u	Guahiboan	caburo	81	Chaffanjon, J. L'Orénoque et Le Caura. Paris 1889.
D.3. Guahibo		palatána	Gu.	T. A. (1).	guah1255	guh	Guahibo	a	Guahiboan	palatána, paratana	81	Tavera-Acosta, B. En el Sur. Ciudad Bolívar 1907. ;Ch
*		paratana	*	Chaffanjon.	guaj1255	gub	Guajajára	c	Tupian	pakoá, pakova	81	letter from kissenberth W.; Ehrenreich, P. Materialie
I.4. Guajajára		caburo	G.	Ehrenreich.	mala1522	mbp	Guamaca	u	Chibchan	kantána	81	Celedon, Rafael. Grammatica de la Lengua Köggaba
*		pakova	Chi.	Kissenberth(2).	tere1279	ter	(Layanas)	u	Arawakan	oáta; ouato	81	Fonseca, João Severiano da. Viagem ao redor do Bra
C.1. Guamaca		kantána	A.	Celedon (2).	para1311	gug	(Paraguay)	c	Tupian	pacoba	81	Montoya, Antonio Ruiz de. Bocabulario de la lengua
F.7. Guaná (Laya-		ouata	G.	Fonseca.	ayor1240	ayo	Guarañoca	c	Zamucuan	pakoá	81	Steinbach, Jose.Vocabulario Guarañoca. Manuscript.
nas)		pacoba	A.	Ruiz de Monto-	wara1303	wba	Guarauno	u	Isolate	simo	81	Crevaux, J. Sagot, P. Adam, L. Grammaires et vocabu
F.9. Guarani (Para-		pacoba	Z.	ya.	guat1253	gta	Guató	u	Isolate	māguāādžá	81	Schmidt, Max. Indianerstudien in Zentralbrasilien. Be
guay)		pakoá	I.	Steinbach.	wany1246	na	Huanyam	u	Chapacuran	ahuinē	81	Nodenskiöld, Erland (I think this is just his notes?)
E.7. Guarañoca		simo	Chap	Chandless (2).	aika1237	tba	Huari	u	Isolate	dipalā	81	Nodenskiöld, Erland (I think this is just his notes?)
E.2. Guarauno		palatano	I.	K. G. (11).	apur1254	apu	Ipuriná	g	Arawakan	chi-pari, sipāri, tsipali	81	Chandless, W. Ascent of the River Purus. (G. J. 1866).
(Warrau)		māguāādžá	*	B. R. (1).	iqui1243	iqu	Iquitos	u	Zaparoan	samouati	81	Martius, Carl Freidrich. Beiträge zur Ethnographie un
F.7. Guató		ahuinē	*	M. S. (2).	iten1243	ite	Itene	u	Chapacuran	irita	81	Créqui-Montfort, G. de et Rivet, P. Linguistique Boliw
E.6. Huanyam		dipalā	Chap	N.	iton1250	ito	Itonama	u	Isolate	maerī, mahire	81	Créqui-Montfort, G. de et Rivet, P. Linguistique Boliw
E.8. Huari		hálu	I.	N.	iton1250	ito	Itonama	u	Isolate	maitu	81	Rivet, P. Nouvelle contributions a l'étude de la langu
C.3. Hianácooto-		hálu	C.	K. G. (6).	achu1248	acu	Jivaro	x	Chicham	pāandama, pandama,	81	Karsten, R. La lengua de los Indios Jíbaros. (Öfversikt
Umuá		hálu	*		juma1250	na	Jumana	b	Arawakan	bánara	81	Martius, Carl Freidrich. Beiträge zur Ethnographie un
D.5. Ipuriná		siipāri	A.	Steere.	juri1235	na	Juri	u	Ticuna-Yuri	oárama	81	Martius, Carl Freidrich. Beiträge zur Ethnographie un
*		chi-pari	*	Chandless (2).								
E.3. Ipurucotó		tsipali	C.	K. G. (11).								
(Purucotó)		erupá	*	B. R. (1).								
+ Iquitos		samouati	Chap.	M.								
E.6. Itene		irita	I.	R. (17).								
E.6. Itonama		mairu	*	R. (26), N.								
*		maerī, mahire.	*	R. (22).								
B.4. Jivaro		pāandama <sup>1)</sup>	*	Karsten.								
*		pāandama, pan-	*	R. (5).								
*		dama, palánda,	*									
*		pāandama, pan-	*									
*		dama, pantau,	*									
+ Jumana		balandana	A.	M.								
D.4. Juri		oárama	I.	M.								

*Note.* For the full dataset see Supplementary materials

### 4.2.2 Transcription

The data from which Nordenskiöld drew his work comprises multiple different authors (please refer to the Supplementary Materials for this information), which leads to varying styles of transcription. For example, older literature sources would use older spelling conventions whereby <v> and <y> were used in place of modern day <u> or <i> respectively, so that the word <achawal/achual> could be spelled as <achaval> (Zúñiga, 2006, p. 74). While other authors would use <ae>, <y> or <ĩ> to likely describe /i/, or would use different tone symbols (e.g., è, ē, é, ẽ) to distinguish between different vowels or emphasis (depending on the original source). For example, <saer>/ <śir> in the Wapishana language (Nordenskiöld, 1922, p. 85) have later been transcribed as <syyz>, /siz/ (Epps et al., 2013; Oliveira et al., 2013, p. 133).<sup>16</sup> Another example is found in Koritia (Wanano) where the word for firearm, <p̄xt̄ĩk̄e>, was later transcribed as <pichùcù>; [pì't̄j̄ík̄ì] (Waltz, 2007, p. 198). For the differences in transcription see the Supplementary Materials.

Of course, most of these differences are the outcome of using literature published prior to the creation or standardization of the International Phonetic Alphabet (IPA).<sup>17</sup> However, although some past documenters worked with the tools available at the time, some inconsistencies may also be the result of documenters' inability to "represent sounds unfamiliar to them accurately" (Campbell, 2013, p. 336).

Nevertheless, Nordenskiöld provides a transcription key for each cited author (for further information refer to Supplementary Materials), which were used to approximately transcribe the data into the IPA when possible.<sup>18</sup> Alternatively, words were also compared with the Hunter-Gatherer database (Epps et al. 2013) for insight on more accurate transcription. However, recently collected lexical items that are vastly different from Nordenskiöld's data were not included. This choice was done to retain the integrity of Nordenskiöld's data in the time it was collected, and to not further obscure potential contact signals.<sup>19</sup>

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<sup>16</sup> All consulted sources for Wapishana spell the word with a <z> instead of an <r>, the cause for this discrepancy is unknown.

<sup>17</sup> In the case of earlier publications writing differences may also come from printing press constraints or other stylistic choices.

<sup>18</sup> The term "approximately" is used to convey how the transcription process is not perfect and must rely on Nordenskiöld's interpretation.

<sup>19</sup> The data collected by Nordenskiöld spans over 200 years of literature, including novel data can therefore complicate and obscure traces of contact.

### 4.3 Analysis

Once Nordenskiöld's data was aligned with the Glottolog information, language communities and their relations were more clearly displayed, which set the baseline for the analysis of loan words. Relationships between the languages can be inferred when comparing the result of these two methods in regard to the introduced CI. When possible, the original sources cited by Nordenskiöld were consulted for further information. Of course due to the age of some documents, access was not always possible, therefore more modern sources, such as the Hunter Gatherer Language Database (HGLD) (Epps et al., 2013) and other dictionaries and grammars, were consulted when possible (for a detailed list of cited sources see Appendix A). The information necessary for reconstructing all the potential words is unfortunately not available due to the lack of documentation of most Indigenous languages. When possible, connections between possible pseudo-cognates were identified in a manner inspired by the comparative method to recreate proto words and etyma. In the comparative method, cognates of related languages are identified and systematically compared, with the aid of phonetic base pairs, to reconstruct a proto-word of the ancestor language(s) (proto language) (Campbell, 2013, p. 107). However, this style of analysis is not possible when comparing unrelated languages as different sound inventories and phonological changes occur. Since this thesis deals with borrowings which occur between related and *unrelated* languages one can only speculate on how words were adapted as they were imported from language to language. Therefore, I have analyzed words that have similar transcriptions (word form) to propose the different ways loanwords may have developed and changed as they were traded. Further, the symbol % is used to denote etyma that are not reconstructions but are rather generalizations across forms that have histories both of adaption through loanhood and regular sound changes that are not reconstructible to a single form due to their complex histories. This form of etyma alignment follows previous research on loanwords and reconstructions (for more examples see Bower et al., 2014; Haynie et al., 2014). For each CI, all recorded lexical items were analyzed per language and compared between language communities.<sup>20</sup> However, unlike the other CIs, Nordenskiöld uses three glosses for chickens: *hen*, *fowl*, and *cock*. For this thesis, only the words glossed under fowl and hen were considered as these terms are generally used interchangeably while cock is usually distinct.<sup>21</sup>

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<sup>20</sup> Nordenskiöld does not differentiate between bananas and plantains in his dataset. I therefore follow this choice in this thesis and include plantains in the category of banana.

<sup>21</sup> Often times, languages in the data include 'man' or 'woman' to differentiate between the sex of chickens. In these cases, I analyzed the general term and disregarded the sex marker in the words.

For the anthropological data, ethnographies were selected based on a search for anthropological works about South American Indigenous groups, which was possible through Glottolog's glottocodes. Ethnographies were then scanned for information pertaining to the chosen cultural items, and their use. Moreover, ethnographies were scanned for information relating to Nordenskiöld's comments (mentioned in Chapter 2), such as chickens spreading due to their white feathers (Nordenskiöld, 1922, p. 12). For each CI, a code was assigned based on the ethnographic source. For bananas, a 0 was given if there are no mentions of bananas, a 1 if there is mention of bananas, and a 2 if banana cultivation is explicitly stated.<sup>22</sup> For chickens, a 0 was given if there is no mention of chickens, a 1 if there were, 2 if the target group consumes chickens, 3 if they do not, and 4 if it is explicitly stated that the target group does not keep chickens. For firearms a 0 was given if there were no mentions of firearms, a 1 if there are, and a 2 if firearms have taken over traditional hunting practices. These ethnographies are outlined in Appendix B.

The number of sources was expanded upon based on the distribution of Nordenskiöld's data. Additionally, sources that provided overview of community economics and trading relations were sought to provide additional context of the socio-relations between different groups. Finally, the language datapoints were aligned with Melatti's (1997) Ethnographic areas of South America description, to compare different areas across the Northern Amazon Basin. Of course, many of the communities mentioned in Nordenskiöld's data no longer exist, and therefore are not represented in more recent ethnographies. When possible, communities are cross-referenced in ethnographies for signs of acculturation into neighboring communities. If a community is not present in any ethnography, they are aligned with in an ethnographic area based on their coordinates. While the sample of examined ethnographies is not representative of all Indigenous groups, it is intended to give a general idea of the distribution and significance of identified cultural items. Therefore, together with the ethnographic and linguistic data, patterns can be discerned across the Northern Amazonian Basin.

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<sup>22</sup> Originally, I coded whether the mentioned community incorporated the use of banana or their by-products into a cultural practice, but this was later discarded as incorporation is a subjective term, and ethnographies generally did not provide this information.

### ***4.3.1 Mapping***

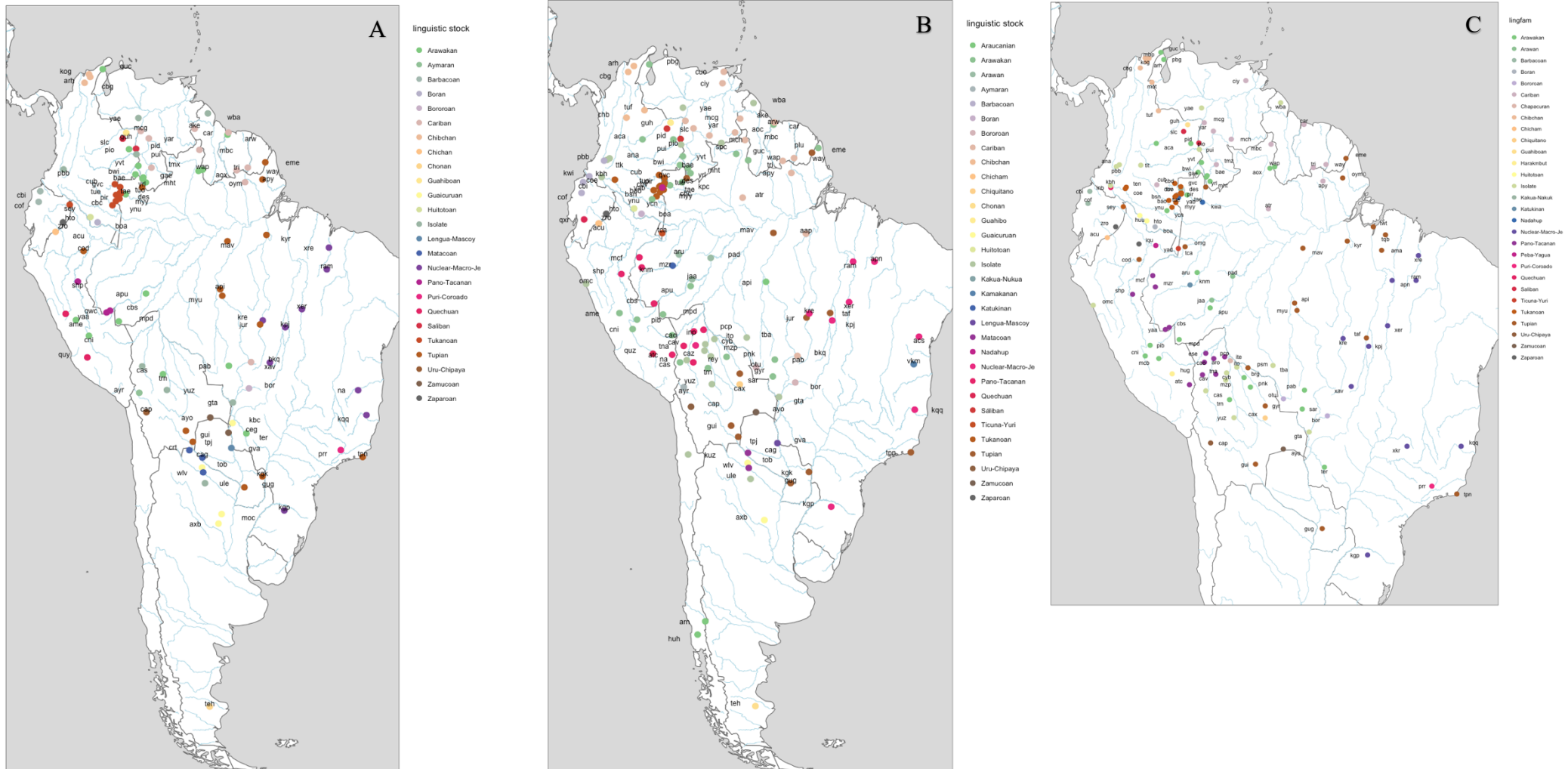
Finally, the Glottospace R package (Norder et al., 2022), was used to visualize the results of this thesis. Glottospace is a newly developed R package that uses the information from Glottolog to visualize typological data with the use of geolocation information. Glottospace was used to create the more general maps, such as those in Figure 4.3.1, to provide an overview of the word distribution.

The more specialized maps featured in Chapter 6 (and in Appendix D, Appendix E, and Appendix F) were created in Microsoft Word by overlaying polygons on maps generated by Glottospace.

It is important to note that this approach is not perfect as Glottolog simplifies information by representing entire communities as singular dots on a map. Nevertheless, this data visualization was chosen as it can provide a good general overview of areal and dispersal trends.

**Figure 4.3.1**

*Sample Generated Map with Glottospace*



*Note.* Maps display language ISO code, and colors reflect language families. A) bananas B) chickens C) firearms

## **Chapter 5. Results**

### **5.0 Introduction**

In the following chapter I present all the results of this study. Section (5.1) discusses the results of the scanning process and the results from the digitization process. Section (5.2) summarizes the sampled ethnographic data across the northern half of the Amazonian basin. Section (5.3) summarizes the linguistic data and goes over the identified pseudo-cognate clusters, and section (5.4) concludes.

### **5.1 Digitization Summary**

The results from the scanning process produced 10 new scans of Nordenskiöld's maps at a resolution of 600ppi, and 35 scans of the CI tables of interest (bananas, chickens, and firearms) at the standard 400ppi. For these scans, please see the Supplementary Materials. The full data from Nordenskiöld's tables resulted in the dataset yielding of over 493 lexical items for chickens, 333 lexical items for bananas, and 225 lexical items for firearms. After cross-referencing with other bibliographical sources (as stated in Chapter 4), the number of language communities was reduced, as was the subsequent number of lexical items. This results in the identification of 194 glottocodes (156 ISO codes) for chickens (discarding 24 languages), 174 glottocodes (145 ISO codes) for bananas (discarding 19 languages), and 128 glottocodes (111 ISO codes) for firearms (discarding 22 languages). The identified language communities are illustrated as points in Figure 5.1.1. For the full dataset of all the languages, language codes, and updated materials please see the Supplementary Materials.

**Figure 5.1.1**

*Identified Languages from Nordenskiöld's Data*

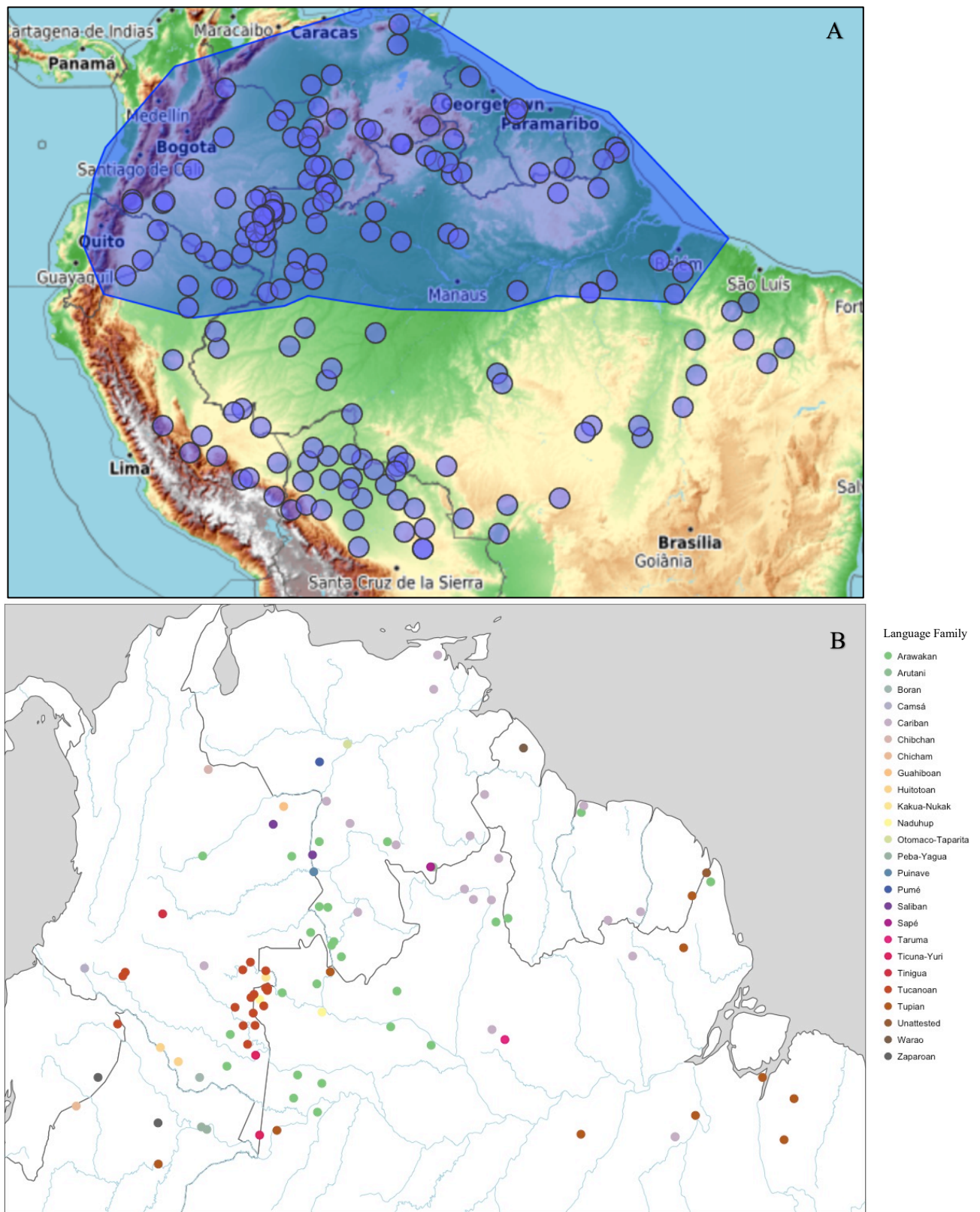


Furthermore, upon selecting for the area of interest (the NAB), the following data sample was created (illustrated in Figure 5.1.2) consisting of 99 different languages. Figure 5.1.3 shows the NAB dataset with the language points dispersed per language family. For a more detailed list please refer to Appendix C for the full language dataset including the language names given by Nordenskiöld, language name in Glottolog, the language families, ISO codes, and glottocodes.



**Figure 5.1.2**

*Language Dataset for the Northern Amazonian Basin*



*Note.* Map A represents the northern half of the Amazonian Basin, which constitutes the dataset for this study, Map B identifies the languages per language family.<sup>23</sup>

<sup>23</sup> The following languages listed as language isolates in Glottolog: Camsá, Pumé, Taruma, Tinigua, Puinave, Sapé, Warao, and Arutani.

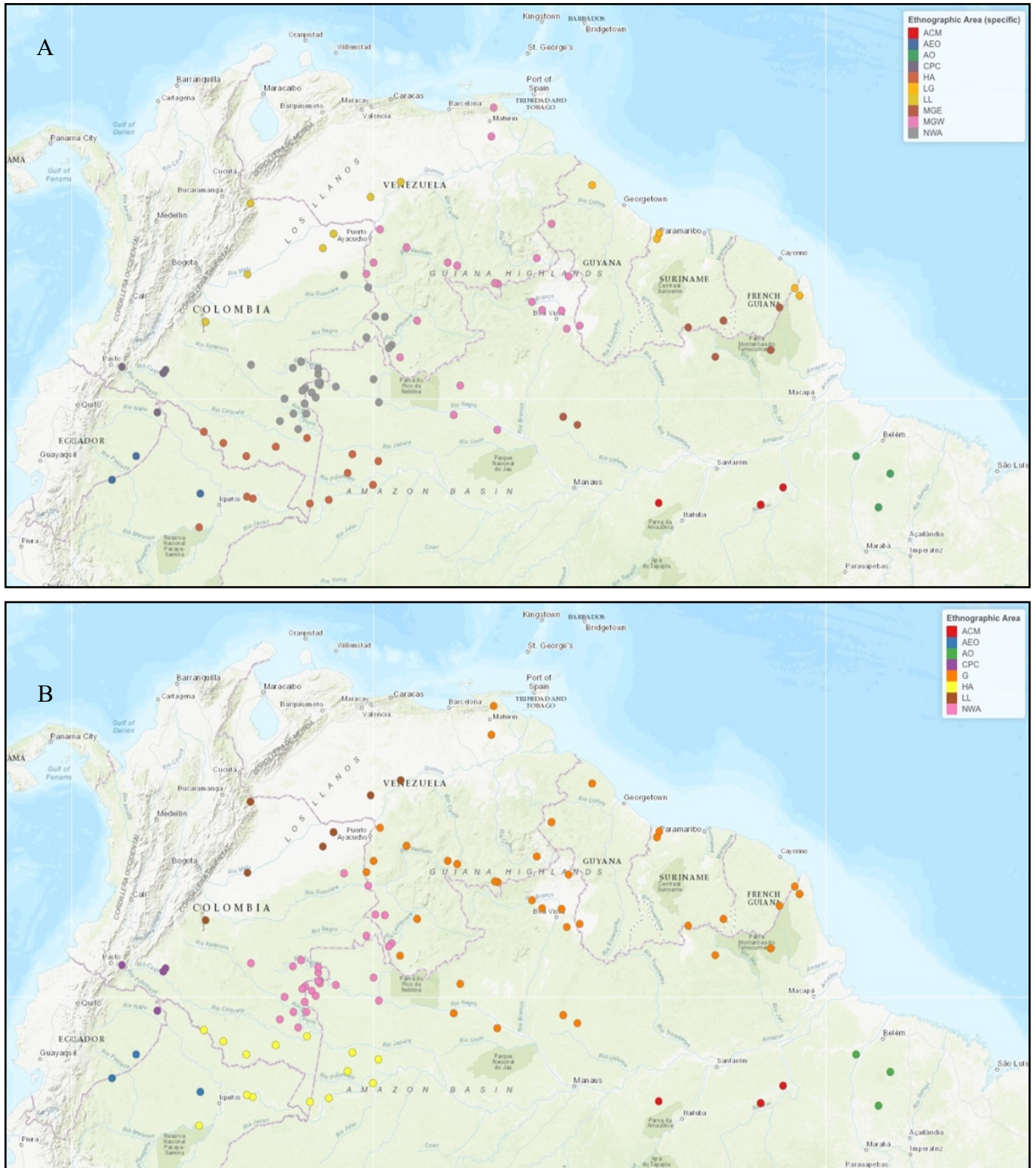
## 5.2 Anthropology Results Summary

The results of the ethnographic research led to the identification of eight relevant ethnographic zones: the "Ilha Güianense" (the Guianas "island"), which can be further subclassified into the "Maciço occidental" (Eastern zone), the "Maciço oriental" (Eastern zone), and the "Litoral" (coast); the Llanos; the "Noreste da Amazônia" (North-West Amazon); the "Alto Amazonas" (Upper Amazon); the "Cabeceiras do Putumayo e do Caquetá" (Head of the Putumayo and Caquetá); the "Amazônia Oriental" (Eastern Amazon); "the Amazônia Centro-Meridional" (Center-South Amazon); and the "Amazônia Extremo-Occidental" (Far Western Amazon). These ethnographic areas are all visualized in Figure 5.4.

