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Foodways of the Rarámuri

By Adam Sachs

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Last but not least, this project would have been entirely different if not for the interest and approachability of Hank Shaw, who responded to my request for ideas and sent me one that was the perfect fit.



## Summary

This project is a translation from Spanish into English of selections from *Ralámuli Nu'tugala Go'ame (Comida de los Tarahumaras)*, titled in English as *Foodways of the Rarámuri*, by Albino Mares Trías. The author, Albino Mares Trías, was a member of the Rarámuri Indigenous group of Guazapares, a small community in the Mexican state of Chihuahua. The book contains Rarámuri source text with a parallel Spanish text, and was first published in 1982 by Don Burgess McGuire, who also wrote the book's prologue. To comply with the word length requirements of this project (10,000 – 12,000 words) I translated somewhere under half of the book, drawing from sections related to rituals, cultivated, and wild and semi-wild foods available in the Sierra Tarahumara, where most Rarámuri have lived throughout their known history. The translator's preface provides some history and cultural background related to the Rarámuri people, then delves into the translational approach of balancing domestication and foreignization. From there, it explains the thinking behind which sections were chosen for translation, and a detailed explanation of the methodology and importance of providing a thorough and carefully researched glossary. It concludes by making a case for the importance of documenting this information in light of modern threats to the Rarámuri homeland and ways of life.

## Translator's Preface

### Introduction

I had spent months brainstorming potential ideas for this thesis, but could not seem to latch onto anything in particular. I knew I would be spending a lot of time, energy, and attention on this project, and that it was a rare opportunity to select a translation entirely of my own choice.

I then reached out to Hank Shaw, a published cookbook author, blogger, podcast host, and expert in all things related to culinary self-sufficiency. He was working on a new cookbook about northern Mexican cuisine, and I asked him about a photograph he had taken of some books he purchased in Mexico. I mentioned I was seeking a source text for my thesis, and explained the project to him. He responded in his typical dead-pan, to-the-point style to avoid one of the books in the picture, and that he might have another suggestion.

The next day, he sent a picture of *Ralámuli Nu'tugala Go'ame (Comida de los Tarahumaras)*, with the message, "this is thesis-worthy." Indeed it was. This book incorporated so many elements that spoke to my interests, passions, and areas of specialization as a person and a professional linguist. It is a work that blends scholarly study while highlighting a marginalized Indigenous voice; secrets to discover and share about a lesser-known region in Mexico and its peoples's sense of place through their non-colonial cuisine; food and academia; history and the environment; anthropology and botany. I knew quickly that I had found my project, and that I could produce something meaningful that would add to a body of research and help expand our collective consciousness about foods and techniques that have nourished the world at large.

## Who Are the Rarámuri?

The Mexican state of Chihuahua seems a fundamental paradox when considering its history, geography, and culture. Mention the name to most people outside of northwest Mexico, and they may more likely associate the name of the country's largest state with one of the smallest domesticated dog breeds. It is a state covered mostly by the desert of its namesake, yet one third of its area is the mountain range of the Sierra Madre Occidental, an area covered by more forests than all but one state in Mexico. Within these mountains is the Western Sierra Madre ecosystem, which German geographer George Mayer said in 1989 contained "the greatest biodiversity of the American continent."<sup>1</sup> This area is also known as the Sierra Tarahumara, named for a group of its inhabitants, one of the oldest<sup>2</sup> Indigenous tribes in North America, who call themselves the Rarámuri, a name that refers to a natural endurance in their feet. Archaeological evidence suggests the Rarámuri have inhabited Chihuahua for nearly 2,000 years,<sup>3</sup> and despite declining numbers due to foreign influence in the last 400 years, they have largely retreated into this harsh, high-altitude terrain, and used their intimate relationship with its natural resources to maintain their way of life and sense of place.

Extending for nearly 600 miles at altitudes ranging from 4,000-8,000 feet, the terrain of the Sierra Tarahumara is a series of high sierras and deep canyons with varying climates that make agriculture a challenge. Ethnographers Wendell Bennett and Robert Zingg noted that the

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<sup>1</sup> Conservation International, Mexico's Living Endowment: An Overview for Biological Diversity. In Mayer, George. *Informe para la Secretaría de Relaciones Exteriores de los Estados Unidos Mexicanos: Sobre los conflictos sociales, económicos, ecológicos e interétnicos en la Sierra Tarahumara*. Chihuahua, 1996.

<sup>2</sup> see Irigoyen Rascón, 2015, 5.