The cross-reference approach to identifying the ethnographic areas as described in Melatti (1997) led to the identification of 72 language groups in the dataset. After cross-referencing other ethnographies, three languages were relocated into an ethnographic area thanks to historical notes. As mentioned in Chapter 4, languages that were not represented in Melatti's book were aligned with an ethnographic area on the basis of other ethnographic research (for example Morey's (1975) dissertation on the Llanos), or they were aligned in regard to their geolocation's approximation to an ethnographic zone. The remaining 24 languages either belong to extinct language communities or are no longer spoken by their language communities. These language points were therefore aligned with an ethnographic area with respect to language's geolocation. Finally, Nheengatu (also called *Lingua Geral* or *Lingua Geral Amazônica*) was not considered in the ethnographic map as it developed into a lingua franca in the northeastern shores of Brazil and spread to its current location deep in the Vaupés region; it is now widely spoken without being attached to one specific community and is used by many distinct communities as the everyday language. For a full list of how languages were assigned to ethnographic areas please see the Supplementary Materials. Figure 5.2.1 displays the languages that were added based on Melatti's work.

**Figure 5.2.0.1**

*Ethnographic Areas as Described by Melatti (1997)*

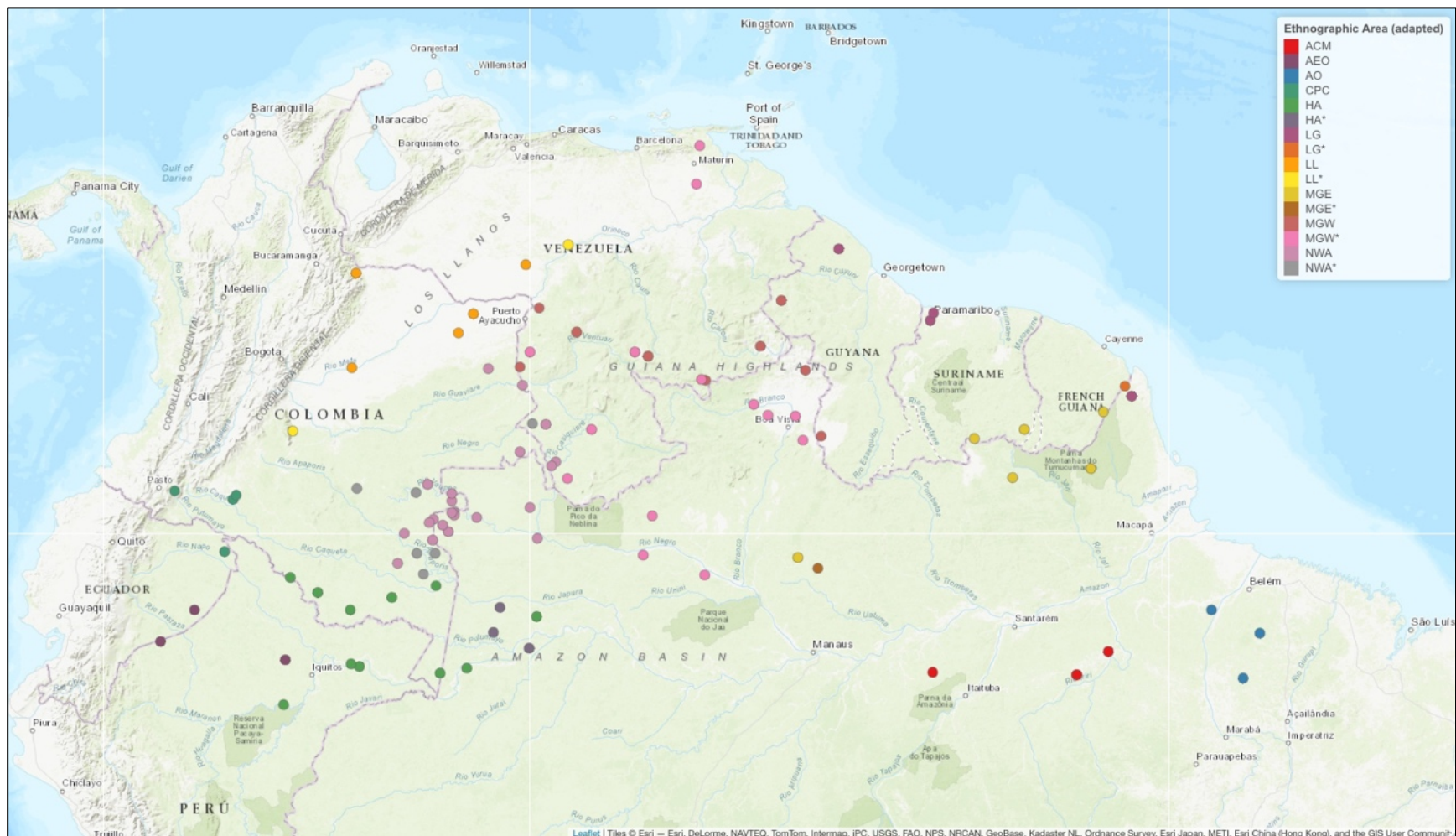


*Note.* Map A) provides a detailed version of Melatti's Ethnographic Areas and Map B) is a simplified version in which the Guianas areas are consolidated into one. G = Guianas, (Subclassification, MGW = Western zone, the MGE = Eastern zone, LG = Guianian Coast), LL = Llanos, the NWA = Northwest Amazon, HA = Upper Amazon, CPC = Head of the Putumayo and Caquetá, AO = Eastern Amazon, ACM = Center-South Amazon, and AEO = Far Western Amazon



**Figure 5.2.0.2**

*Adapted Ethnographic Areas with Added Languages*



*Note.* Languages that were added by cross-referencing other literature or via geolocation inferences are marked with an \*. Subclassification, MGW = Western zone, the MGE = Eastern zone, LG = Guianian Coast), LL = Llanos, the NWA = Northwest Amazon, HA = Upper Amazon, CPC = Head of the Putumayo and Caquetá, AO = Eastern Amazon, ACM = Center-South Amazon, and AEO = Far Western Amazon

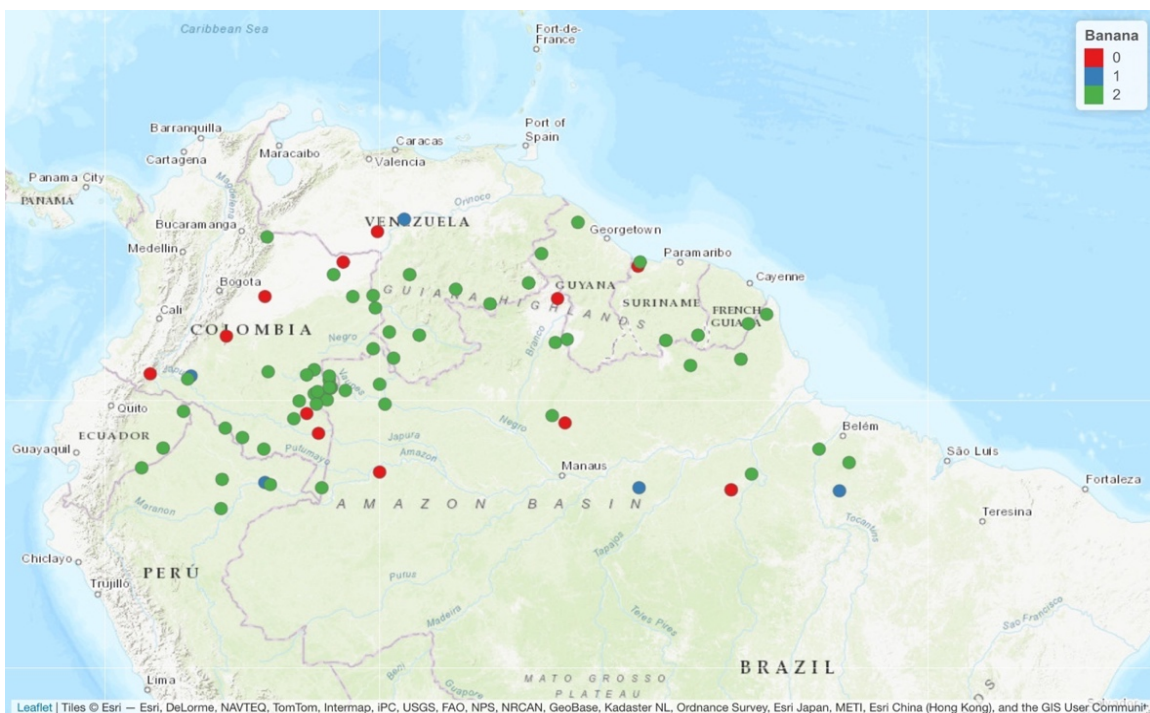
### 5.2.1.0 Cultural Item Use and Distribution

Based on the ethnographic sources, quantitative data was plotted and visualized in the following maps. In each map, the points represent a language community as it is recorded in Glottolog. It is important to note that the use of point representation simplifies the spread of a community and their language, but this visualization is meant to give an overall image of the NAB landscape. Figure 5.2.1.1 visualizes the results for bananas, Figure 5.2.1.2 visualizes the results for chickens, and Figure 5.2.1.3 visualizes the results for firearms.

**5.2.1.1 Bananas.** In Figure 5.2.1.1 the red points (code 0) represent communities where there were no mentions of bananas, the blue points (code 1) represent communities where bananas are mentioned but not in great detail, whereas the green points (code 2) represent communities where bananas are now cultivated in gardens by the community. The spread of this latter point shows that bananas are cultivated throughout the Amazon both by groups that are recognized as "swidden-agriculturalist groups", but also by traditionally non-agricultural groups. Many of the communities that cultivate bananas utilized them in the clearing of their fields in the "slash and burn" agricultural process.<sup>24</sup> Furthermore, communities that cultivate bananas often use its leaves in other aspects of community life, including wrapping meat for cooking.

**Figure 5.2.1.1**

*Ethnographic Summary: Banana*



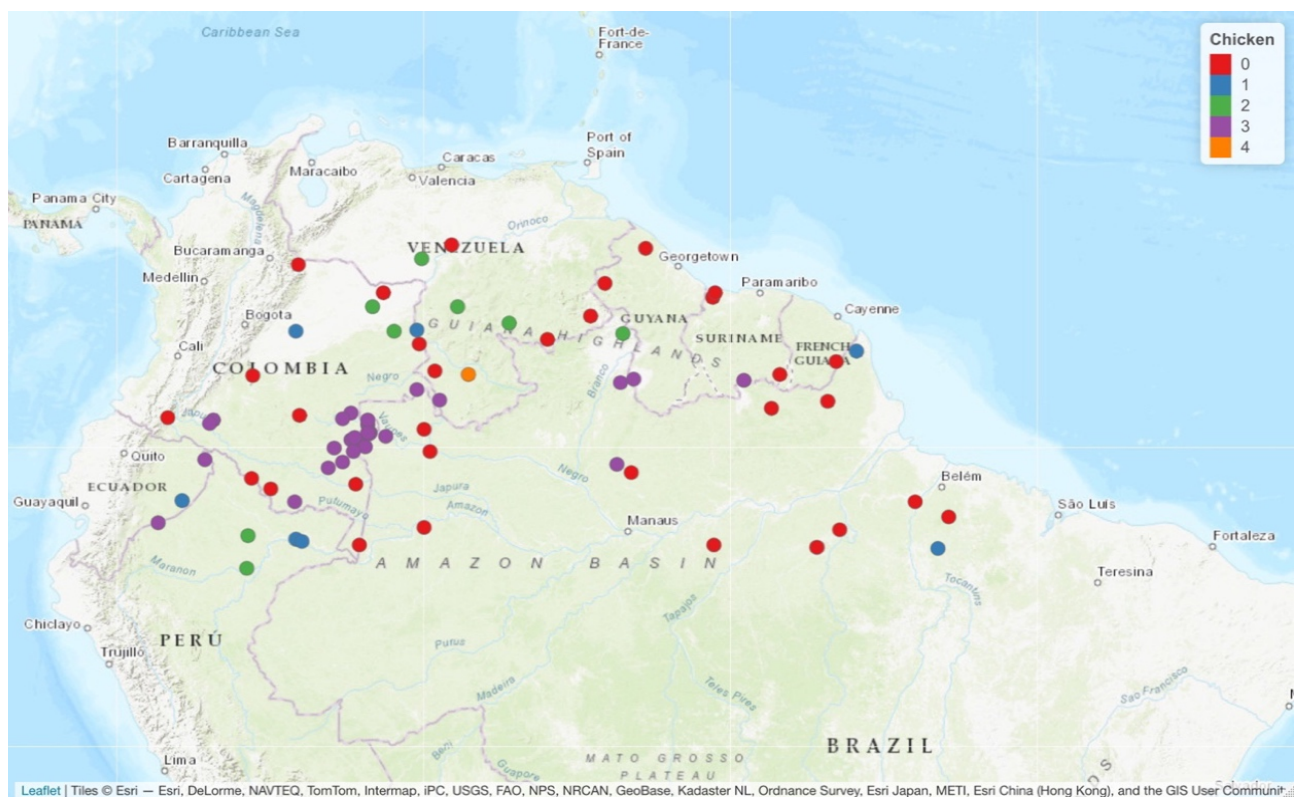
Note. 0 = no mention of bananas, 1 = mention of bananas, 2 = mention of banana cultivation.

<sup>24</sup> Slash and burn is a practice where plants are cut down and burned to fertilize fields for new seeds.

**5.2.1.2 Chickens.** In Figure 5.2.1.2, languages are divided into 5 categories depending on the position of chickens in their community. The red points (code 0) represent communities where there were no mentions of chickens, the blue points (code 1) represent communities where chickens are mentioned but not in great detail, and the green points (code 2) represent communities where chickens are raised and eaten (including eggs) by the community. The purple points (code 3) represent communities where chickens are raised but not consumed (neither the chicken nor the egg) by the community, while the orange point (code 4) represents a community where chickens are explicitly stated as not being raised. Overall chickens had, at least by the late 1800s, spread across the NAB and were a part of many Indigenous communities. Deeper into the Amazon (and especially in the Northwest Amazon) a cluster of communities raise chickens but do not consume them. Some communities outside of the NWA also do not consume chickens, such as the points in head of the Japura river, and near the Branco river. Contrary to Nordenskiöld's claim, there were no mentions of chicken feathers being used by Indigenous communities for the creation of head dresses, feather adornments, or other aesthetic/cultural reasons.

**Figure 5.2.1.2**

*Ethnographic Summary: Chickens*



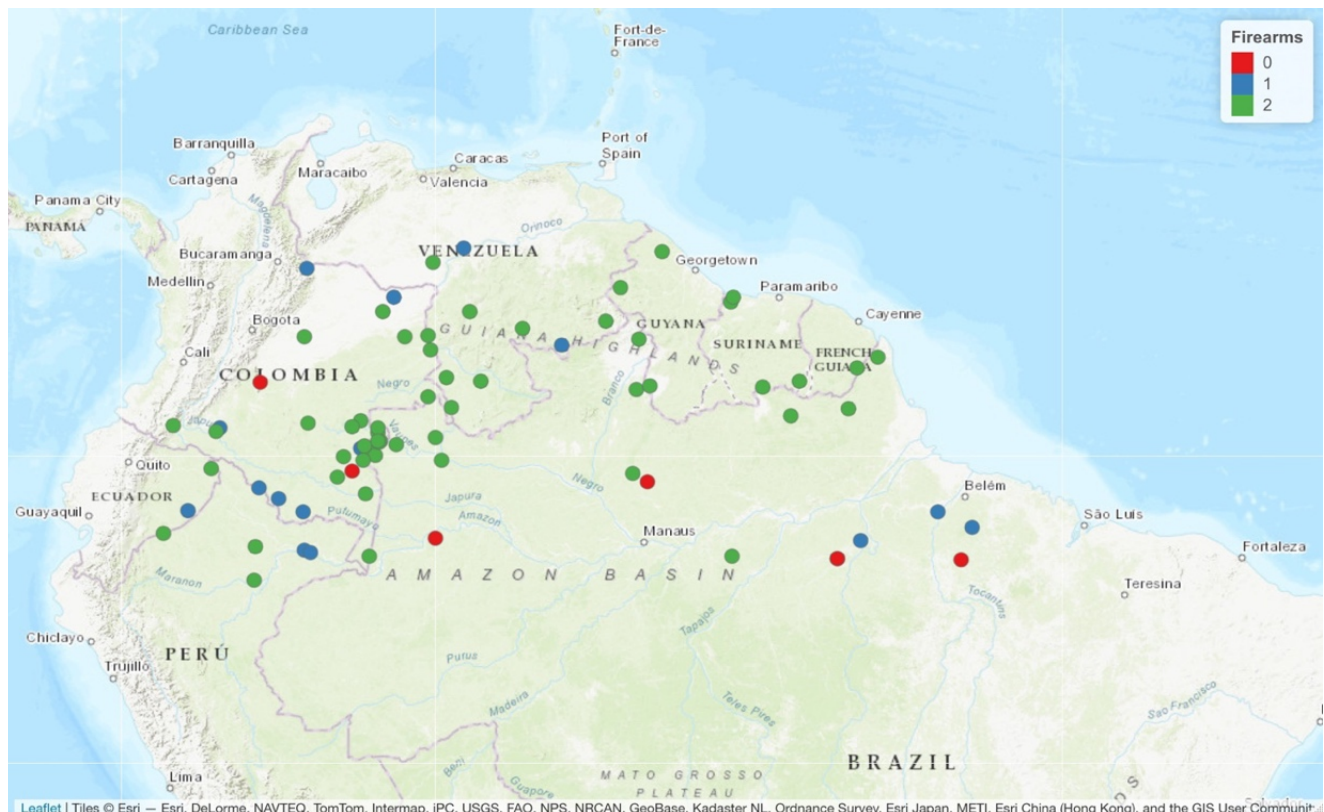
*Note.* 0 = no mention, 1 = kept chickens in some capacity, 2 = raised chickens and consumed them, 3 = raised chickens but did not consume them nor their eggs, 4 = explicit statement that chickens were not kept.



**5.2.1.3 Firearms.** In Figure 5.2.1.3 the red points (code 0) represent communities where there were no mentions of firearms, the blue points (code 1) represent communities where firearms are mentioned but not in great detail, and the green points (code 2) represent communities where firearms have taken over traditional hunting practices. Unlike the other CIs, firearms were almost always mentioned in the consulted ethnographies. Furthermore, the use of firearms has, for the most part, taken over the role of traditional weapons like blowguns, arrows, and spears. Although some ethnographies mention the use of blowguns and arrows for hunting birds or smaller mammals, especially by children when they are learning to hunt, these results are not generalizable and were often side remarks. Furthermore, when it comes to larger game, guns are almost always and exclusively utilized.

**Figure 5.2.1.3**

*Ethnographic Summary: Firearms*



### 5.3 Linguistic Data Summary

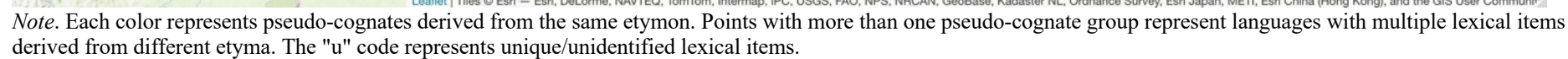
The following sections present the identified related words per CI. In each subsection words that are related are presented in regard to their spread and language family. Though these word groups are related and derived from the same etyma, calling them cognates is not technically correct as many are borrowed directly from a foreign (European) language or have been borrowed from a chain network (as explained in Chapter 2). Therefore, I address these word groups as pseudo-cognate groups as they have a shared history, but are not within a singular language family.

#### 5.3.1.0 *Banana*

In total eight pseudo-cognate groups were identified throughout the NAB. Of the eight pseudo-cognate groups, three are of European origins, such as \*platano, \*banana, and \*cambur, whereas five pseudo-cognates are novel or derived from Indigenous referents. In Figure 5.3.1.0 all pseudo-cognates are plotted across the NAB with regards the geolocation of the language groups. Below I present each etymon with more detail.



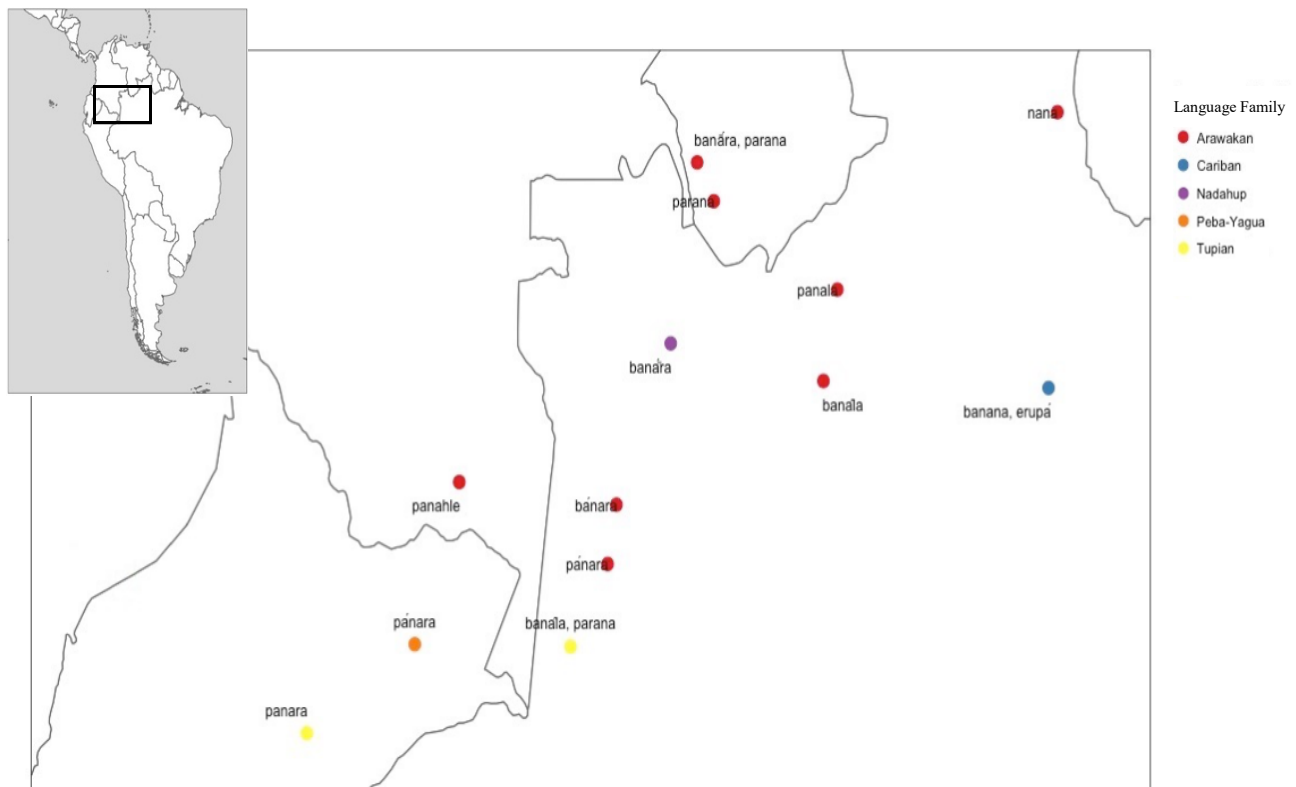
Banana Pseudo-Cognate Groups in the Northern Amazon Basin



**5.3.1.1 \*banana.** Lexical items borrowed from the etymon \*banana are widely spread across the NAB, reaching from the center of the NAB to the far west. In Nordenskiöld's data, a total of 18 languages have lexical items derived from the \*banana etymon which is likely from the Spanish/Portuguese word, *banana/banano*. In Figure 5.3.1.1 the lexical items matching the \*banana etymon group are mapped in accordance with their language families. As is demonstrated in the figure below, the \*banana pseudo-cognates are not exclusive to one language family and have been spread across the western NAB. Some word forms have diverged from the proposed original borrowing with the form <panara> being a common in the Rio Negro Basin. Furthermore, some variations in voicing and liquids to the <panara> form are present between languages such as <panala>, <banara> and <banala>. Other forms include the clipping <nana>, and the <banana> lexical item which are discussed in the next chapter. Below in Table 5.3.1.1 all of the lexical items derived from the banana etymon are depicted.

**Figure 5.3.1.1**

*Identified \*Banana Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.1.1***\*Banana Pseudo-Cognate Group*

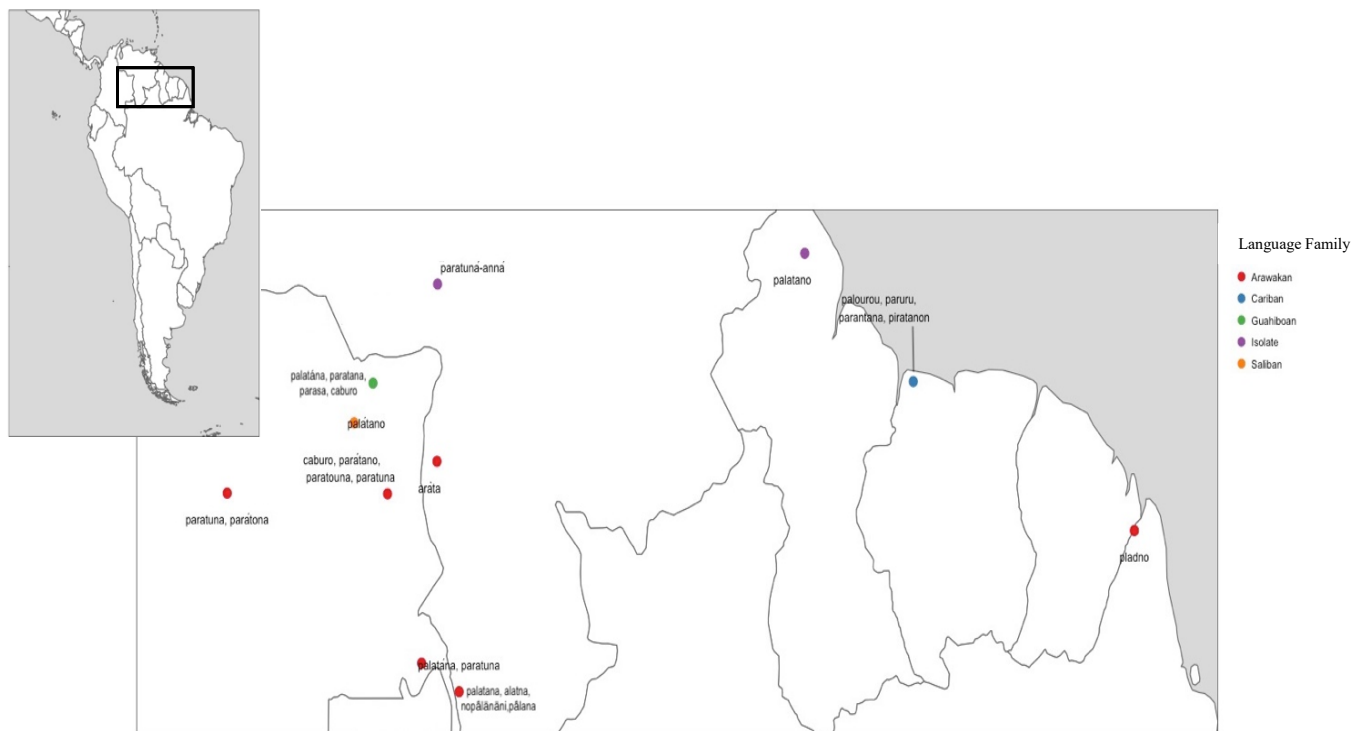
<b>*banana</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
mana1299	NA	Arawakan	Manao	<banâla>
bare1276	bae	Arawakan	Baré	<banâla>, <banára>, <parana>
omag1248	omg	Tupian	Omagua	<banâla>, <parana>
waim1253	atr	Cariban	Waimiri-Atroari	<banana>
daww1239	kwa	Nadahup	Dâw	<banára>
juma1250	NA	Arawakan	Jumana	<bánara>
ator1244	aox	Arawakan	Atorada	<nana>
uain1239	NA	Arawakan	Uainuma-Mariate	<panahle>
uiri1238	NA	Arawakan	Uirina	<panala>
coca1259	cod	Tupian	Cocama-Cocamilla	<panara>
pass1250	NA	Arawakan	Passe	<pánara>
peba1243	NA	Peba-Yagua	Peba	<pánara>
mand1448	mht	Arawakan	Mandahuaca	<parana>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.1.2 \*platano.** In Nordenskiöld's data, a total of 13 languages have lexical items derived from the \*platano etymon in reference to bananas. These borrowings are of European origins, and come from the Spanish word for banana, *plátano*. The distribution of this pseudo-cognate group, like \*banana, is wide with a cluster in the area bordering the Llanos and the western area of the Guianas. A common word form for lexical in this pseudo-cognate group is <paratana> which breaks consonant clusters to match the recipient language's syllable structure. Moreover, variations on this form are present in vowels and/or in the liquid consonant (as in <paratuna>, <paratano>, and <palatana>, <paratana>). Below, Figure 5.3.1.2 maps out the lexemes of this pseudo-cognate group, and Table 5.3.1.2 shows all of the lexical items in the \*platano pseudo-cognate group.

**Figure 5.3.1.2**

*Identified \*Platano Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.1.2***\*Platano Pseudo-Cognate Group*

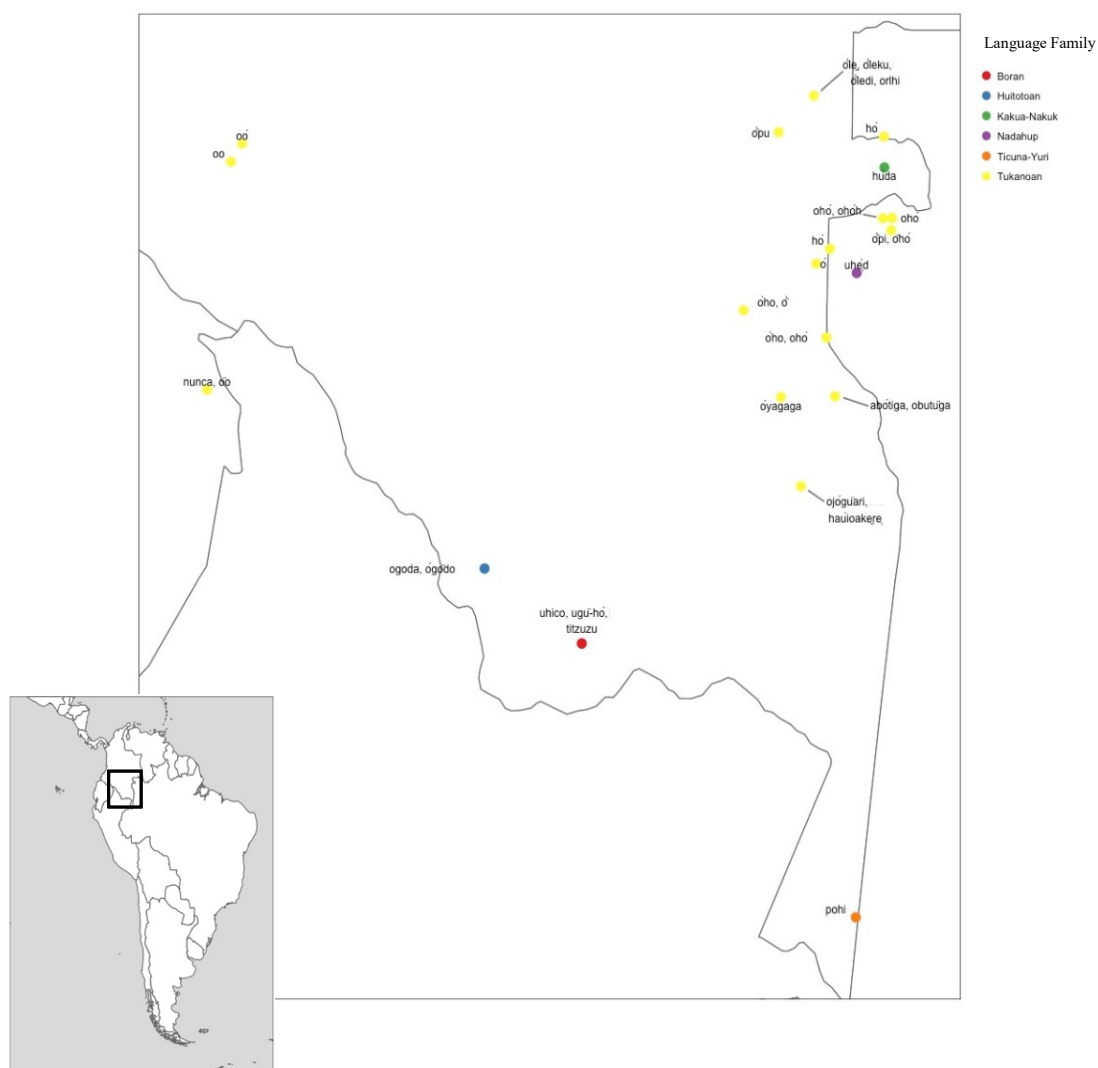
<b>*platano</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
maip1247	NA	Arawakan	Maipure-Avane	<aràta>
piap1246	pio	Arawakan	Piapoco	<paratouna>, <paratuna>, <parátano>
yavi1244	yvt	Arawakan	Yavitero-Pareni	<jarátan>, <palátana>
bani1255	bwi	Arawakan	Baniwa do Icana	<palatana>, <palátana>, <parátana>, <parátano>, <alatna>, <nopálānāni>
guah1255	guh	Guahiboan	Guahibo	<palatána>, <paratana>, <parasa>
guar1293	gae	Arawakan	Baniva de Maroa	<palatána>, <paratuna>
sali1298	slc	Saliban	Sáliba	<palátano>
wara1303	wba	Isolate	Warao	<palatano>
pume1238	yae	Isolate	Pumé	<paratuná-anná>
acha1250	aca	Arawakan	Achagua	<paratuna>, <parátana>
mara1408	NA	Arawakan	Marawan†	<pladno>
gali1262	car	Cariban	Galibi Carib	<parantana>, <piratanon>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.1.3 \*oho.** In Nordenskiöld's data, a total of 20 languages have lexical items derived from the \*oho etymon for the banana fruit. This pseudo-cognate group is specifically clustered within the Vaupés and its surrounding areas and includes the entirety of the Tukanoan family. This etymon is most likely of Indigenous origin, possibly from "bastard plantain" or "wild banana" lookalike plants. This group may be a true cognate within the Tukanoan family, which was borrowed into surrounding languages before European contact, though these varying forms are discussed in the next chapter. Figure 5.3.1.3 maps out these pseudo-cognates and Table 5.3.1.3 displays all of the lexical items derived from the \*oho etymon.

**Figure 5.3.1.3**

*Identified \*Oho Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.1.3***\*Oho Pseudo-Cognate Group*

<b>*oho</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
jupu1235	NA	Tukanoan	Yupua	<obutüga>, <abótiga>
guan1269	gvc	Tukanoan	Kotiria	<hó>
tuyu1244	tue	Tukanoan	Tuyuka	<hó>
cacu1241	cbv	Kakua-Nakuk	Kakua	<húda>
seco1241	sey	Tukanoan	Sekoya	<öo>
waim1255	bao	Tukanoan	Waimaha	<ó>
desa1247	des	Tukanoan	Desano	<ohó>
bara1380	bsn	Tukanoan	Barasana-Eduria	<óho>, <ó>
macu1260	myy	Tukanoan	Makuna	<óho>, <ohó>
tuca1252	tuo	Tukanoan	Tukano	<ohó>, <ohóh>
cure1236	NA	Tukanoan	Kueretu	<ojógüari>, <haúioakę>
cube1242	cub	Tukanoan	Kubeo	<óle>, <óleku>, <óledi>, <orlhi>
kore1283	coe	Tukanoan	Koreguaje	<oo>
tama1340	ten	Tukanoan	Tama	<oó>
pira1254	pir	Tukanoan	Wa'ikhana	<ópi>, <ōhó>
pisa1245	NA	Tukanoan	Pisamira	<ópu>
yahu1241	ynu	Tukanoan	Yahuna	<óyagaga>
mini1256	hto	Huitotoan	Minica Huitoto	<ogoda, ógōdo>
ticu1245	tca	Ticuna-Yuri	Ticuna	<pohi>
yuhu1238	yab	Nadahup	Yuhup	<uhéd>
bora1263	boa	Boran	Bora	<uhico>, <ugü-hó>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.





**Table 5.3.1.4***\*Paruru Pseudo-Cognate Group*

<b>*paruru</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
macu1259	mbc	Cariban	Macushi	<barurú>, <parurú>, <paruru>, <parourou>
maqu1238	mch	Cariban	Ye'kwana	<faroro>, <fárruro>, <jáduru>
yaba1248	yar	Cariban	Yabarana	<páharu>
mapo1246	mcg	Cariban	Mapoyo	<páharú>
gali1262	car	Cariban	Galibi Carib	<palourou>, <paruru>
waya1269	way	Cariban	Wayana	<palulu>, <parourou>
para1309	NA	Cariban	Paravilhana	<palurú>
aman1266	ama	Tupian	Amanayé	<parirí>
cari1279	cbd	Cariban	Carijona	<parou>
apal1257	apy	Cariban	Apalaí	<parourou>
trio1238	tri	Cariban	Trió	<parourou>, <apalulu>
yucu1253	ycn	Arawakan	Yucuna	<parú>, <páru>
piar1243	pid	Saliban	Piaroa	<paruro>, <páruru>
otom1301	NA	Otomaco-Taparita	Otomaco	<paruru>
tama1338	tmz	Cariban	Tamanaku	<parùru>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.1.5 \*pakova.** In Nordenskiöld's data, a total of 15 languages have lexemes derived from the \*pakova etymon. This etymon is likely derived from a native South American plant and comes from the Tupian language family as the data within the NAB consists only of this languages group. Hence, this group is likely a true cognate group. The origins of this etymon is elaborated upon in the next chapter. Below, the variations of this etymon are mapped out in Figure 5.3.1.5, and in Table 5.3.1.5 displays all of the lexical items derived from the \*pakova etymon.

**Figure 5.3.1.5**

*Identified \*Pakova Cognates in the Northern Amazon Basin*



Note. The left most point represent Nheengatu *lingua franca*.

**Table 5.3.1.5**

*\*Pakova Cognate Group*

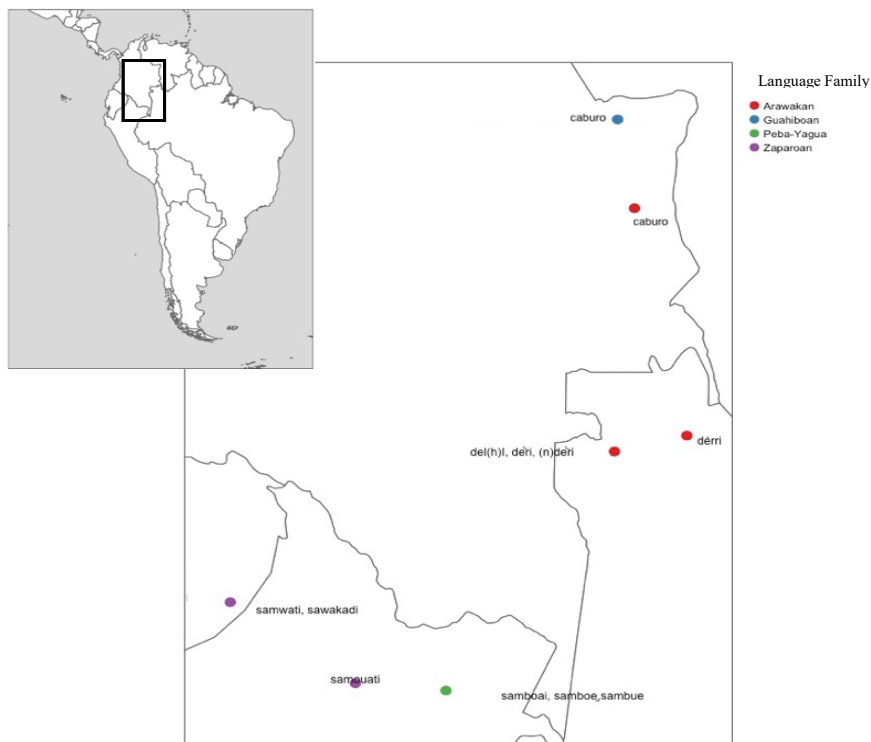
<b>*pakova</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
waya1270	oym	Tupian	Wayampi	<pacowe>, <baco>, <paco>
emer1243	eme	Tupian	Teko	<paco>
sate1243	mav	Tupian	Sateré-Mawé	<pacoa>
nhen1239	yrl	Tupian	Nhengatu	<pacoa>, <pakua>
temb1276	tqb	Tupian	Tenetehara	<pakó>
turi1247	twt	Tupian	Turiwára	<pakówa>
kuru1309	kyr	Tupian	Kuruáya	<pauá>

Note. This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.1.6 Smaller Banana Pseudo-Cognate Groups.** The following pseudo-cognate groups are smaller in comparison to the previously mentioned groups. In Nordenskiöld's data, a total of two languages have lexemes derived from \*cambur, two languages have the lexemes derived from \*nderi, and three languages have lexemes derived from the %samo etymon. Further, the languages with the lexical item derived from \*cambur also have a word derived from \*platano, exclusively. Below in Table 5.3.1.6 shows all of the lexical items with derived from the \*cambur, \*nderi, and %samo etyma. Figure 5.3.1.6 maps out these lexical items throughout the NAB.

**Figure 5.3.1.6**

*Smaller Pseudo-Cognate Groups in the Northern Amazon Basin: Bananas*



**Table 5.3.1.6**

*Smaller Pseudo-Cognate Groups: Bananas*

Glottocode	ISO	Language Family	Language	lexical item(s)
<b>*cambur</b>				
guah1255	guh	Guahiboan	Guahibo	<caburo>
piap1246	pio	Arawakan	Piapoco	<caburo>
<b>*nderi</b>				
curr1243	kpc	Arawakan	Curripaco	<déri>
tari1256	tae	Arawakan	Tariana	<deli>, <déri>, <ndéri>
<b>*samo</b>				
iqui1243	iqu	Zaparoan	Iquito	<samouati>
yagu1244	yad	Peba-Yagua	Yagua	<samboai>, <samboe>, <sambue>
zapa1253	zro	Zaparoan	Záparo	<samwati>, <sawakadi>

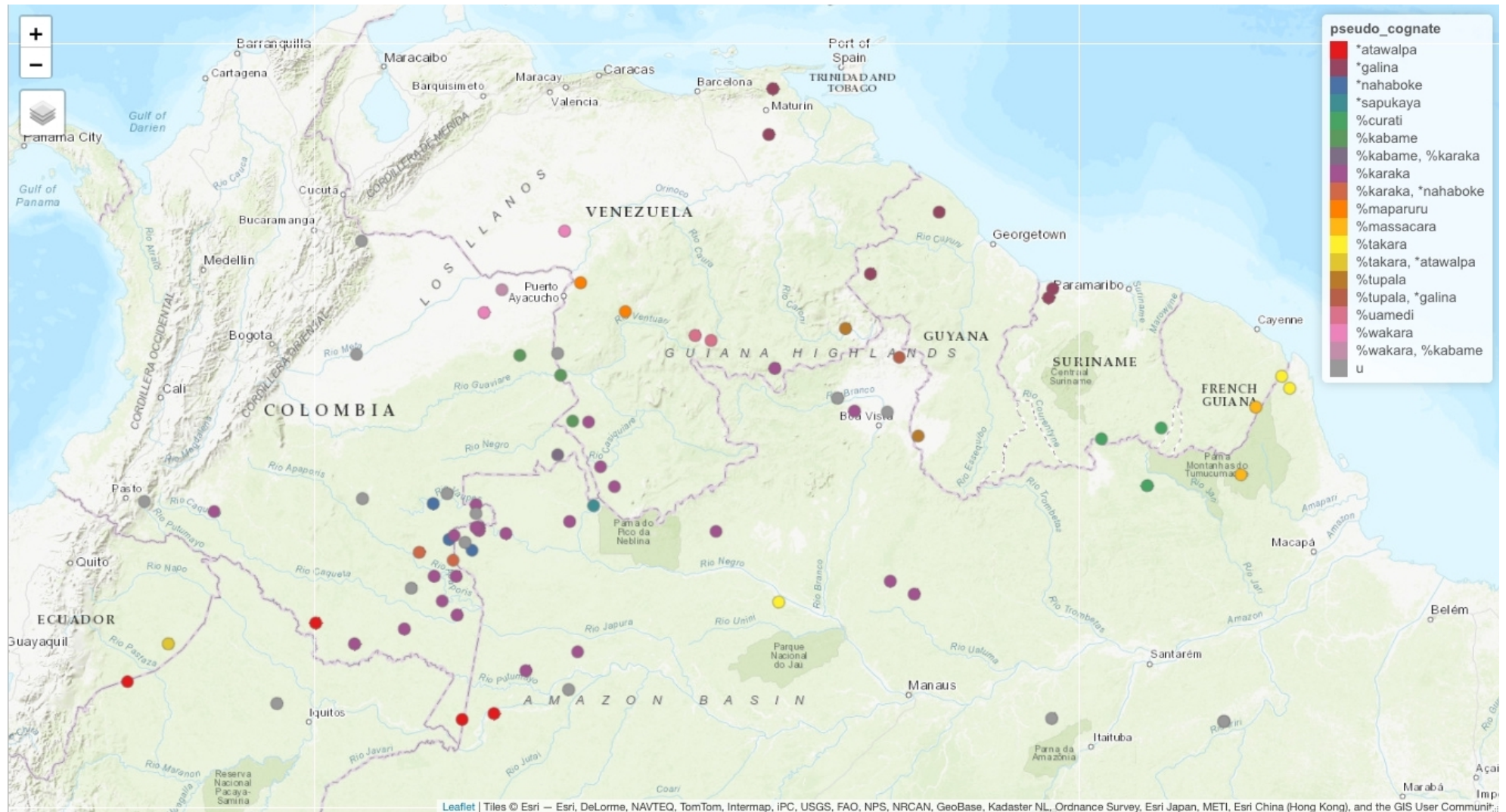
*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

### **5.3.2.0 Chickens**

In total, 12 pseudo-cognate groups were identified throughout the NAB. Of the 12 groups, only \*galina is of European origins (likely from the Spanish/Portuguese word, *gallina/galinha*), whereas 11 pseudo-cognate groups are of Indigenous origins. In Figure 5.3.2.0, all pseudo-cognates are plotted across the NAB with regards the geolocation of the language groups. Below I elaborate on the results for this CI.

**Figure 5.3.2.0**

*Chicken Pseudo-Cognate Groups in the Northern Amazon Basin*

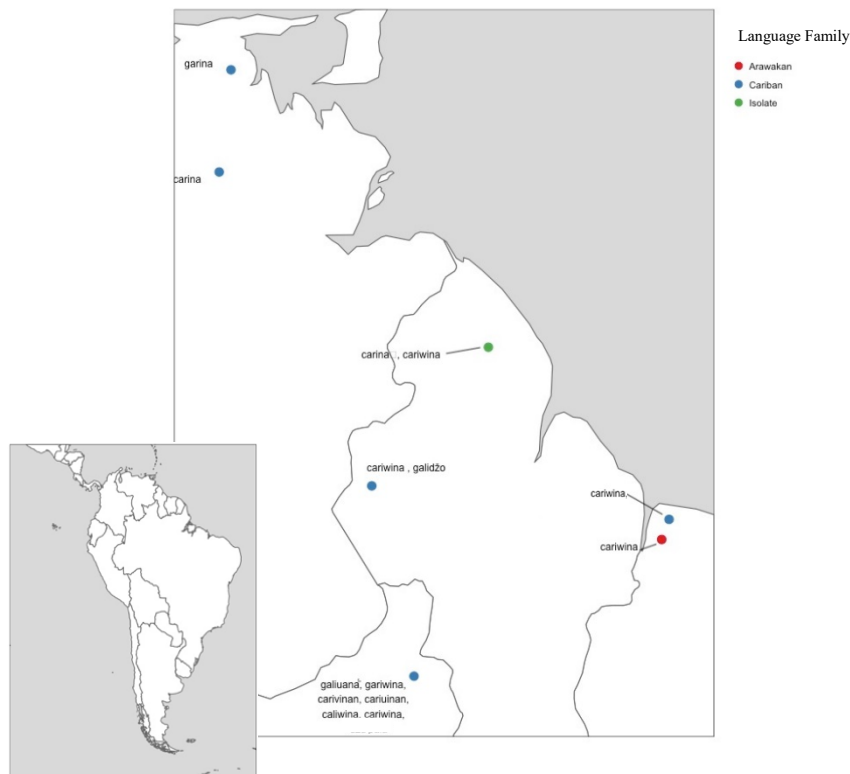


*Note.* Each color represents a different identified etymon. Points with more than one etymon represent languages with multiple etyma. The "u" cognates represent unique etyma

**5.3.2.1 \*galina.** The spread of lexemes derived from the etymon \*galina are mostly found near the coasts of the Guianas and likely comes from the Portuguese or Spanish word *galinha*, *gallina*. Eight languages from the Arawakan, Cariban, and Warao language families appear to have borrowed this lexical item. The word forms for this group generally break up consonant clusters by inserting vowels giving forms like <cariwina>, with varying changes in voicing and liquid consonants. The lexemes of this group are mapped out in Figure 5.3.2.1 and present in Table 5.3.2.1 below.