<sup>3</sup> Encyclopedia.com, s.v. "Tarahumara," last modified May 14, 2018, <https://www.encyclopedia.com/history/latin-america-and-caribbean/mesoamerican-indigenous-peoples/tarahumara>.

Rarámuri have historically been “nomadic agriculturalists” since isolated areas of this land were arable for only part of the year.<sup>4</sup> Additionally, the climates vary widely between the cool highlands and more tropical canyons, or *barrancas*, as they are known locally. The former is more suitable for cultivating wheat and corn, whereas the latter is more suitable for fruit trees and feral-growing plants such as cacti and agave. Though the Rarámuri consume some meat, it makes up only about 5% of their diet,<sup>5</sup> so any of these edible plants, cultivated or wild, are important for their subsistence, and they must constantly seek them out. They have thus adapted to this rugged and nomadic lifestyle by developing unusual physical endurance, preferring to travel between the different regions by foot, in traditional huarache sandals or barefoot, moving many miles up and down steep cliffs just to reach a neighboring farm.

Bennett and Zingg highlight this way of living as a contrast to many other agricultural communities, which they suggest are more sedentary. Translations of the name “Rarámuri” harken to this quality, ranging from “foot runner” to “nimble feet.”<sup>6</sup> Much recent attention toward the Rarámuri focuses on this aspect of their lives, inspiring a trend toward barefoot running after the 2009 publication of Christopher McDougall’s *Born to Run* remained on the *New York Times* bestseller list for more than four months.<sup>7</sup> The book detailed the journalist’s time spent with the Rarámuri and his impressions of them as ultra-runners capable of running long distances at very fast speeds. The Rarámuri became a symbol not only of a pure and

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<sup>4</sup> see Bennett and Zingg, 1935, 14.

<sup>5</sup> see Fontana, 1979, 60.

<sup>6</sup> see Irigoyen Rascón, 6.

<sup>7</sup> “Hardcover Nonfiction Books – Best Sellers – Books – Oct. 11, 2009 – The New York Times.” 2009.

<https://www.nytimes.com/books/best-sellers/2009/10/11/hardcover-nonfiction/>

healthy lifestyle, but they were regarded as “superhuman” because of their endurance; the reality is murkier than McDougall’s account had people believe, though.

Aaron Baggish, the director of the Cardiovascular Performance Program at Massachusetts General Hospital, collected empirical data by accompanying them on some of these distance excursions with equipment that allowed him to do ultrasonic imaging of their hearts. He had not needed to review his data to notice that more than running, they were walking at a casual pace, and ultimately their hearts did not look like those of extreme athletes, but rather like those of a normal person who is healthy and active:

The reasons for these findings were all around them. Everyday life for the Rarámuri people is rugged. Living miles from roads and one another, and without vehicles, Rarámuri citizens cover long distances to get from place to place. On an average day, they may trek thousands of feet up and down steep mountain trails. They chop wood, carry water, farm by hand without tractors, and tote heavy goods on their backs to nearby pueblos.<sup>8</sup>

These findings and the reasoning behind them reinforce how this predisposition for traveling long distances on foot is closely intertwined with their relationship to their physical environment and how they can provide for themselves within it.

This unusual balance of the tension between a pastoral and nomadic lifestyle not only helps us understand their symbiotic relationship with the land, but also allows us to trace our own identity through the history of agriculture in this part of the world. One staple crop for the Rarámuri that illustrates this history and present with its clear contradictions is corn, which

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<sup>8</sup> see Russo, 2021, <https://www.sapiens.org/biology/raramuri-running/>

they not only consume in their tortillas and tamales, but also use as an object of prayer in spiritual ceremonies. Corn requires strategic planting to ensure pollination by wind, in addition to weeding, fertilizing, watering, husking, and shelling, and yet the high-altitude area of the Sierra is where it can be grown. Inhabitants of that section tend to leave during harsh winters for the lowlands, forcing them to maximize what they can of a corn harvest and share it with the greater Rarámuri community until they replant the following year. To them, the cultivation of corn is part of their way of life and tradition, but in a broader sense, as noted in a dissertation by Joan Parmer Barrett, corn's domestication in the prehistoric Americas represents a lifestyle change from wandering to settled life: "[t]he development of corn by prehistoric Indians has been deemed one of the most remarkable achievements in agricultural history."<sup>9</sup> The Rarámuri have effectively straddled some degree of both this "settled" life in agriculture and a "wandering" one in their remote environment.