**Figure 5.3.2.1**

*Identified \*Galina Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.2.1**

*\*Galina Pseudo-Cognate Group*

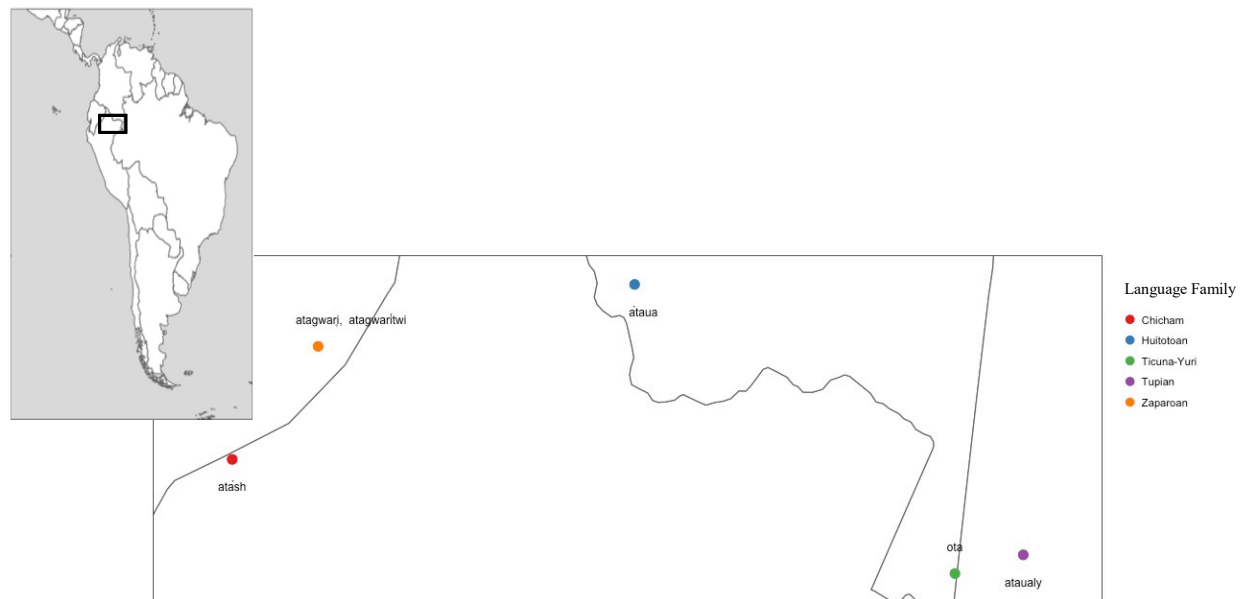
<b>*galina</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
araw1276	arw	Arawakan	Lokono	<cariwina>
akaw1239	ake	Cariban	Akawaio-Ingariko	<cariwina>, <galidzo>
chai1253	ciy	Cariban	Chaima	<carina>
cuma1240	cuo	Cariban	Cumanagoto	<garina>
macu1259	mbc	Cariban	Macushi	<galiuana>, <gariwina>, <cariuinan>, <caliwina>, <cariwina>
gali1262	car	Cariban	Galibi Carib	<cariwina>
wara1303	wba	Isolate	Warao	<carina>, <cariwina>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.2.2 \*atawalpa.** The origins of the etymon \*atawalpa for chicken is of Quechua origins as stated by Nordenskiöld. In the digitized data four lexemes were identified as belonging to this etymon. Furthermore, the \*atawalpa etymon is found in the far west of the NAB in the High Amazonas. Almost all the lexemes derived from this etymon appear to have gone through a process of clipping resulting in the forms <atash>, <átua>, <ataualy>, and possibly <ota>. These words are mapped onto Figure 5.3.2.2 and listed in Table 5.3.2.2.

**Figure 5.3.2.2**

*Identified \*Atawalpa Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.2.2**

*\*Atawalpa Pseudo-Cognate Group*

<b>*atawalpa</b>				
<b>Glottocode</b>	<b>ISO</b>	<b>Language Family</b>	<b>Language</b>	<b>lexical item(s)</b>
achu1248	acu	Chicham	Achuar-Shiwiari	<atásh>
mini1256	hto	Huitotoan	Minica Huitoto	<átua>
omag1248	omg	Tupian	Omagua	<ataualy>
ticu1245	tca	Ticuna-Yuri	Ticuna	<ota>
zapa1253	zro	Zaparoan	Zaparo	<atagwari>, <atagwarítwi>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.2.3 \*nahabokey.** Lexical items derived from the \*nahabokey etymon are present within the Tukanoan language family in the Vaupés region (making this possibly a true cognate). The \*nahabokey etymon possibly originates from a bird name or from sound iconicity, though this is discussed in the next chapter. The form of this word varies but is only found in the Tukanoan family, and more specifically in the eastern branch. Figure 5.3.2.3 maps out the lexical word forms found in this group and Table 5.3.2.3 lists out the lexical items.

**Figure 5.3.2.3**

*Identified \*Nahabokey Cognates in the Northern Amazon Basin*



**Table 5.3.2.3**

*Lexical Items with the \*nahabokey Etymon*

*nahabokey				
Glottocode	iso	Language Family	Language	lexical item(s)
bara1380	bsn	Tukanoan	Barasana-Eduria	<nahambuki>, <amboki>, <nahambuki>
macu1260	myy	Tukanoan	Makuna	<nahambuki>
pira1254	pir	Tukanoan	Wa'ikhana	<kamona>, <kanaka>
pisa1245	NA	Tukanoan	Pisamira	<kamboki>, kamoki>
waim1255	bao	Tukanoan	Waimaha	<ambuki>

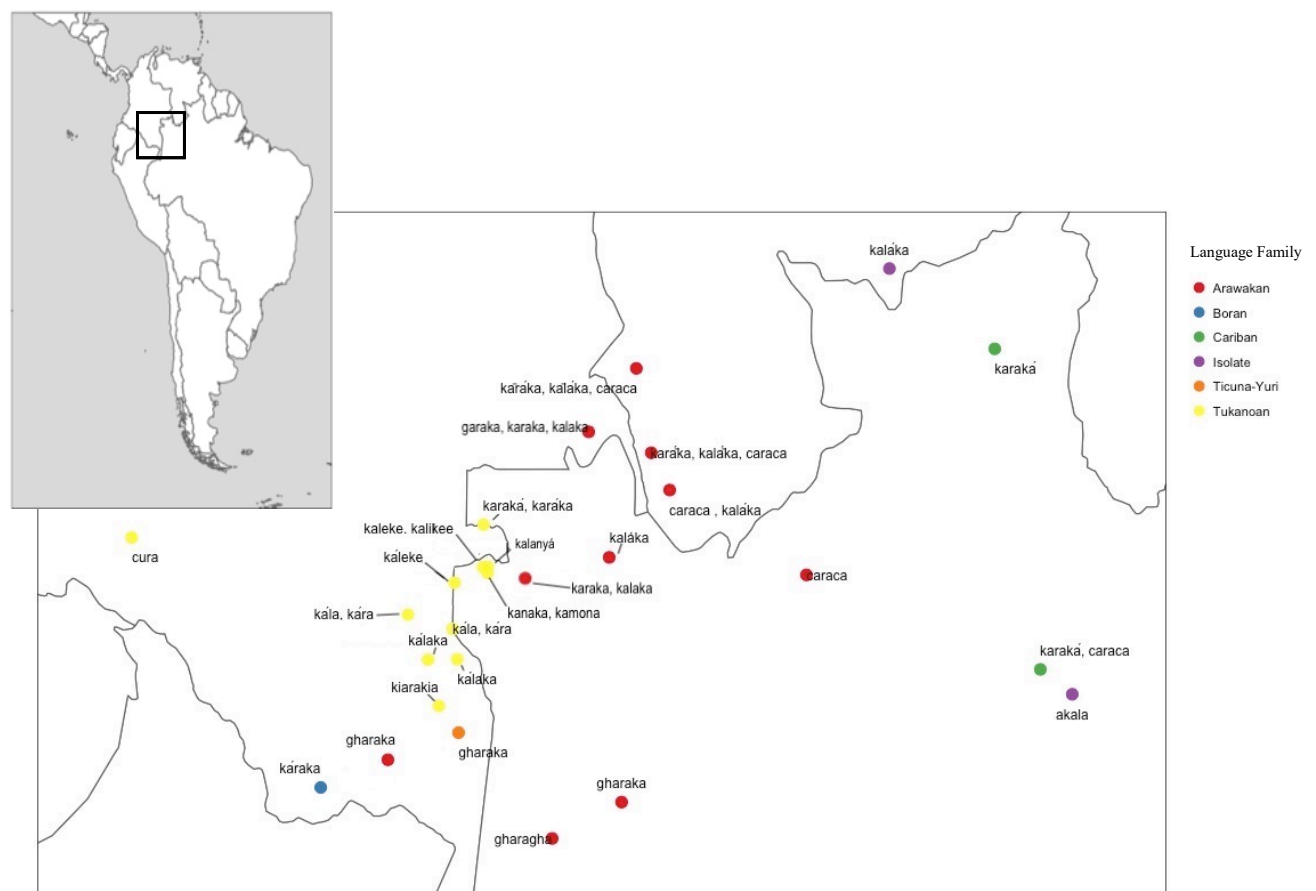
*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.



**5.3.2.4 %karaka.** The origins of the %karaka etymon is hard to identify and could possibly originate from an iconic source such as the chirping of chickens. This word form is in large part found in the western area of the NAB reaching into the NWA and its surrounding areas. The lexemes of this pseudo-cognate group remains largely consistent throughout its spread with some variation in voicing (particularly in the bottom left of the figure below), and some variation in liquid consonants giving forms like <karaka>, <kalaka>, <galaka>, and <galaga>. Figure 5.3.2.4 maps out the words of this group and Table 5.3.2.4 lists out the varying forms.

**Figure 5.3.2.4**

*Identified %Karaka Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.2.4***%Karaka Pseudo-Cognate Group*

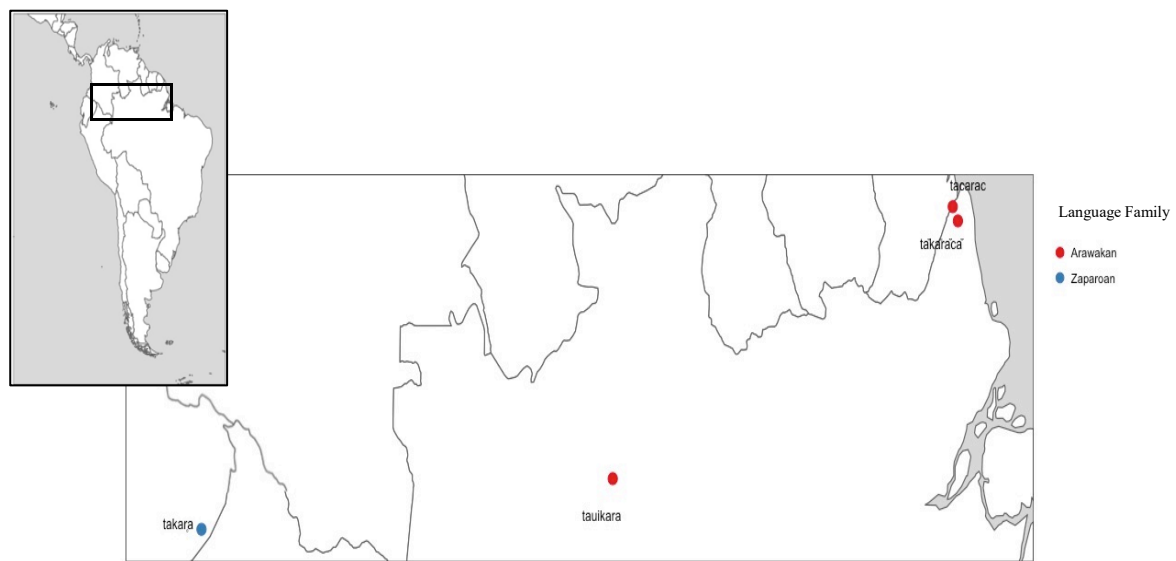
%karaka				
Glottocode	iso	Language Family	Language	lexical item(s)
bare1276	bae	Arawakan	Baré	<karáka>, <kaláka>, <caraca>
bani1255	bwi	Arawakan	Baniwa do Icana	<garaka>, <karaka>, <kalaka>
bora1263	boa	Boran	Bora	<káraka>
curr1243	kpc	Arawakan	Curripaco	<kaláka>
juri1235	NA	Ticuna-Yuri	Juri	<gharaka>
kais1242	NA	Arawakan	Kaishana	<gharaka>
mand1448	mht	Arawakan	Mandahuaca	<caraca>, <kaláka>
pass1250	NA	Arawakan	Passe	<gharagha>
sape1238	spc	Isolate	Sapé	<kaláka>
tari1256	tae	Arawakan	Tariana	<karaka>, <kalaka>
taru1236	tdm	Isolate	Taruma	<akala>
uain1239	NA	Arawakan	Uainuma-Mariate	<gharaka>
uiri1238	NA	Arawakan	Uirina	<caraca>
waim1253	atr	Cariban	Waimiri-Atroari	<karaká>, <caraca>
ware1255	NA	Arawakan	Warekena do San Miguel	<kāraka>, <kālaka> <caraca>
wayu1242	NA	Cariban	Wayumara	<karaká>
bara1380	bsn	Tukanoan	Barasana-Eduria	<kála, kára>
yahu1241	ynu	Tukanoan	Yahuna	<kálaka>
macu1260	myy	Tukanoan	Makuna	<kála>, <kára>
cure1236	NA	Tukanoan	Kueretu	<kiarakia>
desa1247	des	Tukanoan	Desano	<kálanyá>
guan1269	gvc	Tukanoan	Kotiria	<karaká>, <karáka>
jupu1235	NA	Tukanoan	Yupua	<kálaka>
kore1283	coe	Tukanoan	Koreguaje	<cura>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.2.5 %takara.** Lexemes of the %takara pseudo-cognate group are present in three different languages and have an overall random spread throughout the NAB with the only exception being in the east with the Cariay and Marawan languages. The word forms for this group stay generally consistent with exception of the extra vowels in Cariay, and the extra syllable in Marawan and Palicur. The word forms are mapped out in Figure 5.3.2.5 and listed in Table 5.3.2.5.

**Figure 5.3.2.5**

*Identified %Takara Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.2.5**

*%Takara Pseudo-Cognate Group*

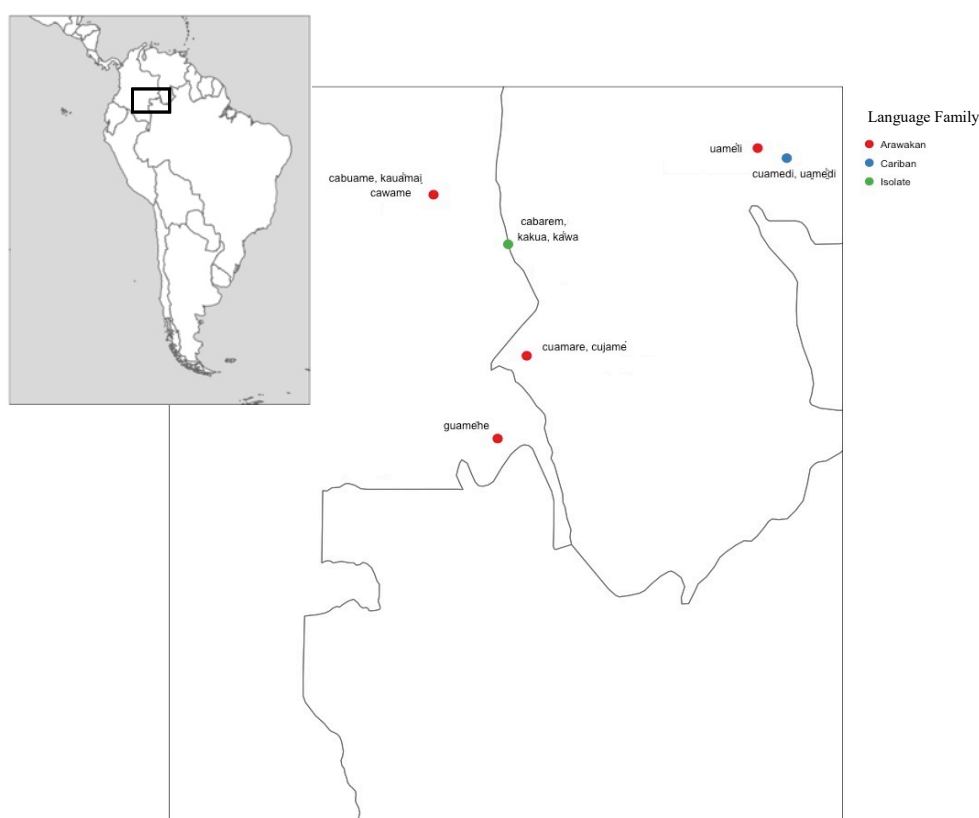
%takara				
Glottocode	iso	Language Family	Language	lexical item(s)
cari1280	NA	Arawakan	Cariay	<tauikara>
mara1408	NA	Arawakan	Marawan	<takaraca>
pali1279	plu	Arawakan	Palicur	<tacarac>
zapa1253	zro	Zaparoan	Zaparo	<takara>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.2.6 %kabame.** Lexemes derived from the %kabame etymon are largely found in the Arawakan family and clustered near the source of the Rio Negro and the surrounding tributaries an into the Llanos. This etymon possibly has its origins in the mimicry of bird calls, though this is further discussed in the next chapter. The word forms are mapped onto Figure 5.3.2.6 and listed in Table 5.3.2.6.

**Figure 5.3.2.6**

*Identified %Kabame Pseudo-Cognates in the Northern Amazon Basin*



**Table 5.3.2.6**

*%Kabame Pseudo-Cognate Group*

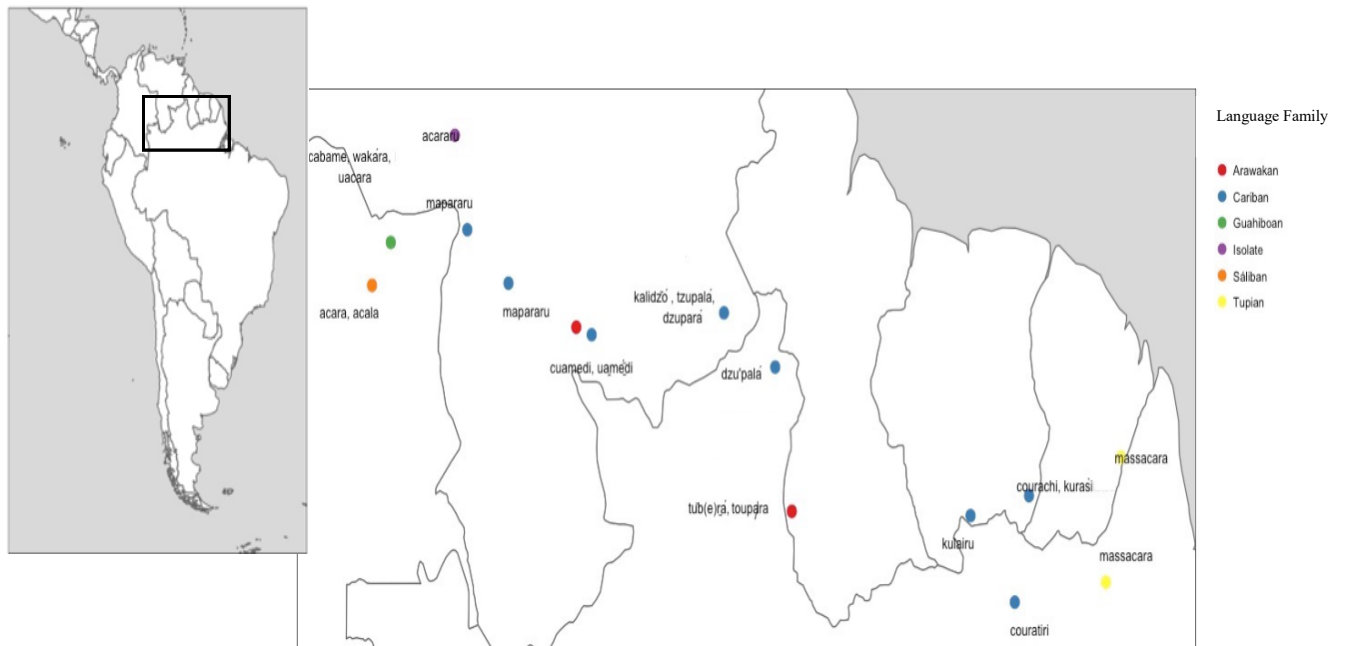
%kabame				
Glottocode	iso	Language Family	Language	lexical item(s)
guah1255	guh	Guahiboan	Guahibo	<cabame>
piap1246	pio	Arawakan	Piapoco	<cabuame>, <cawame>, <kauamai>
puin1248	pui	Isolate	Puinave	<cabarem>
yavi1244	yvt	Arawakan	Yavitero-Pareni	<cuamare>, <cujamé>
bani1255	bwi	Arawakan	Baniwa do Icana	<guamēhe>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.2.7 Smaller Chicken Pseudo-Cognate Groups.** The following represent smaller pseudo-cognate groups identified in the chicken CI. The origins of the etyma from which these lexical items are derived are unclear, though this is discussed in the next chapter. These word forms are mapped out in Figure 5.3.2.7 and presented below in Table 5.3.2.7

**Figure 5.3.2.7**

*Smaller Pseudo-Cognate Groups in the Northern Amazon Basin: Chickens*



**Table 5.3.2.7***Smaller Pseudo-Cognate Groups: Chickens*

Glottocode	iso	Language Family	Language	lexical item(s)
%mapararu				
mapo1246	meg	Cariban	Mapoyo	<mapararu>
yaba1248	yar	Cariban	Yabarana	<mapararu>
%massacara				
emer1243	eme	Tupian	Teko	<massacara>
waya1270	oym	Tupian	Wayampi	<massacara>
%wakara				
sali1298	slc	Sáliban	Sáliba	<acara>, <acala>
pume1238	yae	Isolate	Pumé	<acararu>
guh1255	guh	Guahiboan	Guahibo	<wakára>, <uacara>
%courashi				
waya1269	way	Cariban	Wayana	<courachi>, <kuraši>
apal1257	apy	Cariban	Apalaí	<couratiri>
trio1238	tri	Cariban	Trió	<kulairu>
%tupala				
pemo1248	aoc	Cariban	Pemon	<tzupalá>, <dzupará>
wapi1253	wap	Arawakan	Wapishana	<tūberá>, <toupara>
macu1259	mbc	Cariban	Macushi	<dzup'alá>
%uamedi				
guin1258	NA	Arawakan	Guinai†	<uaméli>
maqu1238	mch	Cariban	Ye'kwana	<cuamedi>, <uamédi>

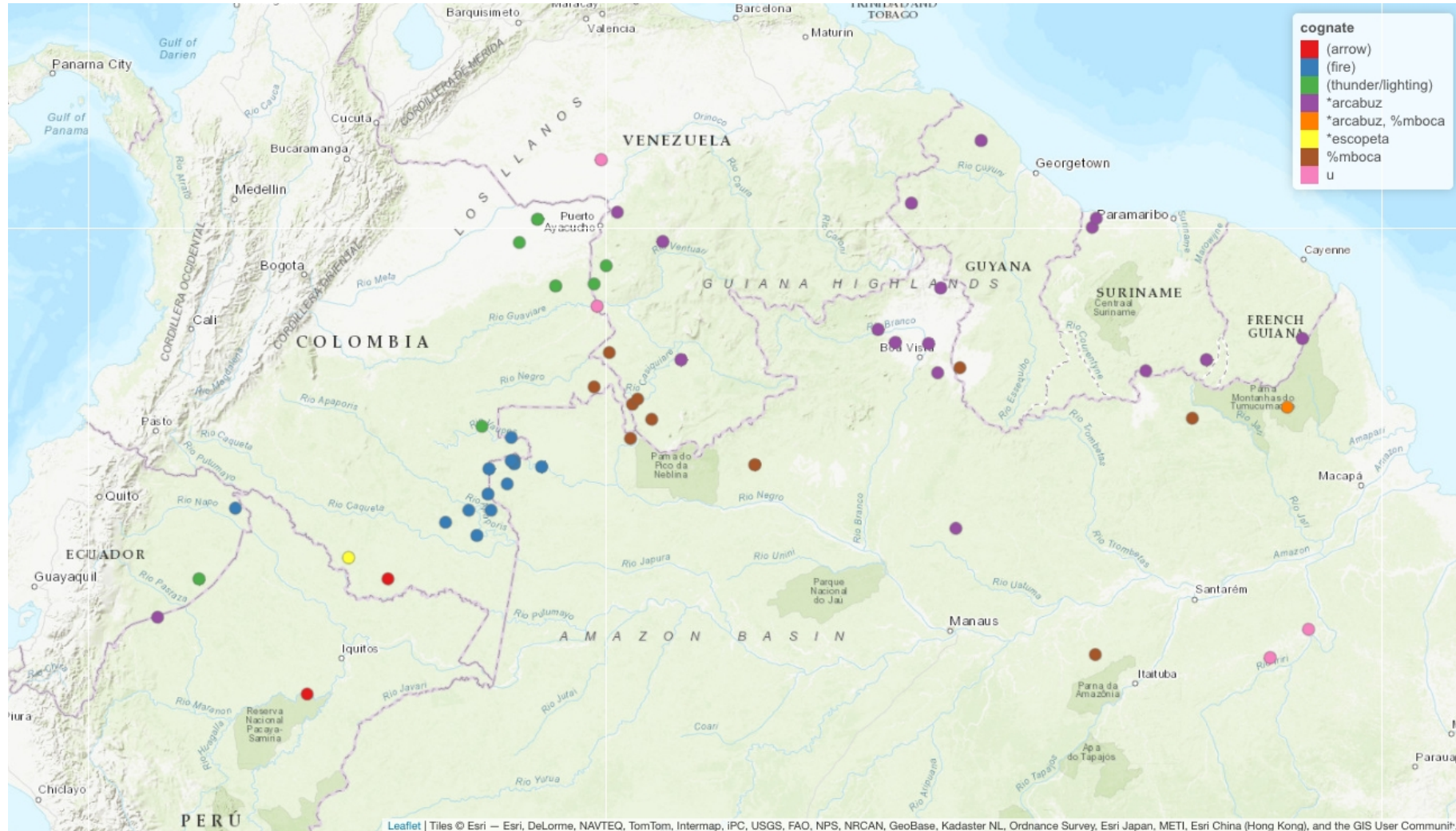
*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

### 5.3.3.0 Firearm

A total of five pseudo-cognate groups were identified in the data for firearms. From these groups one originates from the Spanish/Portuguese word *arcabuz*, an old shotgun model used by early colonizers (mentioned in Chapter 3), one from the etymon\*mboca, an old borrowing from the Tupian languages identified by Nordenskiöld, and the remaining groups can be divided into semantic borrowings (calques) for the words for *fire*, found primarily in North West Amazon, words for *lightning/thunder*, near the Andes and in the Llanos, and words for arrows in the Upper Amazon. All of these groups were identified using Nordenskiöld's data and compared with more modern dictionaries, which can be seen in the Supplementary Materials. Figure 5.3.3.0 maps the different etyma for firearms across the NAB.

**Figure 5.3.3.0**

*Firearms Pseudo-Cognate and Calque Groups in the Northern Amazon Basin*



*Note.* Each color represents a different identified etymon. Points with more than one etymon represent languages with multiple etyma. The "u" cognates represents unique etyma.





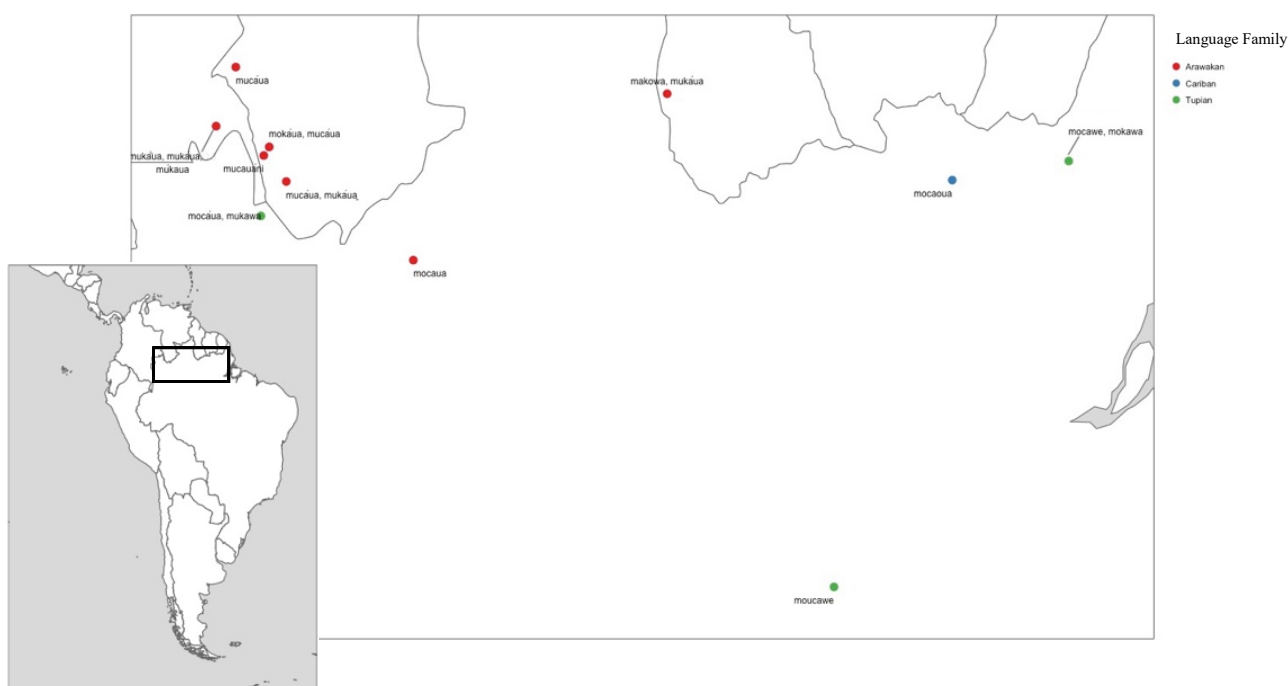
**Table 5.3.3.1***\*Arcabuz Pseudo-Cognate Group*

<b>*arcabuz</b>				
<b>Glottocode</b>	<b>Iso</b>	<b>Language Family</b>	<b>Language Name</b>	<b>lexical item(s)</b>
araw1276	arw	Arawakan	Lokono	<arabusa>
gali1262	car	Cariban	Galibi Carib	<aracaboussa>, <arkabussa>
wara1303	wba	Isolate	Warao	<aracaboussa>, <aracabuza>, <arrakaboussa>
emer1243	eme	Tupian	Teko	<aracaboussa>
waya1269	way	Cariban	Wayana	<aracaboussa>, <aracaboussa>, <arkabussa>
trio1238	tri	Cariban	Trió	<arkabussa>, <arakaboussa>
waya1270	oym	Tupian	Wayampi	<aracaboussa>
taru1236	tdm	Isolate	Taruma	<arkebusa>
macu1259	mbc	Cariban	Macushi	<akaruschá>, <aracabuça>, <arakabusá>, <arcabuza>
akaw1239	ake	Cariban	Akawaio-Ingariko	<arakoobsa, arakaputsá>
yaba1248	yar	Cariban	Yabarana	<aracapuza>, <arakábusa>, <arakápusa>
mapo1246	mcp	Cariban	Mapoyo	<caracabuza>
ator1244	aox	Arawakan	Atorada	<arakabusa>
tama1338	tmx	Cariban	Tamanaku	<caracapuccia>
para1309	NA	Cariban	Paravilhana	<aracabuzá>
wayu1242	NA	Cariban	Wayumara	<arakahusá>
sapa1254	NA	Cariban	Sapara	<uyālakapusán>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

Within this subset most of the languages with this etymon are from the Arawakan family, though the word is believed by Nordenskiöld to be of Tupian origins (this is further discussed in the next chapter). These forms are mapped out in Figure 5.3.3.2 and are listed below in Table 5.3.3.2

### Identified \*Mboca Pseudo-Cognates in the Northern Amazon Basin



*\*Mboca Pseudo-Cognate Group*

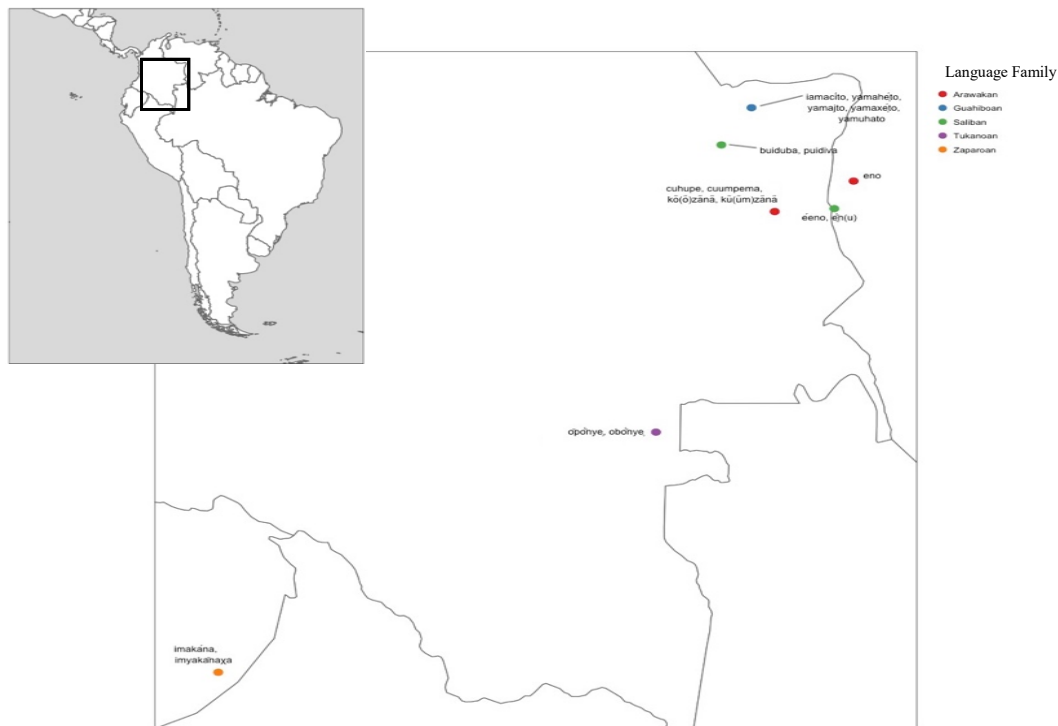
*mboca				
Glottocode	ISO	Language Family	Language Name	lexical item(s)
sate1243	mav	Tupian	Sateré-Mawé	<moucawe>
apa11257	apy	Cariban	Apalaí	<mocaoua>
wapi1253	wap	Arawakan	Wapishana	<makowa>, <mukáua>
mand1448	mht	Arawakan	Mandahuaca	<mucáua>, <mukáua>
uiri1238	NA	Arawakan	Uirina	<mocaua>
nhen1239	yrl	Tupian	Nhengatu	<mocáua>, <mukawa>
bani1255	bwi	Arawakan	Baniwa do Icana	<mukáua>, <mukáua>, <múkaua>
guar1293	gae	Arawakan	Baniva de Maroa	<mucauáni>
bare1276	bae	Arawakan	Baré	<mokáua>, <mucáua>
yavi1244	yvt	Arawakan	Yavitero-Pareni	<mucáua>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.3.3 lightning/thunder.** Seven languages appear to have calques for the firearms derived from ‘lightning/thunder’. These words are largely clustered north of the Vaupés in the NWA by multiple families near the Orinoco river. Though these words share these common origins, their potential iconic connection is discussed in the next chapter. These lexemes are mapped in Figure 5.3.3.3 and are listed below in table 5.3.3.3

**Figure 5.3.3.3**

*Identified ‘Lightning/Thunder’ Calques in the Northern Amazon Basin*



**Table 5.3.3.3**

*Lightning/Thunder Calques Group*

lighting/thunder calques				
Glottocode	ISO	Language Family	Language Name	lexical item(s)
zapa1253	zro	Zaparoan	Záparo	<imakána>, <imyakāṇaṣa>
guah1255	guh	Guahiboan	Guahibo	<iamacito>, <yamaheto>, <yamajto>, <yamaxeto>, <yamuhato>
sali1298	slc	Saliban	Sáliba	<buiduba>, <puidiva>
piar1243	pid	Saliban	Piaroa	<cuhupe>, <cuumpema> <kô(ô)zânâ>, <kû(ûm)zânâ>
maip1247	NA	Arawakan	Maipure-Avane	<eno>
piap1246	pio	Arawakan	Piapoco	<éno>, <enu>
cube1242	cub	Tukanoan	Kubeo	<ôpónyɛ>, <obónyɛ>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.



**Table 5.3.3.4***Fire Calques Group*

fire calques				
Glottocode	ISO	Language Family	Language Name	lexical item(s)
seco1241	sey	Tukanoan	Sekoya	<túacapo>
tari1256	tae	Arawakan	Tariana	<tsiépí>, <tsīpi>
yucu1253	ycn	Arawakan	Yucuna	<seió>, <siá>, <sīyá>
cara1272	cbc	Tukanoan	Karapana	<périká>
desa1247	des	Tukanoan	Desano	<péage>
guan1269	gvc	Tukanoan	Kotiria	<pichùcù>
macu1260	myy	Tukanoan	Makuna	<héaga>
pira1254	pir	Tukanoan	Wa'ikhana	<pékaue>, <pékaue>, <pexkáí>
tuca1252	tuo	Tukanoan	Tukano	<pəxkáue>, <pəxkaúe>
tuyu1244	tue	Tukanoan	Tuyuka	<pəxkáue>
yahu1241	ynu	Tukanoan	Yahuna	<péka>
cure1236	NA	Tukanoan	Kueretu	<hé(e)kiakia>
jupu1235	NA	Tukanoan	Yupua	<péa>

*Note.* This table presents the relevant word forms, for the full list of word variation and entries see the Supplementary Materials.

**5.3.3.5 Smaller Firearms Pseudo-Cognate Groups.** The following were smaller pseudo-cognates groups identified in the dataset. These groups include the semantic widening for the lexemes corresponding to *arrows* and a borrowing of a Spanish word for gun, *escopeta*. These lexemes are mapped out in Figure 5.3.3.5 and presented below in Table 5.3.3.5.

**Figure 5.3.3.5**

*Smaller Firearm Pseudo-Cognate Groups in the Northern Amazon Basin*



**Table 5.3.3.5**

*Smaller Pseudo-Cognate Groups: Firearms*

Glottocode	ISO	Language Family	Language	lexical item(s)
(arrow)				
coca1259	cod	Tupian	Cocama-Cocamilla	<mai-puna>, <puna>
bora1263	boa	Boran	Bora	<anihe>, <anyéxe>
*escopeta				
mini1256	hto	Huitotoan	Minica Huitoto	<kopéta>, <yoākai>

## Conclusion

In this chapter I have presented the results from the digitization process and from the linguistic and anthropological research. In the next chapter I discuss the possible patterns of chain borrowing identified from the presented data and elaborate on the synergies between the anthropological data and the linguistic data.

## Chapter 6. Discussion

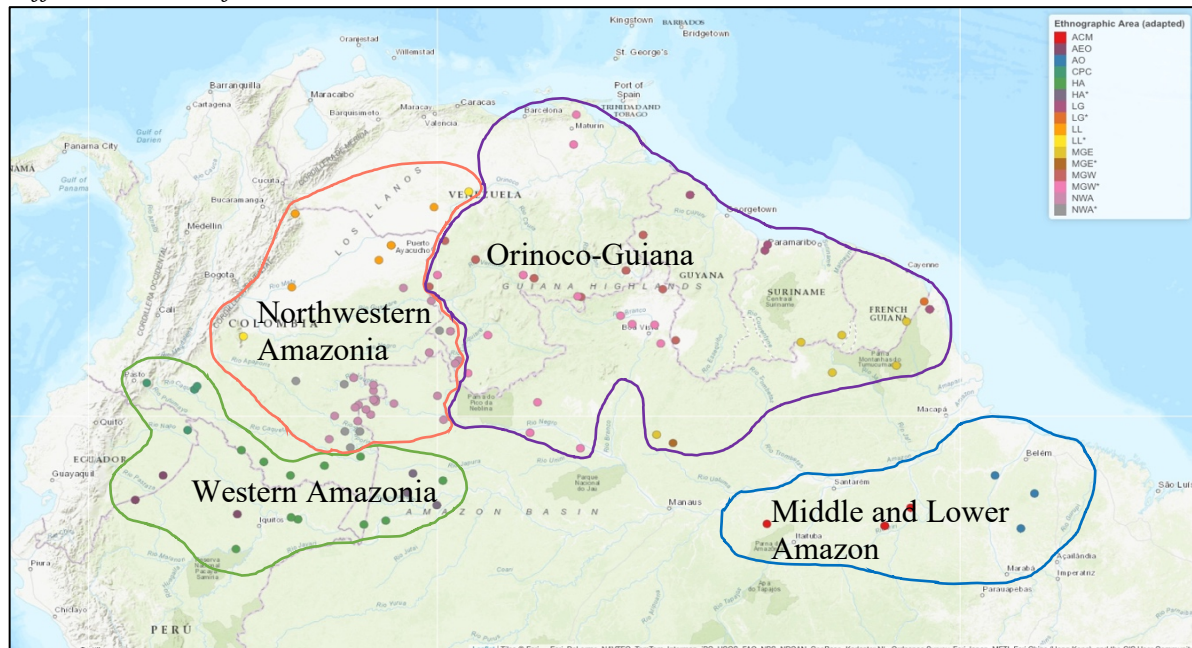
### 6.0 Introduction

In the following chapter I discuss and interpret the results presented in Chapter 5. For the sake of organization, I first discuss *Wanderwörter* trends and how these words may have spread across the NAB, then I briefly touch upon smaller clusters per CI. Therefore section (6.1) discusses banana *Wanderwörter*, section (6.2) discusses chicken *Wanderwörter*, and section (6.3) discusses firearm *Wanderwörter*. In section (6.4) I briefly discuss smaller clusters found in the data set for which not much information is available. In section (6.5) I compare the patterning between the CI *Wanderwörter* and elaborate on overall trends based on the retrieved ethnographic data. Finally in section (6.6) I discuss limitations and possible future avenues for research.

Finally, throughout this chapter I refer to NAB areas in regard to Eriksen's (2011) and Melatti's (1997) categorization, these are the: Middle and Lower Amazon (comprising the Center-South Amazon and the Eastern Amazon), Western Amazonia (comprising the Far Western Amazon, the Head of the Putumayo and Caquetá, and the Upper Amazon), North Western Amazonia (comprising the North West Amazon, and the Llanos) and the Orinoco-Guiana area (comprising Guianas areas). These areas are visualized in Figure 6.0 below.

**Figure 6.0**

*Different Areas of the Northern Amazonian Basin*



*Note.* MGW = Western zone, the MGE = Eastern zone, LG = Guianas Coast, LL = Llanos, NWA = Northwest Amazon, HA = Upper Amazon, CPC = Head of the Putumayo and Caquetá, AO = Eastern Amazon, ACM = Center-South Amazon, and AEO = Far Western Amazon. Language communities added by cross-referencing other literature or via geolocation inferences are marked with an \*.



## 6.1. Banana

Of the identified pseudo-cognate groups for banana, two types of strategies are made apparent: languages with lexical items derived from foreign flora (i.e., \*banana, \*platano, \*cambur) and languages with lexical items derived from the semantic widening or shift of native flora (i.e. \*paruru, \*oho, \*pakova). Below I elaborate on these themes.

### 6.1.1 Foreign Flora Etyma

The following set of etyma have their origins outside of the South American continent. These etyma are \*banana, \*platano, and \*cambur, of which the first two were discussed in Chapter 3. The lexical items derived from \*cambur are likely the result of later introductions from missionaries, as the word originates from the now extinct language of the Canary Islands, Guanche (*camburi*, *cambure*) (Alvarado, 2008). There are only two examples of forms derived from \*cambur in the list, whereas words derived from the etyma \*banana and \*platano have a large geographical spread. The words derived from \*platano are most likely borrowed from Spanish, as this lexeme is not used by other Europeans in the area. Words derived from *banana* may come from Portuguese or Spanish, though the large spread of this group within the borders of present-day Brazil may be an indicator of Portuguese origins. It is also important to note that the timeline for the spread of these words is not entirely linear, as there could have been multiple points of introduction instead of a singular introduction that all words are loaned from. Figure 6.1.2 below visualizes the spread of the groups discussed in this section.

### 6.1.2 Native Flora Etyma

Unlike the previous set of words, the following represent words that went through semantic widening/shifts to include reference to bananas. In their database, Epps et al. (2013) suggest that many names for bananas are derived from "bastard plantain" varieties, which are look-a-like plants to bananas. Based on the available literature (i.e., Balée (2011), Chacon (2013), and Epps et al. (2013)) this may be the case for the etyma \*paruru, \*oho, and \*pakova. The etymon \*paruru, most likely comes from Cariban languages and was likely spread through their interconnected trade networks. Furthermore, the name is likely derived from plants of the *Heliconia* genus, more specifically *Heliconia bihai*, also known as the wild plantain or colloquially as *palulu*. This plant species is native to northern South America and the surrounding islands but is also distantly related to the *Musa* family. Figure 6.1.1 displays the *palulu* varieties beside a banana plant to show the similarities between the two plants. It is therefore plausible that the phenotypical similarities between the plants is what allows the extension of \*paruru.

The etymon \*oho is found in multiple languages within the NWA, though it is likely of Tukanoan origins. Chacon (2013) supports this claim based on his work on reconstructing proto-Tukanoan words associated with traditional NWA material culture. One of the categories in Chacon's research was related to agricultural words, of which he connects the Proto-Tukanoan word \*oho to the plant *sororoca* (*Phenakospermum guyannense*), of which bananas likely derive their names. In Figure 6.1.1 the *sororoca* plant is also displayed along with *Heliconia* varieties for comparison with the common *Musa* plant. The NWA is one of the many multicultural areas of NAB, with many communities trading, intermarrying (aligned with linguistic exogamy), or working together (Aikhenvald, 2012; Jackson, 1983; Melatti, 1997). From this point of reference, it is likely that all surrounding languages (Minica Huitoto, Tikuna, Yuhup, and Bora) calqued the term into their respective languages based on their interconnected societal relations, though the directionality between these languages after borrowing from Tukanoan is not clear. This could also be supported by the fact that Tukano was used as a lingua franca in the NWA prior to the introduction of Nheengatu, suggesting plausible directionality from Tukanoan to the surrounding languages.

**Figure 6.1.1**

*Possible Referents for Banana*



*Note. A) Heliconia caribaea, B) Heliconia bihai, C) Musa paradisiaca [plant], D) Musa paradisiaca [fruit], E) Phenakospermum guyannense [plant], F) Phenakospermum guyannense [flower]. Sources (from left to right): Stang (2006), Kenraiz (2019), , 2019a), BotBln (2010), Cardoso (2014).*

The etymon \*pakova is also likely based on the semantic widening of look-alike native flora, with origins in the Tupian language family. Balée (2011) reconstructs this word as \*pakof in Proto-Tupi-Guarani, based on common terms for banana in four Tupi-Guarani subgroups. Balée suggests that this term refers to some sort of banana species present in South America prior to European contact, suggesting an alternative banana introduction. However, based on other etyma with native flora referents, I believe that these etyma could also be a semantic shift from a variety of "bastard plantain".

Finally, these trends in semantic extension may be indicative an overarching trade pattern, though for this hypothesis to be tested more data is necessary to discern the different names for bananas across communities, and the native flora from which they may be derived.

### 6.1.3 Conclusion: Banana

As discussed in Chapter 2, the definition of *Wanderwörter* varies, but Haynie et al.'s (2014) definition is applied here: *Wanderwörter* refers to lexical items that are borrowed more frequently across multiple languages. Given this definition, many of the pseudo-cognate groups can be classified as such (e.g. \*banana, \*platano, and \*paruru), while other groups like \*pakova and \*oho cannot, as they are either entirely within a language family (such as \*pakova), calqued (such as in the Tukanoan languages), or otherwise the result of a semantic shift from an earlier proto language borrowing (such as the non-Tukanoan languages in the \*oho pseudo-cognate group). In Figure 6.1.2, the spread of major pseudo-cognate groups for banana are visualized. This map was created by cross-referencing the identified cognate groups with Eriksen's (2011) ethnolinguistic map of the Amazonian communities at the time of contact.<sup>26</sup> From this visualization it becomes easier to comprehend the spread of these words and the areas in which they overlap. For example, the \*pakova group is strictly within the Tupian languages and restricted to the east of the continent.<sup>27</sup> This is contrasted with other groups, like the \*banana pseudo-cognate group, that likely spread from the middle of the Amazon River and split up, with one route going up the Rio Negro, and the other route going towards the Upper Amazon in long chain networks. This is evident by the forms the word banana takes, alternating in voicing from <banara> (Dâw) / <panara> (Baré), and alveolar consonants (i.e., <panara> (Cocama-Cocamilla), <banara> (Jumana) versus <panala> (Uirina), <banala> (Manao)). Furthermore, this spread follows two of the "most important"

<sup>26</sup> Maps for each CI and all the identified pseudo-cognate groups are present in Appendix D (Banana), Appendix E (Chicken) and Appendix F (Firearms).

<sup>27</sup> The exception to this is Nheengatu which is more inland, however the spread of this language came later in time due to its heightened status as a *lingua franca*.

trade routes in the Amazon (Eriksen, 2011, p. 42; Santos-Granero, 1992, p. 29).<sup>28</sup> However, a few lexical items do not fit this and could have arisen from a later introduction, or reintroduction.<sup>29</sup>

The \*oho etyma group is largely clustered in the NWA, which is to be expected given the interconnected communities of the region (Melatti, 1997, pp. 115–121). In this region (and particularly the Vaupés), Tukano was elevated as a *lingua franca* by the Salesian missionaries to ease conversion of Indigenous peoples into Christianity. This may have also played a role in which lexeme was spread across the region, though this may have had a greater impact later in history, as the missionaries only arrived by the mid 19th century (Jackson, 1983, p. 23). However, given the nature of highly multilingual areas such as the Vaupés (as explained in Chapter 2), it is expected that communities would calque lexemes rather than importing novel loanwords.

The pseudo-cognate group derived from \*platano is scattered throughout the NAB, which, as previously stated, likely reflects multiple introductions by Europeans, namely the Spanish. However, that the region comprises the Llanos and the source of the Orinoco River suggests a long chain network that likely spread this cognate deeper into the Amazon via the Orinoco River and its tributaries, such as Apure, Meta, and Guaviare (Eriksen, 2011, p. 198). This is also made evident by the forms lexemes take in this region, ranging from <palatana> (Guahibo, Yavitero-Pareni), <paratana> (Guahibo, Piapoco), <palatano> (Warao, Baniwa do Icana), and <paratuna> (Pumé, Achagua).<sup>30</sup> The directionality is not immediately apparent, though it may be that this pseudo-cognate group travelled from the region of the Orinoco Delta inland; more data and research would be necessary to confirm this.

The pseudo-cognate group for \*paruru is perhaps the most widely spread and found across multiple languages and language families. A trade network across the Guianas, comprised of smaller interaction spheres (Eriksen, 2011, p. 165; Melatti, 1997; Morey, 1975), is still present to some capacity in modern Indigenous communities (Melatti, 1997, p. 24). It is through this network that the \*paruru pseudo-cognate spread across the Guianas and Orinoco.

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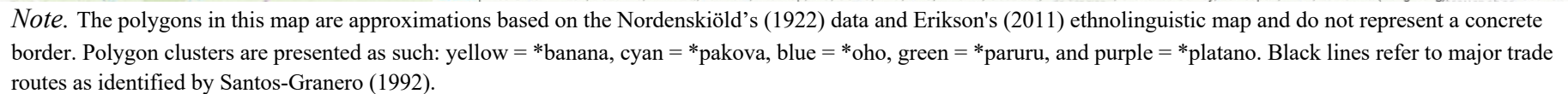
<sup>28</sup> The other two trade routes are: from the lower Ucayali towards Cuzco, and the region from the Upper Ucayali, Purús and Madre de Dios Rivers.

<sup>29</sup> These are the lexical items <nana> and <banana> from Atorada and Wamiri-Atroari respectively.

<sup>30</sup> Some forms also vary and may likely be due to the process of clipping, as in <aràta> in the Maipure dialect of Maipure-Avane.



### *Pseudo-Cognate Clusters in the Northern Amazonian Basin: Banana*



## 6.2 Chicken

Of the identified pseudo-cognate groups for chickens, two major pseudo-cognate groups were identified: lexemes derived from \*galina, and lexemes derived from \*atawalpa. Moreover, many clusters appear to have originated from iconic bird call mimicry (i.e., %karaka, %takara, %wakara). Below I elaborate on each category.

### 6.2.1 \*Atawalpa

The words derived from the \*atawalpa etymon are all within the Upper Amazon or areas near the Andes. Nordenskiöld believed that this word was of Guaraní origins, deriving from a word for "great uru", a species of bird native to South America. He suggests that this was then calqued by the Inkans into Quechua (Nordenskiöld, 1922, p. 21). However, as Cerrón-Palomino (2017) shows, the origin likely does come from the last Emperor of Peru, as the words \*ataw wallpa form a compound word originating from Puquina (Isolate), one of the general languages used by the Inka elite in ancient Peru. Within the Andean region, this word is much more present (Cerrón-Palomino, 2017), and this is true of Nordenskiöld's broader dataset and other research datasets (Epps et al., 2013). The further discussion of the origins of \*atawalpa are beyond the scope of this thesis, though there is much discussion on the topic (for a different perspective see Emlen, 2017)

### 6.2.2 Bird call Mimicry

The words in the groups %karaka, %takara, and %wakara may be based on sound iconicity. While the previous examples given in Chapter 3 show the form of rooster calls (i.e., Spanish, *quiquiriqui*; Portuguese, *cocoricó*; and Shawi, *tuturuwi*), expert advice of fieldworkers suggests that \*takara, \*karaka, and \*wakara may be derived from the calls of chickens. The %karaka group is clustered in the Llanos and is smaller than the %wakara and %takara groups, which are more numerous and scattered across the NAB.

The literature does not indicate that these word forms have any connections to other avifauna or general fauna, however, an iconic origin is supported by cross-linguistic evidence, as bird names are often derived from bird calls (Haynie et al., 2014; Hunn, 1975). Therefore, it could be that lexemes derived from %karaka reflect these bird calls, though it is uncertain how these would be incorporated into the morphosyntax of different languages. More research is necessary to discern morphemic boundaries in different languages, to distinguish how these groups spread.

### 6.2.3 Conclusion: Chickens

In Figure 6.2.1 the spread of major pseudo-cognate groups for chicken are visualized. This map was created in the same manner as Figure 6.1.2 for the purposes of easier visualization of word spread. Given the origins of the \*atawalpa etymon, it most likely spread from the Andes into the Upper Amazon, changing in form and perhaps clipping into a shorter form, <ata>, from the original <atawalpa>.

The pseudo-cognate group from which \*galina is derived is clustered within the Guianas, where the word was introduced from Spanish and spread into surrounding Cariban groups and adjacent communities. Notably, unlike the other CI, the \*galina pseudo-cognate group does not have the same spread as \*paruru or \*arcabuz (discussed in section 6.3). This may be due to historical factors, which is elaborated upon in section 6.5.

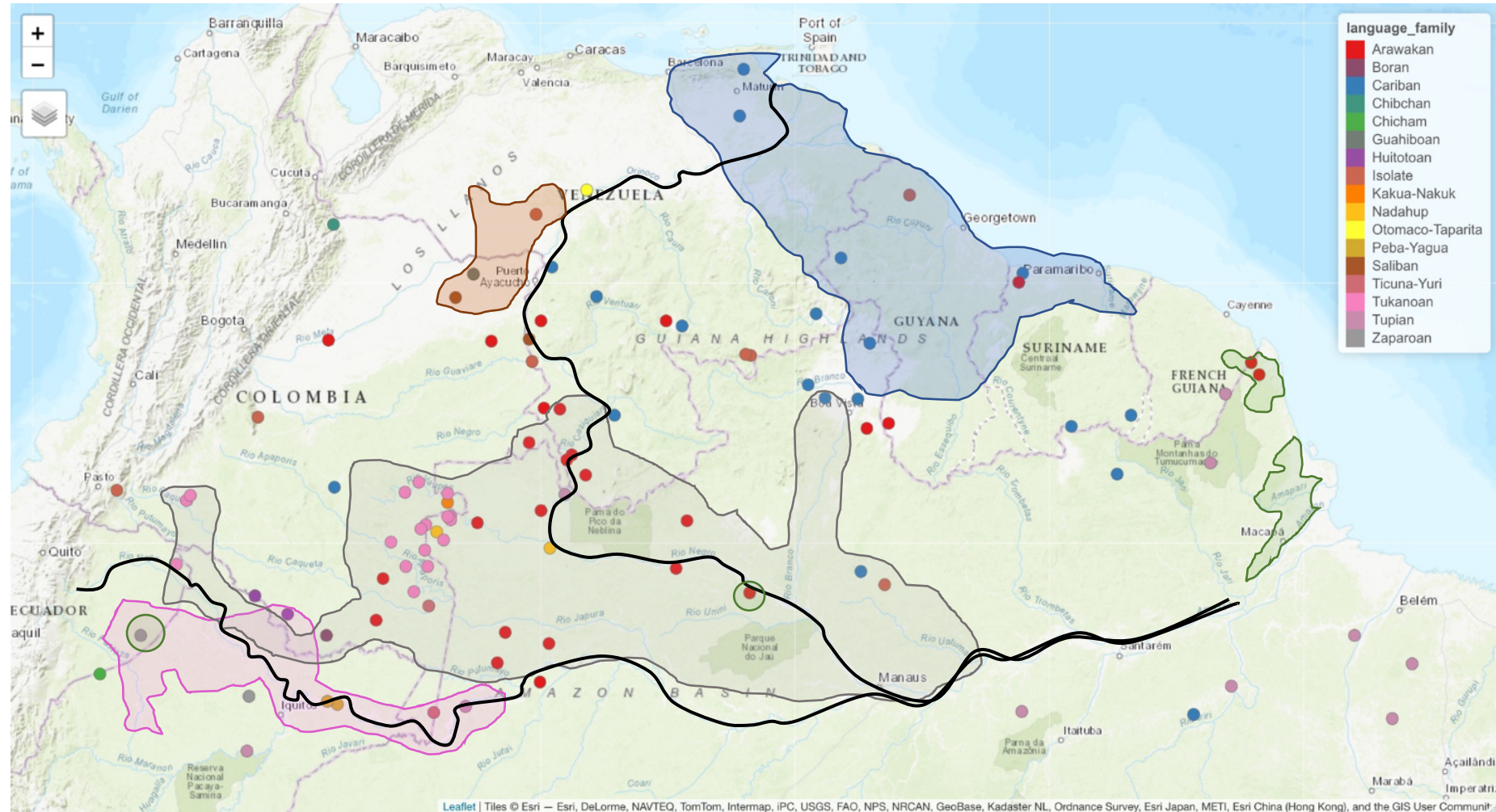
The %karaka pseudo-cognate has the largest spread in the entirety of the NAB. Interestingly, this pseudo-cognate group also aligns with the major trade routes identified by Santos-Granero (1992). What is most interesting about this group is how far it appears to have spread, being present even in areas such as the Vaupés, where communities are more adverse to importing loanwords (Campbell et al., 2020; Epps & Michael, 2017). One potential explanation for this could be that %karaka achieved the "fair game" status, that is, it lost its association to a particular community or language so that it could be shared without association to a particular group (as mentioned in Epps & Michael, 2017, p. 6 and Muysken, 2012, p. 252). Alternatively, it is possible that the potential iconic origins of the name may have excused the chicken from being associated with any particular group, though a cross-linguistic analysis of different bird names would be necessary to discern this hypothesis.

Finally, Nordenskiöld suggested that %karaka and %takara were of the same origins and were alternative forms of one another. Based on the current sub-dataset, this does not seem to be the case, as the %karaka word form is contiguously dispersed across the NAB, while %takara does not have any contingency. From this it could be inferred that %takara is another form of mimicry, or that a wider spread of the %takara pseudo-cognate group is present, but obscured by the subset of Nordenskiöld's data analyzed in this thesis.



**Figure 6.2.1**

*Pseudo-Cognate Groups in the Northern Amazonian Basin: Chicken*



*Note.* The polygons in this map are approximations based on the Nordenskiöld's (1922) data and Erikson's (2011) ethnolinguistic map and do not represent a concrete border. Polygon clusters are presented as such: grey = %karaka, green = %takara, pink = %atawalpa, blue = %garina, yellow = %wakara. Black lines refer to major trade routes as identified by Santos-Granero (1992).

### 6.3 Firearm

The pseudo-cognate groups for firearm can be categorized into three different categories: foreign loanwords (i.e., \*arcabuz and potentially %mboca), metaphorically derived words (such as the calques for *lightning/thunder* or *fire*), or through semantic widening of weapon terms. There is not enough data to elaborate upon languages which use pre-existing terms for weapons, however I elaborate on the former two groups below.

#### 6.3.1 \*Arcabuz

As described in the previous chapter, the etymon for \*arcabuz is related to the European introduction of the arquebus shotgun model. The etymon from which this pseudo-cognate group is derived was most likely introduced by the Spanish or Portuguese. Furthermore, this pseudo-cognate group is also the most widely spread group of all the presented data, which could be a reflection of the impact of Indigenous-European trade relations in the Guianas region.

#### 6.3.2 Calques of Fire and Thunder

The following sample of words are joined by their shared semantic meaning. Words that follow the fire semantics are likely named after the fire required to shoot a gun, and many languages use firewood as the point of reference. As for words that have a shared meaning of ‘thunder/lightning’, it is likely that these words were assigned to firearms due to the iconicity of a gunshot noise. Unlike many firearms nowadays, older models of firearms produced a loud gunshot noise that is reminiscent of the sound of thunder. It therefore is logical that speakers would choose to name firearms after the sound it produces.

Within the Vaupés, most groups have adopted a morphologically complex term that means fire(wood) + Classifier:cylindrical (as mentioned in Chapter 5). This pattern has been identified in Tukanoan languages, Arawakan languages, and in Kakua-Nukak languages. This borrowing technique is not only identifiable through the derived root (fire or firewood) but also through the classifiers used. In the case of Tukanoan and Arawakan languages, this comes from the addition of classifiers meaning ‘cylindrical/hollow’, or ‘long and thin’. In the tables below I have provided examples of these classifiers based on the work of Wiegertjes (2022), on the development of Tukanoan classifiers (Table 6.3.1), and Dunn's (2022) work on the development of Arawakan classifiers (Table 6.3.2). From these classifiers and stems derived from fire or firewood, the different forms are created. It is most likely that this spread is due to the interconnected relations in the Vaupés region previously mentioned.

Furthermore, the use of Tukano as a trade language in the region (prior to the spread of Nheengatu) would be another driver of this form. Therefore, within this region a calque instead of a loanword is most widely spread. In Table 6.3.3 I propose a new gloss for firearm lexemes based on the available literature.

**Table 6.3.1**

*Wiegertjes Classifiers: PT \*-wi and PET \*-ka/-ga/-a ‘CYLINDRICAL/HOLLOW’*

Language	Classifier	Examples		
		‘Blowpipe’	‘Flute’	‘Canoe’
C. SIO	-wi	hio-wi	huri-wi	jo-gu
E. SIO	-wi	hio-wi		jo-wi
E. SEK	-wi	hio-wi	pĩʔko-wi	jo-wi
P. SEK	-wi			ɕʒo-wi
KOR	-wi	hio-jĩ	phĩʔko-wi	joo-wi
MAI	-bi	hu		jou
TAN	-bi		a'fɛ-bi fúfúo-ká	
DES	-su		tadi-su	gasi-ru
	-du/-ru			
TUK	-wi	pekâ-wi*	buaa-wi	juki-si
KOT	-ka	púkà	phuti-ria	buho-ka
KUB	=jĩ	pĩo=jĩ	hapu-i=jĩ	hiado=kũ
PIS	=ga/=a			kũmũ=a
BSA	-ka/-ga/-a	buhu-a		kũbũ-a
TAT	-ga/-a	bupu-a		kũbũ-a
MAK	-ka/-ga	buha-ga		haho-ka
KAR	-a	bupu-a		kũbũ-a
TUY	-wi	bupu-wi		juku-soro

*Note.* \*The form cited here is translated as ‘firearm’ as there were no blowpipe forms found.

**Table 6.3.2**

*Dunn Classifier: \*pi ‘LONG AND THIN’*

Language	Aikhenvald (1999)	Form	Gloss	Type
Baure	SSWA: South Arawak	-pi	Long and thin	classifier
Yanesha'	SSWA: Amuesha	-Vp̃, -p̃-, -p-	Thin and long things	classifier
Tariana	NA: North-Amazonian (Upper Rio Negro)	-pi	Long and thin	classifier
Paresi	SSWA: Paresi-Xingu	-hi	Vine-like	classifier, compound
Alto Perené	SSWA: Kampa	-pi	Rigid, hollow	classifier

**Table 6.3.3***Proposed Gloss for Tukanoan and Arawakan firearms<sup>32</sup>*

Language Family	Name	lexical item	Gloss
Arawakan	Tariana	<tsĩpi>	/sĩ-pi/ (firewood-CL:long and thin)
Arawakan	Yucuna	<siá>, <sĩyá>	(firewood-CL:long)
Tukanoan	Secoya	<túacapo> <sup>31</sup>	NA
Tukanoan	Karapana	<peeruca>	/peeru-ka/ (fire-CL:cylindrical/hollow)
Tukanoan	Desano	<peagu>	/pea-gu/ (firewood-CL:cylindrical/hollow)
Tukanoan	Kotiria	<pichucu>	/pitʃi-ki/ (firewood-CL:cylindrical/hollow)
Tukanoan	Makuna	<jéaga>	/hea-ga/ (firewood-CL:cylindrical/hollow)
Tukanoan	Wa'ikhana	<pekawi>	/peka-wi (firewood-CL:cylindrical/hollow)
Tukanoan	Tucano	<pekawi>	/peka-wi/ (firewood-CL:cylindrical/hollow)
Tukanoan	Tuyuca	<pekawu>	/peka-wu/ (firewood-CL:cylindrical/hollow)
Tukanoan	Yahuna	<péka>	(firewood?)
Tukanoan	Kueretu	<hé(é)kiakia>	NA
Tukanoan	Yupua	<péa>	(firewood?)
Kakua-Nukak	Kakua	< tia-na? >	/ tia-na?/ (firewood-CL:stick/treelike)
Naduhup	Hup	<teghõteg>	/ teghõ=teg / (firewood-CL:stick)

Kubeo is the only Tukanoan language excluded from Table 6.3.3 above as its etymology does not include reference to firewood. Although Kubeo's word for firearm does follow the same STEM + classifier template seen throughout the family, the stem comes from the word for lightning — /õpo=ji-ñu/ (thunder-CL:cylindrical-agreement). The use of thunder as a base for firearm is also found in the Llanos region. Below in Table 6.3.4 are all the words that are derived from thunder as they appear in Nordenskiöld's data. Although the languages which show the 'lightning/thunder' meaning do not form a contiguous group, the semantic extension from the iconic association between the sound of lightning and the sound of a firearm is likely the same throughout this sample (as mentioned previously above).

<sup>31</sup> Modern day speakers use the word <jaso-wi> comprised of the stem *jaso* "to shoot" and the classifier *-wi* (cylindrical/hollow). Although I try to use only Nordenskiöld's data, this is worth mentioning as it follows the template of other Tukanoan languages.

<sup>32</sup> Hup and Kakua examples were retrieved from Epps et al. (2013) for comparison.

**Table 6.3.4***Lexical Items Derived from 'Thunder/Lightning'*

Family	Language	lexical item(s)
Zaparoan	Záparo	<imakána>, <imyakānaɣa> <sup>33</sup>
Guahiboan	Guahibo	<iamacító>, <yamahéto>
Saliban	Sáliba	<buiduba>, <puidiva> <sup>34</sup>
Saliban	Piaroa	<cuhupe>, <cuumpema>
Arawakan	Maipure-Avane†	<eno>
Arawakan	Piapoco	<éno>, <énu>
Tukanoan	Kubeo	<ôpojiñu>

**6.3.3 \*Mboca**

Although the dataset for this pseudo-cognate group is made up largely of Arawakan languages, Nordenskiöld points out this pseudo-cognate group was introduced into the region from a Tupian language from the term '*boca de fogo*'/'*boca de fuego*' ("mouth of fire") (Nordenskiöld, 1922, p. 96).<sup>35</sup> It is therefore possible that languages with words derived from this etymon borrowed them from Nheengatu (Lingua Geral Amazônica), which was the predominant trade language from the 18th century up until the late 19th century (da Cruz, 2011, p. 4). Given the lack of availability of firearms early in colonization, it is possible that words derived from this etymon became more popular as European expansion grew deeper into the Amazon after the initial European settlement.

It should also be noted that the form for <mokawa> is very similar to the word <mocahua> in the Peruvian Amazon, which refers to a bowl used to drink manioc beer. These lexical items may be related, though the lack of languages with both lexical items may indicate otherwise or a resistance to polysemy.

<sup>33</sup> The Záparo word for firearm is likely a calque from a Quechuan language as lightning, <illyapa> is a common word for firearm.

<sup>34</sup> Although Nordenskiöld classified the Salibá word as being derived from thunder (*buidé*), more novel dictionaries and wordlists have transcribed the word as /pu?du?ba/, which could be derived from thunder [dú?úbā] or from the combination of the firewood, [pú?dē](Benaissa, 1991; Humeje et al., 2003), with a derivational morpheme. More data is necessary to be certain.

<sup>35</sup> Though the label \*mboca comes from Nordenskiöld's original interpretation of the origins of the pseudo-cognate group, this origin is not entirely clear and would require more research to discern a plausible source.

### 6.3.4 Conclusion: Firearms

In Figure 6.3.1 the spread of major pseudo-cognate groups for firearms are visualized. The \*arcabuz pseudo-cognate group is by far the most represented within the Guianas, which could reflect the relations that Indigenous communities had with early European settlers such as the Arawak-Spanish alliance and the Carib-Dutch alliance (Eriksen, 2011, p. 165). These relations between Indigenous communities and Europeans dominated the Orinoco-Guiana region for a couple of centuries after contact (Eriksen, 2011, p. 165). These relations allowed for the expansion of Cariban trade throughout interconnected local interaction spheres, with some groups specializing in distance trade throughout the Guianas and reaching the Llanos (Eriksen, 2011, p. 166; Melatti, 1997, p. 21).

Moreover, the pseudo-cognate group \*mboca likely achieved the spread visualized below via the Amazonas - Negro - Casiquiare - Orinoco route defined by Santos-Granero (1992). This is evidenced by the consistent <mokawa> form throughout the NAB.<sup>36</sup> However, based on Nordenskiöld's notes, \*mboca is not of Arawakan origins, meaning that this lexical item may have been introduced via trade in the Nheengatu language, and perhaps traded by Arawakan communities. Alternatively, the spread of \*mboca could reflect the spread of the Nheengatu language across the NAB, as it was elevated to a *lingua franca* and subsequently replaced the languages across the Amazon. Compared to the previous CIs, firearms were not easily accessible in the beginning of colonization, as firearm supply was limited by what Europeans could bring from Europe. Therefore, the borrowing of the \*mboca pseudo-cognate may have occurred later in history as firearms became more available. The adoption of a popular commercialized word has been observed before, such as the Ka'apor's (Tupian) word for cocoa, *kaka*, through Portuguese (originally from Nahuatl). In that instance, despite having reconstructible native words for wild and lookalike varieties, socioeconomic factors caused a shift to the current word (Balée, 2003). It is therefore not outside the realm of reason to postulate that words derived from \*mboca may have replaced previous lexical items due to economic and social factors.

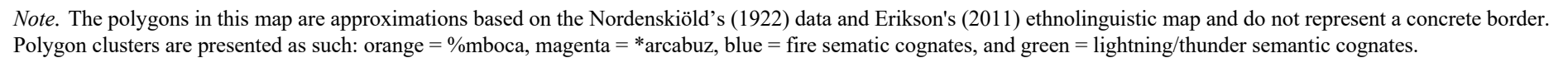
Finally, the spread of calquing for terms like lighting/thunder and fire were probably spread by the trade spheres from the Vaupés to the Upper Amazon (for the fire calques group), and within the Llanos (for the lightning/thunder group).

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<sup>36</sup> The overlap of pseudo-cognate groups \*mboca, and \*arcabuz near the east of the continent reflects the Arawakan and Carib trade network which connected the interaction spheres of the Guiana coast, and the lower Amazon (Eriksen, 2011, p. 167)



### *Pseudo-Cognate Groups in the Northern Amazonian Basin: Firearm*



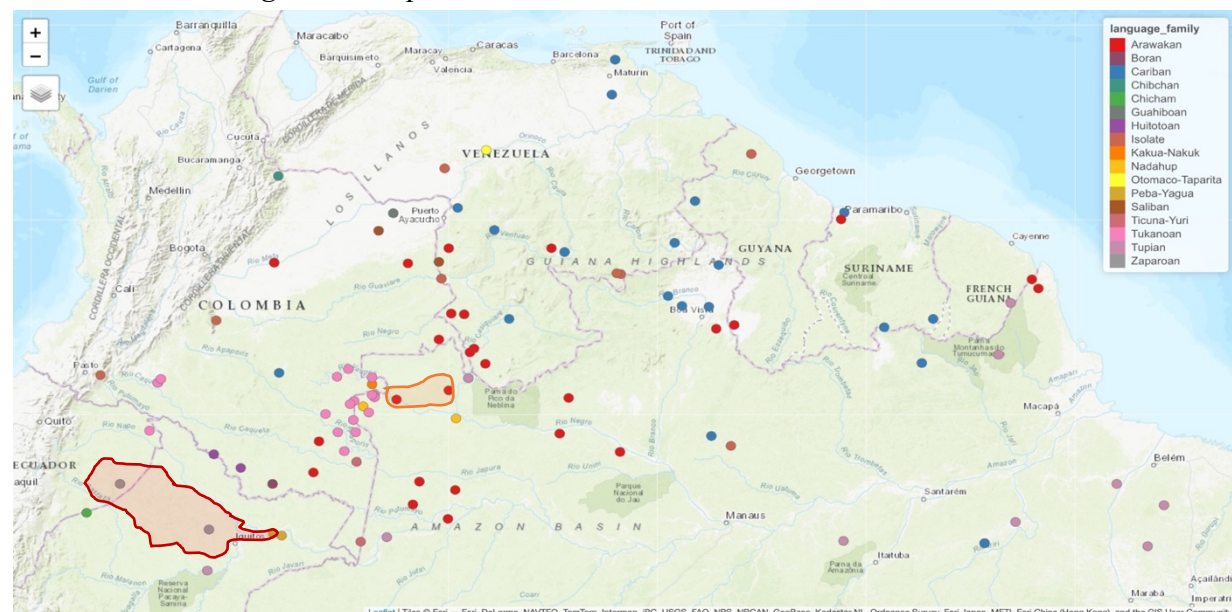
## 6.4 Notable Smaller Pseudo-Cognate Clusters

The following pseudo cognates represent small clusters of potentially related lexical items for which I have not found sufficient evidence to make any sort of claim. Figure 6.4.1 and Figure 6.4.1 map out these smaller clusters per CI with pseudo-cognates for banana in Figure 6.4.1, and pseudo-cognates for chicken in Figure 6.4.2.

In the figure below, two clusters are present. The first is of the %samo pseudo-cognate in the Upper Amazon. In this cluster there is no discernible origins for the %samo etymon and more research is required to understand its origins. The second grouping is of the \*nderi cognate which is present only within the Arawakan languages in the NWA. Both languages in this group, Tariana and Curripaco, are within or around the social sphere of the Vaupés (Melatti, 1997), and given the tendency of this area against loanwords, it could be that \*nderi is a term derived from a "bastard plantain". However, for this hypothesis to be confirmed, more data is necessary from Arawakan languages of this region, and to define from which plant \*nderi is derived.

**Figure 6.4.1**

*Smaller Pseudo-Cognate Groups: Banana*

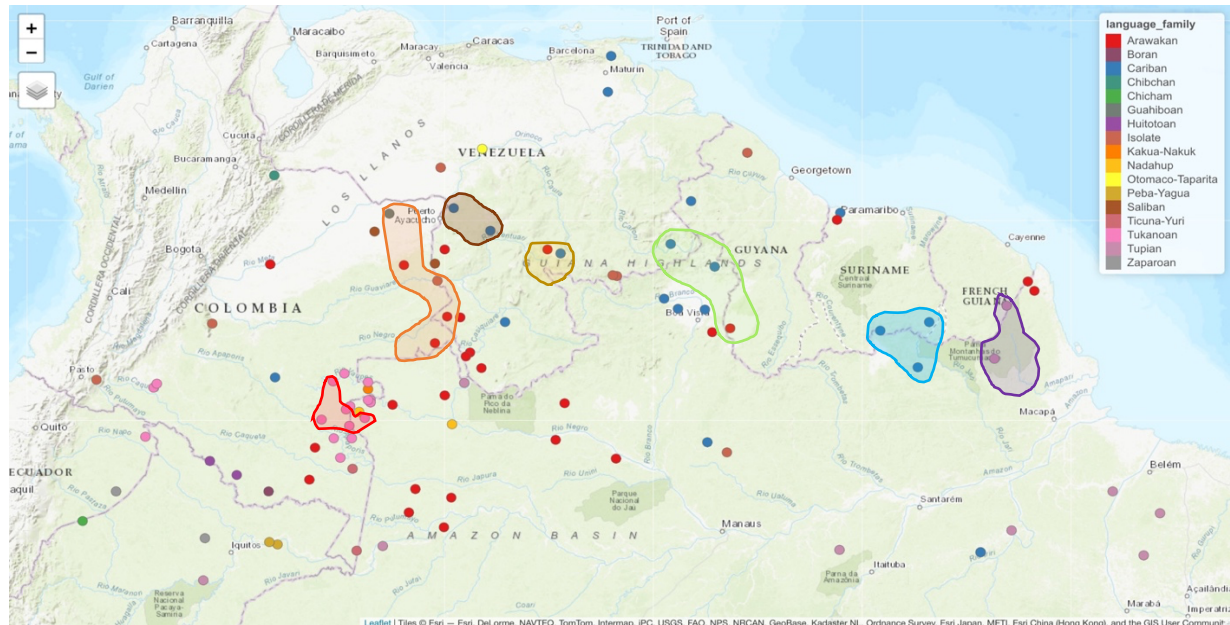


Note. The polygons in this map are approximations based on the Nordenskiöld's (1922) data and Erikson's (2011) ethnolinguistic map and do not represent a concrete border. Polygons: red = %samo, orange = \*nderi



**Figure 6.4.2**

*Smaller Pseudo-Cognate Groups: Chicken*



Note. The polygons in this map are approximations based on the Nordenskiöld's (1922) data and Erikson's (2011) ethnolinguistic map and do not represent a concrete border. Polygons: red = \*nahaboke; orange = %kabame; brown = \*maparuru; yellow = %uamedí; green = %tupala; cyan = %curati; violet = \*massacara.

Unlike other CIs, many smaller clusters were identified in the chicken database. Unfortunately, no data was found that explained any origins for these lexical items due to lack of documentation. However, in the \*nahaboke group, all languages are Tukanoan and are groups that are known to intermarry, or are otherwise near one another (Melatti, 1997, p. 116). This smaller cognate group could have arisen due to these intermarrying relations, though it should be noted that almost all the languages in this group have an alternative form in their lexicons, derived from %karaka. The %kabame group has the widest reach, ranging from the Llanos to the Vaupés Basin. The origins of this group may come from sound mimicry from birdcalls (as previously discussed), or they may originate from the compounding of native avifauna names with other morphemes. However, more language data and linguistic reconstruction data is necessary for this claim to be tested. Finally, the \*maparuru, %uamedí, \*massacara, %curati, and %tupala groups are all within the Guianas area, creating a contrasting spread in comparison to other CIs. The implications of this word-spread difference is discussed in the next section.

## 6.5 General Discussion

A considerable amount of information has been presented thus far about the spread of these CIs across the NAB. When taking this data into consideration, a few patterns are made clear, namely, the difference in pseudo-cognate spread between the CI.

Chickens, when compared to bananas and firearms, have one of the largest pseudo-cognate spreads (%karaka) while also having the largest number of small pseudo-cognate clusters in the NAB. I would postulate that there are two reasons for this: firstly, chickens, unlike the other CI, are able to reproduce and spread more quickly; and secondly, the lack of larger pseudo-cognate or *Wanderwörter* groups may reflect early trade relations. As Nordenskiöld mentioned, early European surveyors were surprised by the presence of chickens deeper in Amazon (around the Vaupés and Rio Negro Basin) (Nordenskiöld, 1922, pp. 1–6), which is indicative of a relatively quick spread of chickens in the NAB. Nordenskiöld also mentions that this may be due to the relationship Indigenous people have with chickens, suggesting that they may use chickens for their feathers, but not as a source of sustenance. However, Chapter 5 presented the results of the ethnographic survey in which no evidence was found of chickens being used for their feathers. On the other hand, it was observed that many communities do not consume chickens, but rather keep them as pets, much in the same manner as early Europeans (Lawal & Hanotte, 2021). Furthermore, older ethnographies of areas outside of the NWA were more likely to state that their communities did not consume chickens (nor their eggs), which could represent an attitude shift as the NWA only began to have sustained contact with the "outside world" after the mid 19th century (Jackson, 1983, p. 23). Therefore, with the protection of Indigenous communities, it is possible that chickens were able to reproduce and spread more quickly. Given that the area in which the %karaka group is spread, I would argue that this is the result of Arawakan trade networks; Arawakan speakers had a large trade presence connecting the lower Rio Negro and middle Amazon with the upper Rio Negro and Orinoco (Eriksen, 2011, p. 205). Furthermore, the presence of smaller clusters might reflect a time in which trade in the Orinoco-Guiana area was not as uniform, when compared to the spread of other pseudo cognate groups like \*paruru and \*arcabuz, but more research would be necessary to confirm this hypothesis.

In contrast to the spread of terms for chicken, the spread of terms for banana and firearm are much more homogenous. I propose that this would also be the result of availability. As explained in Chapter 3, (most) bananas are different from many fruits, as they are triploids and rely on parthenocarpy, that is, non-sexual reproduction via rhizomes which

grow from out of the banana stem.<sup>37</sup> Compared to chickens, this delays the spread of bananas as they often rely on humans to grow efficiently. This fact, coupled with the increased Cariban trade in the Guianas, may explain why there is a more uniform term for bananas throughout the NAB. Moreover, the prolonged spread of bananas may have contributed to their similarities to native flora, leading to the calquing techniques observed in the NWA. In terms of motivations, as presented in Chapter 5, most, if not all, communities cultivate bananas to some extent. This wide spread of banana cultivation, coupled with the fact that other parts of bananas (i.e., stems and leaves) are used in many aspects of life, suggests that the utility of bananas were a contributing motivation for their spread. As Nordenskiöld mentioned, by the 1800s bananas were so incorporated with South American identity that at one point they were assumed to also be native to the continent (Nordenskiöld, 1922, p. 70), which further demonstrates how bananas were embraced by South American communities.

In regard to the firearms CI, the same patterns are observed as for the banana CI. In the Guiana-Orinoco area the \*arcabuz group is largely spread across languages, which may also be due to the trade relations many communities (e.g., Cariban) had with Europeans. One difference, however, is that the other large pseudo-cognate group is the \*mboca group, which has spread from the Amazon river all the way to the source of the Rio Negro. As mentioned previously, this etymon was likely spread through Tupian communities, and reflects the spread of Nheengatu as a *lingua franca*. Up until the 18th century, Nheengatu (at the time known as Lingua Geral Amazônica, or Lingua Brasília) was widely spoken by Indigenous and non-Indigenous peoples throughout northern Brazil (da Cruz, 2011, p. 7). As firearms became more available later in colonization, it is possible that this pseudo-cognate group reflects the expansion of Nheengatu in the region. As presented in Chapter 5, firearms have widely taken over the traditional roles of spears, arrows, and blowguns, which highlights the motivation behind their spread. Furthermore, the spread of the \*mboca group is contrasted with the terms for other CI in Nheengatu, such as chicken, <sapukája>, and banana <pakua>, which are not widespread in the NAB, and are only found within the Tupian language family.

Therefore, the difference in spread between the three CI may each reflect different periods in the NAB: the first being early on after European contact; the second reflecting the strengthening of certain trade routes due to Indigenous-European alliances; and the third

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<sup>37</sup> Some bananas can reproduce sexually, but these varieties are not present in South America (at least were not until recently).

being the subsequent result of colonization and the spread of Nheengatu as a lingua franca and a vernacular language.

Moreover, many of the discussed pseudo-cognate groups fit the criteria of *Wanderwörter*. Across CIs, \*paruru, \*banana, \*plátano, \*garina, %karaka, \*atawalpa, \*arcabuz, and \*mboca have all been borrowed by multiple languages across the NAB. Many seem to line up with trade routes (suggesting a long chain network), and it is possible that some *Wanderwörter* like \*paruru and \*arcabuz have spread in the supernova patterns mentioned in Haynie et al. (2014). However, more research would need to be conducted to discern if they are true supernova patterns or a star and chain network.

Lastly, the presence of calquing clusters was identified in the dataset, which were unmentioned by Nordenskiöld. The patterning for lighting/thunder and fire were largely observed in high contact zones such as the Vaupés, as is to be expected following the literature (Aikhenvald, 2012; Campbell et al., 2020; Epps & Michael, 2017; Haynie et al., 2014; Muysken, 2012). It would therefore be advantageous to search out calquing patterns throughout the Amazon to identify less apparent contact patterns.

## 6.6 Constraints and Future Directions

Some constraints became apparent as I progressed with this thesis. For example, the data provided by Nordenskiöld did not contain the same number of words across languages, so that a language may have one CI but not another. This has led to some discrepancies across the data as some CI are more represented than others. However, ultimately, I did not seek out more novel words, as doing so would compromise the integrity of Nordenskiöld's data in regard to the time it was collected.

Furthermore, many of the issues faced with re-aligning Nordenskiöld's languages to modern language communities (as outlined in Chapter 4) were caused by the oversimplification of language communities by early colonizers and surveyors. This issue ties back to the *Glossography of Power* (for more see Rojas Berscia, 2021) which has obscured the reality of fluid language borders. Although Glottolog is a useful tool for typological research, it also reduces language communities to singular points in a map, when, in reality, languages are spoken across areas. Future research would benefit from a different database structure that takes into consideration the different intricacies of language communities and their speakers. Lastly, more and better documentation of Amazonian languages would improve research of this kind. Even though there are dictionaries and grammars for some languages, they do not always consider dialectal differences present in the Amazon. It is

therefore important to document these Indigenous languages as the over half of the languages presented in Nordenskiöld's dataset (47/99) are already considered to be extinct/dormant or nearly dormant (with one fluent speaker).

As expressed in Chapter 1, the results of this thesis serve as a pilot project for future research. Hence, one possible direction for such a project would be to include Nordenskiöld's complete dataset for comparison across South America. Of course this should be complemented by other semantic categories and CIs, such as Epps et al.'s (2013) Hunter-Gatherer database, for comparison across language communities and language families (see also Parti (2023) for a novel spice trade example). In this way, historical contact patterns could be unearthed from the pre-European contact time, as well as the changes which occurred during colonial displacements.

One potential avenue could include the incorporation of computational methods as manual digitization takes time. For example, Optimal Character Recognition (OCR) programs should be utilized to digitize archived data (see Martínek et al. 2020) and handwritten field notes (see Vögtlin et al., 2021). Moreover, taking inspiration from the works of List & Forkel (2022) and Nath et al. (2022), automated loan detection could be used on readily available wordlists and dictionaries to accelerate research. As shown in this thesis, Nordenskiöld missed certain contact patterns indicated by calquing clusters. This trend is still present as current studies on language contact often focus on phonological and lexical borrowing. Hence, morphosyntactic and structural borrowings may be a promising avenue for future language contact research in the Amazon.

## Chapter 7. Conclusion

This thesis set out to reanalyze and incorporate Nordenskiöld's dataset using an interdisciplinary approach to uncover potential loanword patterns. To achieve this goal, Nordenskiöld's (1922) data were scanned, digitized, and analyzed using more novel ethnographic and linguistic data. To assess and guide this research the following questions were asked:

- What does the historical scenario depicted in Nordenskiöld's work tell us about the spread of CIs in South America?
  - To what extent can Nordenskiöld's Arawak hypothesis on the spread of CIs be confirmed?

To answer the first question, the available data reveals multiple layered narratives in the NAB. Rather than a systematic spread throughout the Amazon, the complex movement of items reflects the history of the original peoples of South America, their oppression, and the subsequent takeover of settler-colonial nations. Hence, in this thesis I have proposed that these data are not some sort of time capsule of initial borrowings, but layered borrowing patterns reflecting the histories of South America. In other words, Nordenskiöld discussed the spread of these CI words in regard to how he envisioned the whole history of South America, when in reality each CI reflects a different time period.

Firstly, chickens may have been the first CI to spread quickly throughout South America. As the ethnological data indicates, many Amazonian communities did not consume chickens, but rather, kept them for their companionship as pets, or for trade with Europeans. Without the constraint of consumption, the spread of chickens could have increased quickly under the protection of Indigenous communities.

Bananas show a different spread, as their expansion across the NAB was limited to their parthenocarpic reproduction. Therefore, the spread of bananas was slower than that of chickens. It was also likely later in history, as the paruru *Wanderwörter* was further spread, potentially reflecting the trade alliance between Cariban communities and the Dutch (along other Europeans powers such as the Spanish).

The spread of firearm *Wanderwörter* are similar to the spread of banana *Wanderwörter*, which likely reflects an even later point in history. Moreover, the spread of the firearms was likely motivated by its utility as a hunting tool as most communities in the NAB now use guns instead of traditional hunting methods. Accompanied by the larger spread, the \*mboca *Wanderwort* is possibly indicative of the spread of Nheengatu as a lingua franca, which reflects the encroaching influence of settler powers in the NAB.

The second question is more difficult to answer with the current state of the art, as the Arawakan trade network had already largely dissolved by the time of European contact. However, it is likely that some *Wanderwörter*, like \*banana, \*mboca, and %karaka, were further spread in part due to Arawakan trade deeper into the Amazon, in the Rio Negro basin and the surrounding areas. To discern if the same *Wanderwörter* are observed beyond the NAB, more research with a larger dataset in other South American areas is necessary.

Finally, calquing patterns were observed both in semantics (such as the lightning/thunder semantic group), as well as word construction (such as the fire calque group). Further, this style of borrowing is evident by the complex ethnographic areas in which these observed groups are constrained. Therefore, calquing chains of lexical items could be a promising avenue for contact history in the Amazon and should be researched in other contact areas. For this reason, and for the borrowing patterns discussed above, future research into borrowing patterns of new and old CIs across the AB may reveal interesting patterns as to the histories of South American communities before and during colonization.

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## Appendix A

### *Consulted Grammars and Dictionaries*

Glottocode	ISO	Family	Name	Source(s)
acha1250	aca	Arawakan	Achagua	(Meléndez Lozano, 1998)
achu1248	acu	Chicham	Achuar-Shiwiar	(Fast et al., 1996; Kohlberger, 2020)
akaw1239	ake	Cariban	Akawaio-Ingariko	(Stegeman & Hunter, 2014)
aman1266	ama	Tupian	Amanayé†	NA
apal1257	apy	Cariban	Apalaí	(Koehn & Koehn, 1986)
araw1276	arw	Arawakan	Lokono‡	(Patte, 2002)
arut1244	atx	Arutani	Arutani‡	NA
ator1244	aox	Arawakan	Atorada‡	NA
bani1255	bwi	Arawakan	Baniwa do Icana	(Ramirez, 2001)
bara1380	bsn	Tukanoan	Barasana-Eduria	(Jones & Jones, 1991)
bare1276	bae	Arawakan	Baré‡	(Aikhenvald, 1995)
bora1263	boa	Boran	Bora	(Seifart, 2005)
cacu1241	cbv	Kakua-Nukak	Kakua	(Bolaños, 2016)
cams1241	kbh	Camsá	Camsá	(O’Brien, 2018)
cara1272	cbc	Tukanoan	Karapana	(Metzger, 1981)
cari1279	cbd	Cariban	Carijona‡	NA*
cari1280	NA	Arawakan	Cariay†	NA
cent2150	tuf	Chibchan	Central Tunebo	(Márquez et al., 1988)
chai1253	ciy	Cariban	Chaima†	NA
coca1259	cod	Tupian	Cocama-Cocamilla‡	(Vallejos Yopán, 2010)
cube1242	cub	Tukanoan	Kubeo	(T. C. Chacon, 2012)
cuma1240	cuo	Cariban	Cumanagoto†	NA
cure1236	NA	Tukanoan	Kueretu†	(Tastevin, 1996)
curr1243	kpc	Arawakan	Curripaco	(Granadillo, 2006)
daww1239	kwa	Naduhup	Dâw	(Martins, 2004)
desa1247	des	Tukanoan	Desano	(W. de L. Silva, 2012)
emer1243	eme	Tupian	Teko	(Rose, 2003)
gali1262	car	Cariban	Galibi Carib	(Courtz, 2008)
guah1255	guh	Guahiboan	Guahibo	NA*
guan1269	gvc	Tukanoan	Kotiria	(Waltz, 2007)
guar1293	gae	Arawakan	Baniva de Maroa	(Aikhenvald, 1998)
guin1258	NA	Arawakan	Guinay†	NA
iqui1243	iqu	Zaparoan	Iquito‡	(Michael et al., 2019)
juma1250	NA	Arawakan	Jumana†	NA
jupu1235	NA	Tukanoan	Yupua†	NA
juri1235	NA	Ticuna-Yuri	Juri†	NA
kais1242	NA	Arawakan	Kaishana†	NA
kore1283	coe	Tukanoan	Koreguaje	(Cook & Criswell, 1993)

kuru1309	kyr	Tupian	Kuruáya†	NA
macu1259	mbc	Cariban	Macushi	(Abbott, 1991)
macu1260	myy	Tukanoan	Makuna	(J. Smothermon et al., 1995; J. R. Smothermon & Smothermon, 1993)
maip1247	NA	Arawakan	Maipure-Avane†	(Zamponi, 2003)
mana1299	NA	Arawakan	Manao†	NA
mand1448	mht	Arawakan	Mandahuaca†	NA
mapo1246	meg	Cariban	Mapoyo‡	NA
maqu1238	mch	Cariban	Ye'kwana	(Cáceres, 2011)
maral408	NA	Arawakan	Marawan†	NA
maral409	NA	Arawakan	Maragua†	NA
mini1256	hto	Huitotoan	Minica Huitoto	(Minor et al., 1982)
murul274	huu	Huitotoan	Murui Huitoto	(Wojtylak, 2017)
nhen1239	yrl	Tupian	Nhengatu	(da Cruz, 2011)
omag1248	omg	Tupian	Omagua‡	(O'Hagan, 2011)
otom1301	NA	Otomaco-Taparita	Otomaco†	NA
pali1279	plu	Arawakan	Palikúr	(Green & Green, 2019)
para1309	NA	Cariban	Paravilhana†	NA
para1310	aap	Cariban	Pará Arára	(de Souza, 2010)
pass1250	NA	Arawakan	Passe†	NA
peba1243	NA	Peba-Yagua	Peba†	NA
pemo1248	aoc	Cariban	Pemon	(García Ferrer, 2008)
piap1246	pio	Arawakan	Piapoco	(Klumpp, 2019)
piar1243	pid	Saliban	Piaroa	(Krute, 1989)
pira1254	pir	Tukanoan	Wa'ikhana	NA*
pisa1245	NA	Tukanoan	Pisamira‡	(Pérez, 2000)
puin1248	pui	Puinave	Puinave	(Higuita, 2008)
pume1238	yae	Pumé	Pumé	(Guerreiro de Pirela, 2016)
sali1298	slc	Saliban	Sáliba‡	(Benaissa, 1991)
sapa1254	NA	Cariban	Sapara†	NA*
sape1238	spc	Sapé	Sapé†	NA
sate1243	mav	Tupian	Sateré-Mawé	(R. G. P. da Silva, 2010)
seco1241	sey	Tukanoan	Secoya	(Johnson & Levinsohn, 1990)
tamal338	tmz	Cariban	Tamanaku†	NA
tamal340	ten	Tukanoan	Tama†	NA
tari1256	tae	Arawakan	Tariana‡	(Aikhenvald, 2003)
tarul236	tdm	Taruma	Taruma‡	NA
temb1276	tqb	Tupian	Tenetehara‡	NA
ticul245	tca	Ticuna-Yuri	Ticuna	(Bertet, 2020)
tini1245	tit	Tinigua	Tinigua‡	(Ortiz, 2000)
trio1238	tri	Cariban	Trió	(Meira, 1999)
tuca1252	tuo	Tukanoan	Tucano	(Ramirez, 1997)

turi1247	tw	Tupian	Turiwára†	NA
tuyu1244	tue	Tukanoan	Tuyuca	(Vlcek, 2016)
uain1239	NA	Arawakan	Uainuma-Mariate†	NA
uiri1238	NA	Arawakan	Uirina†	NA
waim1253	atr	Cariban	Waimiri-Atroari	(Bruno, 2003)
waim1255	bao	Tukanoan	Waimaha	NA
wapi1253	wap	Arawakan	Wapishana	(Oliveira et al., 2013)
wara1303	wba	Warao	Warao	(Romero-Figeroa, 1997)
ware1255	NA	Arawakan	Warekena do San Miguel‡	NA*
waya1269	way	Cariban	Wayana	(Tavares, 2005)
waya1270	oym	Tupian	Wayampi	(Copin, 2012)
wayu1242	NA	Cariban	Wayumara†	NA*
yaba1248	yar	Cariban	Yabarana‡	(Koch-Grünberg, 1928)
yagu1244	yad	Peba-Yagua	Yagua	(Payne, 1985)
yahu1241	ynu	Tukanoan	Yahuna†	NA
yavi1244	yvt	Arawakan	Yavitero-Pareni†	NA
yucu1253	ycn	Arawakan	Yucuna	(S. Schauer & Schauer, 2000)
yuhu1238	yab	Naduhup	Yuhup	(Ospina Bozzi, 2002)
zapa1253	zro	Zaparoan	Záparo‡	(Moya, 2007)

\* Documentation exists but was not obtainable at the time of writing this thesis.

† Language is extinct/dormant.

‡ Language is moribund.

## Appendix B

### *Consulted Ethnographies*

Glottocode	ISO	Family	Name	Source
acha1250	aca	Arawakan	Achagua	(Melatti, 1997; Morey, 1975; Telban, 1988)
araw1276	arw	Arawakan	Lokono	(Hurault, 1963; Melatti, 1997)
ator1244	aox	Arawakan	Atorada	(Farabee, 1918)
bani1255	bwi	Arawakan	Baniwa do Icana	(Goldman, 1948; Melatti, 1997)
bare1276	bae	Arawakan	Baré	(Melatti, 1997)
cari1280	NA	Arawakan	Cariay†	NA
curr1243	kpc	Arawakan	Curripaco	(Hill, 2017; Jackson, 1983; Melatti, 1997)
guar1293	gae	Arawakan	Baniva de Maroa	(Goldman, 1948; Melatti, 1997)
guin1258	NA	Arawakan	Guinau†	NA
juma1250	NA	Arawakan	Jumana†	NA
kais1242	NA	Arawakan	Kaishana†	(Melatti, 1997)
maip1247	NA	Arawakan	Maipure-Avane†	NA
mana1299	NA	Arawakan	Manao†	NA
mand1448	mht	Arawakan	Mandahuaca†	NA
maral409	NA	Arawakan	Maragua†	(Verneau, 1921)
pali1279	plu	Arawakan	Palikúr	(Gallois & Ricardo, 1983; Levinson & Wilbert, 1994; Melatti, 1997)
pass1250	NA	Arawakan	Passe†	NA
piap1246	pio	Arawakan	Piapoco	(Frías Belisario & Perera, 2017; Melatti, 1997)
tari1256	tae	Arawakan	Tariana	(Jackson, 1983; Melatti, 1997)
uain1239	NA	Arawakan	Uainuma-Mariate†	NA
uiri1238	NA	Arawakan	Uirina†	NA
wapi1253	wap	Arawakan	Wapishana	(Farabee, 1918; Melatti, 1997)
ware1255	NA	Arawakan	Warekena do San Miguel	(Melatti, 1997; Nández, 2017)
yavi1244	yvt	Arawakan	Yavitero-Pareni†	NA
yucu1253	ycn	Arawakan	Yucuna	(Levinson & Wilbert, 1994; Melatti, 1997; J. G. Schauer & Schauer, 1973)
maral408	NA	Arawakan (Unattested)	Marawan†	NA
arut1244	atx	Arutani	Arutani	(Coppens, 1983; Melatti, 1997)
bora1263	boa	Boran	Bora	(Melatti, 1997; Telban, 1988)
cams1241	kbh	Camsá	Camsá	(Melatti, 1997; Telban, 1988)
akaw1239	ake	Cariban	Akawaio-Ingariko	(Levinson & Wilbert, 1994; Melatti, 1997)
apal1257	apy	Cariban	Apalaí	(Gallois & Ricardo, 1983; Melatti, 1997)
cari1279	cbd	Cariban	Carijona	(Jackson, 1983; Levinson & Wilbert, 1994);
chai1253	ciy	Cariban	Chaima†	NA
cuma1240	cuo	Cariban	Cumanagoto	(Melatti, 1997)

gali1262	car	Cariban	Galibi Carib	(Biord Castillo, 2017; Gallois & Ricardo, 1983; Melatti, 1997)
macu1259	mbc	Cariban	Macushi	(Levinson & Wilbert, 1994; Melatti, 1997)
mapo1246	mcb	Cariban	Mapoyo	(Henley, 1983; Melatti, 1997)
maqu1238	mch	Cariban	Ye'kwana	(Melatti, 1997; Silva Monterrey, 2017)
para1309	NA	Cariban	Paravilhana†	NA
para1310	aap	Cariban	Pará Arára	(Melatti, 1997; Nimuendajú, 1948c)
pemo1248	aoc	Cariban	Pemon	(Levinson & Wilbert, 1994; Melatti, 1997)
sapa1254	NA	Cariban	Sapara†	NA
tama1338	tmz	Cariban	Tamanaku†	(Mattéi-Müller & Henley, 1990)
trio1238	tri	Cariban	Trió	(Farabee, 1924; Gallois & Ricardo, 1983; Melatti, 1997)
waim1253	atr	Cariban	Waimiri-Atroari	(Melatti, 1997)
waya1269	way	Cariban	Wayana	(Gallois & Ricardo, 1983; Melatti, 1997)
wayu1242	NA	Cariban	Wayumara	NA
yaba1248	yar	Cariban	Yabarana	(Melatti, 1997; Seiler-Baldinger & Mattei-Müller, 2017)
cent2150	tuf	Chibchan	Central Tunebo	(Melatti, 1997; Telban, 1988)
achu1248	acu	Chicham	Achuar-Shiwiari	(Melatti, 1997)
guah1255	guh	Guahiboan	Guahibo	(Melatti, 1997; Morey, 1975)
mini1256	hto	Huitotoan	Minica Huitoto	(Melatti, 1997; Telban, 1988)
mur1274	huu	Huitotoan	Murui Huitoto	(Melatti, 1997; Telban, 1988)
cacu1241	cbv	Kakua-Nukak	Kakua	(Cathcart, 1973; Melatti, 1997; Silverwood-Cope, 1990)
daww1239	kwa	Naduhup	Dâw	(Mahecha Rubio et al., 2000; Melatti, 1997)
yuhu1238	yab	Naduhup	Yuhup	(Mahecha Rubio et al., 2000; Melatti, 1997)
otom1301	NA	Otomaco-Taparita	Otomaco†	(Morey, 1975; Rosenblat, 1964)
peba1243	NA	Peba-Yagua	Peba†	(Melatti, 1997; Steward & Métraux, 1948)
yagu1244	yad	Peba-Yagua	Yagua	(Melatti, 1997; Steward & Métraux, 1948; Telban, 1988)
puin1248	pui	Puinave	Puinave	(Melatti, 1997; Triana Varón & Rivas, 2017)
pume1238	yae	Pumé	Pumé	(Levinson & Wilbert, 1994; Melatti, 1997)
piar1243	pid	Saliban	Piaroa	(Levinson & Wilbert, 1994; Melatti, 1997)
sali1298	slc	Saliban	Sáliba	(Melatti, 1997; Morey, 1975; Telban, 1988)
sape1238	spc	Sapé	Sapé†	(Coppens, 1983)
taru1236	tdm	Taruma	Taruma	(Farabee, 1918)
juri1235	NA	Ticuna-Yuri	Juri	(Melatti, 1997; Telban, 1988)
ticu1245	tca	Ticuna-Yuri	Ticuna	(Levinson & Wilbert, 1994; Melatti, 1997)
tini1245	tit	Tinigua	Tinigua	(Morey, 1975; Telban, 1988)
bara1380	bsn	Tukanoan	Barasana-Eduria	(Jackson, 1983; Melatti, 1997; Telban, 1988)
cara1272	cbe	Tukanoan	Karapana	(Jackson, 1983; Melatti, 1997)
cube1242	cub	Tukanoan	Kubeo	(Jackson, 1983; Melatti, 1997)



cure1236	NA	Tukanoan	Kueretu †	NA
desa1247	des	Tukanoan	Desano	(Jackson, 1983; Melatti, 1997)
guan1269	gvc	Tukanoan	Kotiria	(Melatti, 1997)
jupu1235	NA	Tukanoan	Yupua†	NA
kore1283	coe	Tukanoan	Koreguaje	(Melatti, 1997)
macu1260	myy	Tukanoan	Makuna	(Jackson, 1983; Melatti, 1997)
pira1254	pir	Tukanoan	Wa'ikhana	(Jackson, 1983; Melatti, 1997)
pisa1245	NA	Tukanoan	Pisamira	(Jackson, 1983)
seco1241	sey	Tukanoan	Secoya	(Melatti, 1997)
tama1340	ten	Tukanoan	Tama (Colombia)	(Melatti, 1997)
tuca1252	tuo	Tukanoan	Tucano	(Jackson, 1983; Melatti, 1997)
tuyu1244	tue	Tukanoan	Tuyuca	(Jackson, 1983; Melatti, 1997)
waim1255	bao	Tukanoan	Waimaha	(Jackson, 1983; Melatti, 1997; Telban, 1988)
yahu1241	ynu	Tukanoan	Yahuna†	(Melatti, 1997; Telban, 1988)
aman1266	ama	Tupian	Amanayé	(Melatti, 1997; Nimuendajú & Métraux, 1948; Vieira Gomes, 1997)
coca1259	cod	Tupian	Cocama-Cocamilla	(Melatti, 1997)
emer1243	eme	Tupian	Teko	(Levinson & Wilbert, 1994; Melatti, 1997)
kuru1309	kyr	Tupian	Kuruáya	(Melatti, 1997; Nimuendajú, 1948c)
nhen1239	yrl	Tupian	Nhengatu	NA (Lingua Franca)
omag1248	omg	Tupian	Omagua	(Melatti, 1997)
sate1243	mav	Tupian	Sateré-Mawé	(Melatti, 1997; Nimuendajú, 1948a)
temb1276	tqb	Tupian	Tenetehara	(Melatti, 1997; Wagley & Galvão, 1948)
turi1247	twt	Tupian	Turiwára	(Melatti, 1997; Nimuendajú, 1948b)
waya1270	oym	Tupian	Wayampi	(Gallois & Ricardo, 1983; Melatti, 1997)
wara1303	wba	Warao	Warao	(Levinson & Wilbert, 1994; Melatti, 1997)
iqui1243	iqu	Zaparoan	Iquito	(Melatti, 1997; Steward & Métraux, 1948)
zapa1253	zro	Zaparoan	Záparo	(Melatti, 1997; Steward & Métraux, 1948)

† Language is extinct/dormant.

‡ Language is moribund.

## Appendix C

### *Identified Languages of the Northern Amazon Basin*

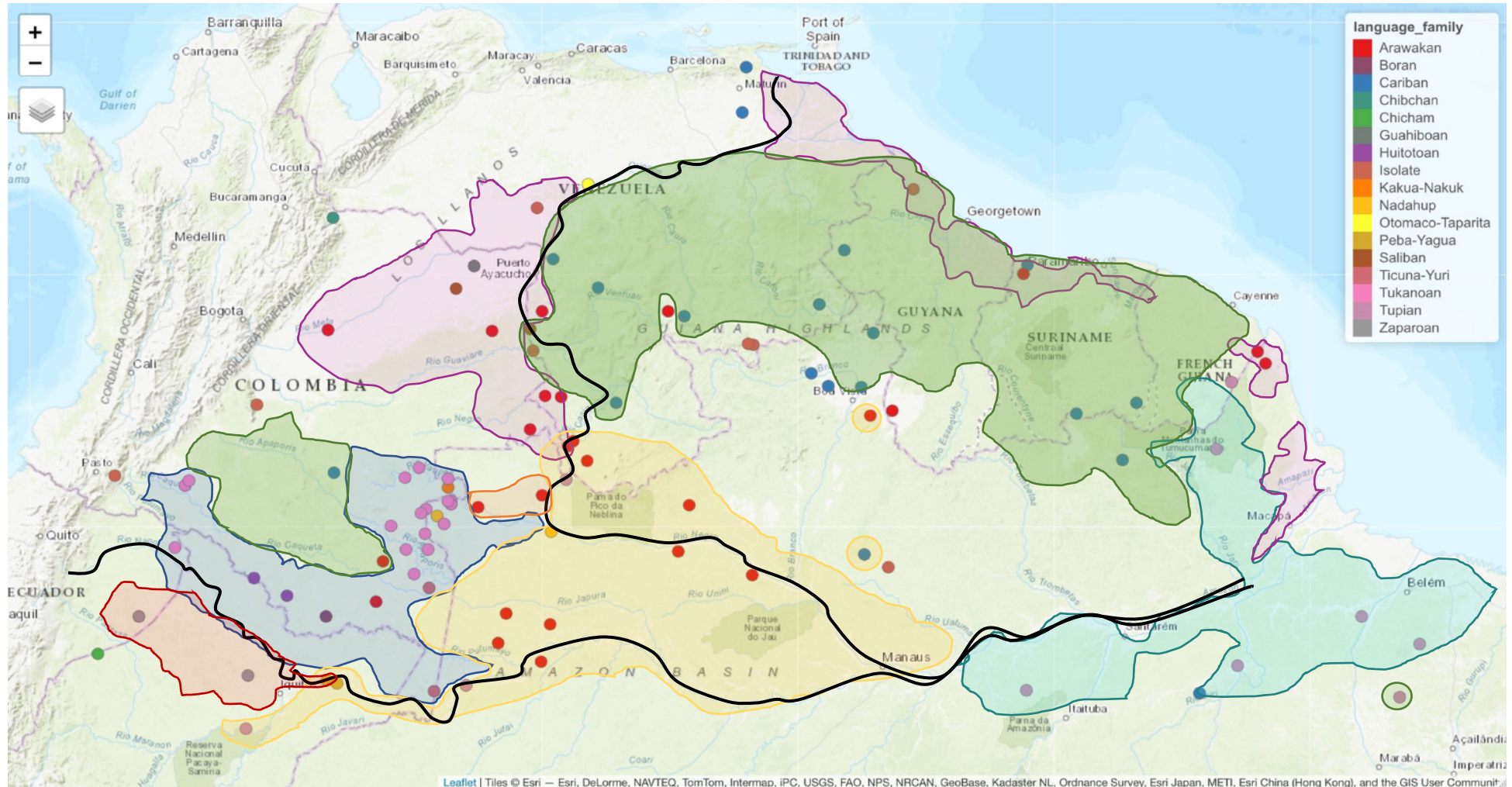
Glottocode	ISO	Name (Nordenskiöld)	Name (Glottolog)	Language Family
acha1250	aca	Amarizama, Achagua	Achagua	Arawakan
araw1276	arw	Arawaks (Coast of British Guiana), Arawaks (Lokono)	Lokono	Arawakan
ator1244	aox	Atorai	Atorada	Arawakan
bani1255	bwi	Baniwa, Karútana (Caruzana), Katapolítani, Siusí	Baniwa do Icana	Arawakan
bare1276	bae	Baré	Baré	Arawakan
cari1280	NA	Cariay	Cariay	Arawakan
curr1243	kpc	Adzáneni	Curripaco	Arawakan
guar1293	gae	Uaréquena, Uarékena	Baniva de Maroa	Arawakan
guin1258	NA	Guinaú	Guinau	Arawakan
juma1250	NA	Jumana	Jumana	Arawakan
kais1242	NA	Cauixana	Kaishana	Arawakan
maip1247	NA	Maipure	Maipure-Avane	Arawakan
mana1299	NA	Manao	Manao	Arawakan
mand1448	mht	Mandauáca	Mandahuaca	Arawakan
maral408	NA	Marawan	Marawan	Arawakan (Unattested)
maral409	NA	Maraua	Maragua	Arawakan
pali1279	plu	Palicur	Palikúr	Arawakan
pass1250	NA	Passé	Passe	Arawakan
piap1246	pio	Piapóco	Piapoco	Arawakan
tari1256	tae	Tariána	Tariana	Arawakan
uain1239	NA	Mariaté, Uainumá	Uainuma-Mariate	Arawakan
uiri1238	NA	Uirina	Uirina	Arawakan
wapi1253	wap	Wapisiána	Wapishana	Arawakan
ware1255	NA	Uarékena	Warekena do San Miguel	Arawakan
yavi1244	yvt	Yavitéro	Yavitero-Pareni	Arawakan
yucu1253	ycn	Yukúna	Yucuna	Arawakan
bora1263	boa	Boro, Miranã (Carapana)	Bora	Boran
akaw1239	ake	Acawoi, Ingaricó	Akawaio-Ingariko	Cariban
apal1257	apy	Aparaí	Apalaí	Cariban
cari1279	cbd	Carijona	Carijona	Cariban
chai1253	ciy	Chayma	Chaima	Cariban
cuma1240	cuo	Cumanagoto	Cumanagoto	Cariban
gali1262	car	Carib (Guiana), Galibi, Kalina	Galibi Carib	Cariban
macu1259	mbc	Macuši	Macushi	Cariban
mapo1246	meg	Mapoyo	Mapoyo	Cariban
maqu1238	mch	Maquiritare (Yekuaná)	Ye'kwana	Cariban
para1310	aap	Arara	Pará Arára	Cariban
para1309	NA	Paravilhana	Paravilhana	Cariban
para1310	aap	Arara	Pará Arára	Cariban
pemo1248	aoc	Taulipáng	Pemon	Cariban
sapa1254	NA	Sapará	Sapara	Cariban

tamal338	tmz	Tamanaco	Tamanaku	Cariban
trio1238	tri	Trio (Pinacótó)	Trió	Cariban
waim1253	atr	Crichaná, Yauaperý	Waimiri-Atroari	Cariban
waya1269	way	Maku (Roucouyenne),	Wayana	Cariban
wayu1242	NA	Wayumará	Wayumara	Cariban
yaba1248	yar	Yauarána	Yabarana	Cariban
cent2150	tuf	Tunebo	Central Tunebo	Chibchan
achu1248	acu	Jivaro	Achuar-Shiwiar	Chicham
guah1255	guh	Churruyes, Guahíbo	Guahibo	Guahiboan
mini1256	hto	Uitótó	Minica Huitoto	Huitotoan
murul274	huu	Oregones	Murui Huitoto	Huitotoan
arut1244	atx	Auaké	Arutani	Arutani
cams1241	kbh	Sebondoy	Camsá	Camsá
puin1248	pui	Puináve	Puinave	Puinave
pume1238	yae	Yaruro	Pumé	Pumé
sape1238	spc	Kaliána	Sapé	Sapé
tarul236	tdm	Taruma	Taruma	Taruma
tini1245	tit	Pamigua	Tinigua	Tinigua
wara1303	wba	Guarauno (Warrau)	Warao	Warao
cacu1241	cbv	Maku (R. Papurý)	Kakua	Kakua-Nukak
daww1239	kwa	Makú (R. Curicuriary)	Dâw	Naduhup
yuhu1238	yab	Maku (R. Tiquié)	Yuhup	Naduhup
otom1301	NA	Otomaco	Otomaco	Otomaco-Taparita
peba1243	NA	Peba	Peba	Peba-Yagua
yagu1244	yad	Yagua	Yagua	Peba-Yagua
piar1243	pid	Piaróa	Piaroa	Saliban
sali1298	slc	Sáliba	Sáliba	Saliban
juri1235	NA	Juri	Juri	Ticuna-Yuri
ticu1245	tca	Ticuna	Ticuna	Ticuna-Yuri
bara1380	bsn	Palānoa, Tsólá, Ömöá	Barasana-Eduria	Tukanoan
cara1272	cbc	Karapaná	Karapana	Tukanoan
cube1242	cub	Kobéua	Kubeo	Tukanoan
cure1236	NA	Coretú, Kueretú	Kueretu	Tukanoan
desa1247	des	Desána	Desano	Tukanoan
guan1269	gvc	Uanána	Kotiria	Tukanoan
jupu1235	NA	Yupúa	Yupua	Tukanoan
kore1283	coe	Correguaje	Koreguaje	Tukanoan
macu1260	myy	Buhágana, Erúlia (Makuna)	Makuna	Tukanoan
pira1254	pir	Uaiana, Uaíkana	Wa'ikhana	Tukanoan
pisa1245	NA	Uásöna, Uásöna	Pisamira	Tukanoan
seco1241	sey	Pioje	Secoya	Tukanoan
tamal340	ten	Tama	Tama (Colombia)	Tukanoan
tuca1252	tuo	Tukáno	Tucano	Tukanoan
tuyu1244	tue	Tuyúka	Tuyuca	Tukanoan
waim1255	bao	Bará	Waimaha	Tukanoan
yahu1241	ynu	Yahúna	Yahuna	Tukanoan
aman1266	ama	Manajé	Amanayé	Tupian
coca1259	cod	Cocama	Cocama-Cocamilla	Tupian
emer1243	eme	Emerillon	Teko	Tupian
kuru1309	kyr	Curuahé	Kuruáya	Tupian
nhen1239	yrl	Lingua Geral	Nhengatu	Tupian

omag1248	omg	Omagua	Omagua	Tupian
sate1243	mav	Maué	Sateré-Mawé	Tupian
temb1276	tqb	Tembé	Tenetehara	Tupian
turi1247	twt	Turiwára	Turiwára	Tupian
waya1270	oym	Oyampi	Wayampi	Tupian
iqui1243	icq	Iquito	Iquito	Zaparoan
zapa1253	zro	Zaparo	Záparo	Zaparoan

## Appendix D

### *Borrowing Clusters in The Northern Amazonian Basin: Bananas*

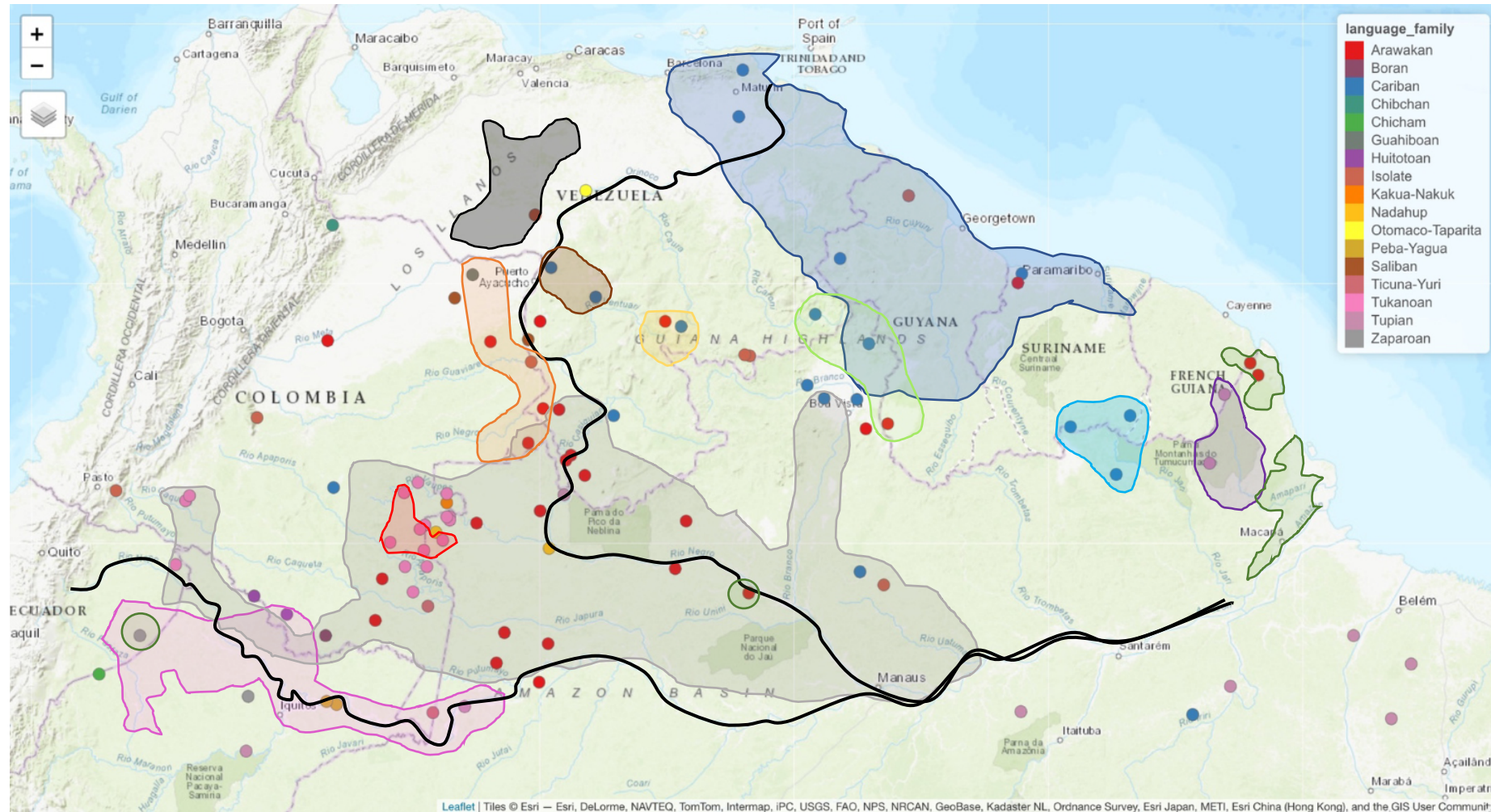


*Note.* The polygons in this map are approximations based on the dataset set and Erikson's ethnolinguistic map and does not represent a concrete boarder. Groups are presented as such: red = %samo, orange = \*nderi, yellow = \*banana, green = \*paruru, cyan = \*pakova, blue = \*oho, and purple = \*platano. Black lines refer to major trade routes as identified by Santos-Granero (1992).



## Appendix E

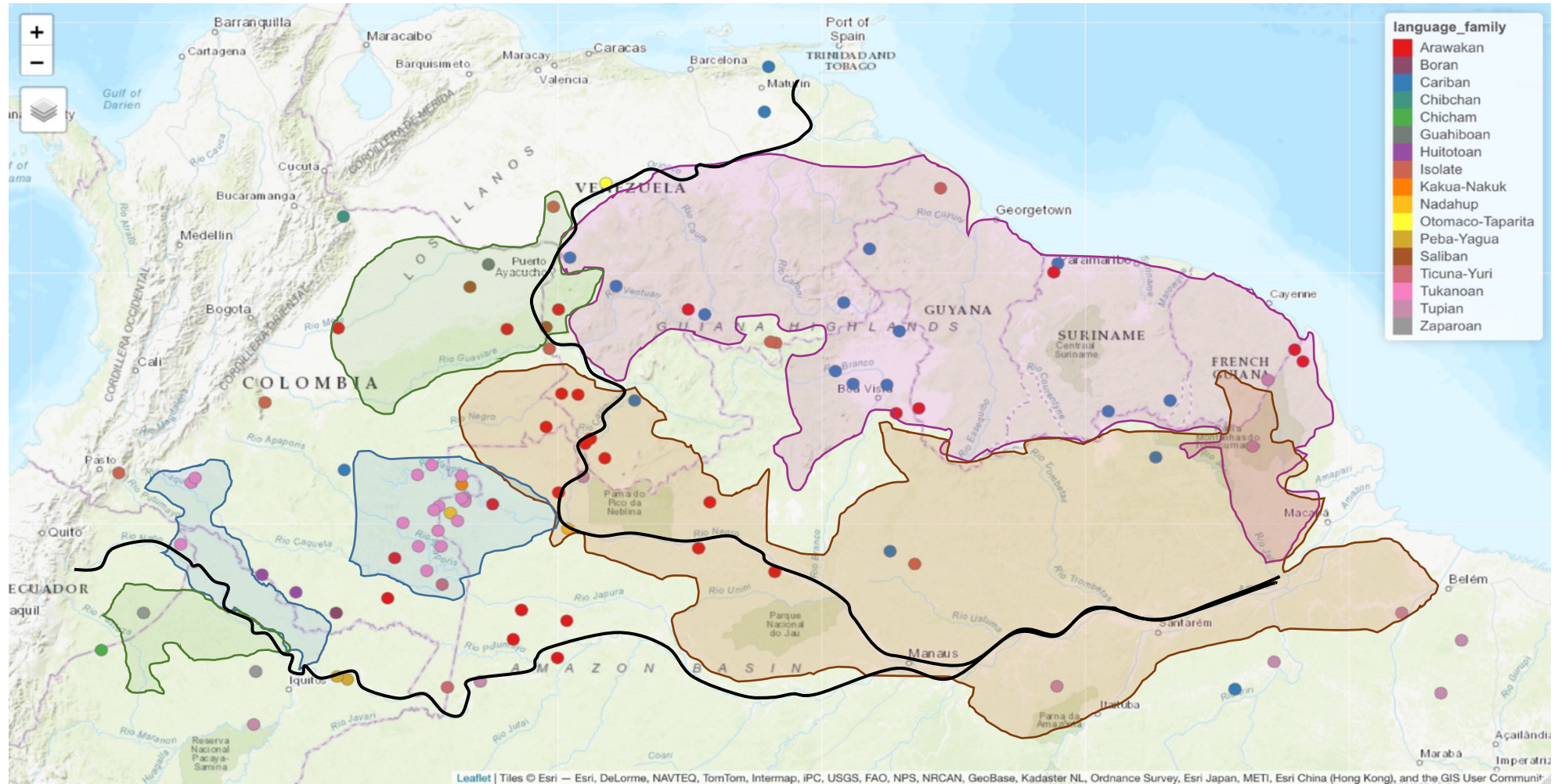
### *Borrowing Clusters in The Northern Amazonian Basin: Chickens*



*Note.* The polygons in this map are approximations based on the dataset set and Erikson's ethno-linguistic map and do not represent a concrete boarder. Groups are presented as such: grey = %karaka, dark green = %takara, pink = \*atawalpa, dark blue = \*garina, black = %wakara, red = \*nahaboake, orange = %kabame, brown = \*mapararu, yellow = %uamed, light green = %tupala; cyan = %curati; violet = \*massacara. Black lines refer to major trade routes as identified by Santos-Granero (1992).

## Appendix F

### *Borrowing Clusters in The Northern Amazonian Basin: Firearms*



*Note.* The polygons in this map are approximations based on the dataset set and Erikson's ethnolinguistic map and does not represent a concrete boarder. Pseudo-cognate groups are presented as such: orange = \*mboca, magenta = \*arcabuz, blue = fire semantic calques, and dark green = lightning/thunder semantic calques. Black lines refer to major trade routes as identified by Santos-Granero (1992).