Where corn may represent a "settled" life, the vast biodiversity of the Sierra Tarahumara would represent the other end of these antipodes on which they depend. Approximately 350 edible plants and 600 medicinal plants have been documented in this section of land,<sup>10</sup> which speaks to how much more there could be to discover and learn, with the Rarámuri as gatekeepers of sorts due to their unique familiarity with so many of these plants. Biologist Robert Bye, who collaborated on another book with the author of this source text, notes that this staggering biodiversity reveals different kinds of value in the forest that necessitate further study before clear-cutting. He cites the example of "[c]huchupate, one of

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<sup>9</sup> see Parmer Barrett, 2017, 7, <http://oaktrust.library.tamu.edu/bitstream/handle/1969.1/161470/BARRETT-DISSERTATION-2017.pdf?sequence=1&isAllowed=n>.

<sup>10</sup> see Guerrero, Reed, and Vegter, 2000, 13, <http://www.texascenter.org/publications/forestry.pdf>

the roots used in Rarámuri medicine. One hectare of *chuchupate* is currently worth about \$75,000 dollars while the commercial value of the wood on that very same hectare is about 5,000 dollars.”<sup>11</sup> These values in dollars are a way to provide perspective for our modern capitalist society, but the different values can be hard to quantify when considering how the relationship between wild and cultivated plants fosters evolution on its own, whether through the *chile piquín* native to this region that spawned all other chiles, or the *tekomari* scarlet runner bean, both of which are described in the source text. As Bye notes, Rarámuri agro-ecological practices have maintained a sort of “genetic flow between cultivated plants and wild plants...which could account for the development of the red runner bean that adapts to high altitude and short growing seasons.”<sup>12</sup> These natural benefits to humanity from so many years of Rarámuri knowledge show the importance of translating this text, which tells us about a select sample of these plants through the eyes of a Rarámuri individual.

These plants represent part of Rarámuri culture, wherein their understanding of what the land provides for them defines the way they live. “There are plants that grow naturally, like the *quelites*,” states Alejandro Nevárez, a Rarámuri agronomist and field specialist with the Mexican Agrodiversity project, part of the National Commission for the Knowledge and Use of Biodiversity (CONABIO).<sup>13</sup> He goes on to point out that *quelites*, another edible plant group detailed in the source text, are generally considered weeds, despite being some of the most nutritious plants on the planet and a vital part of the Rarámuri diet. “Rarámuri families know in

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<sup>11</sup> See Felger and Wilson, 1994, 95, <http://wildsonora.com/sites/default/files/reports/northern-sierra-madre-occidental-and-its-apachian-outliers-a-neglected-center-of-biodiversity.pdf>

<sup>12</sup> see Felger and Wilson, 1994, 40.

<sup>13</sup> see Perez, 2022, <https://piedepagina.mx/farm-to-table-a-celebration-of-raramuri-gastronomy/>

what moment to harvest and consume something, and just how to prepare it.”<sup>14</sup> These examples serve as reminders of how the Rarámuri’s collective knowledge of their environment can transcend their own nourishment, and that we risk sacrificing that knowledge by ignoring their voice. It is my hope that the translation of this source text will help elevate a prominent voice from within their history.

The Rarámuri have preserved these traditions and knowledge of what to seek and harvest, as well as how to prepare and consume it, through their language and oral traditions. Their language was not written throughout most of their history, so such oral narratives can often be the best resources for their cultural practices, such as the centrality of corn and *tesgüino* in their diet, dances, and ceremonies.<sup>15</sup> Part of the challenge in learning these narratives from an isolated Indigenous group in their unique and unwritten language has to do with their reputation for wanting to remain isolated. Since conquistadors first encountered them in the 1600s, they have retreated further into the Copper Canyon territory, a series of massive canyons within the Sierra Tarahumara. There they have pursued a sort of self-imposed isolation that extends to a distrust of many foreign ways, such as the Spanish language. In a 1977 interview, the publisher of this source text, Don Burgess McGuire, said “there is a belief that if one ‘gives away’ or records language graphically, it can be stripped from them.”<sup>16</sup> The tragedy of this reluctance and isolation is evident in their vulnerability toward modern development and a disregard by outsiders for their homeland, and it further reflects the value of a text such as this one, which documents so many foods, ingredients, and oral traditions

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<sup>14</sup> see Pérez, 2022

<sup>15</sup> see Parmer Barrett, 2017, 330.

<sup>16</sup> see Burgess, cited in Barrett, 24.



from the voice of a Rarámuri individual. “There’s so many dishes, I don’t know them all,” Alejandro Nevárez stated. “But it’s important to reclaim that knowledge. . . . I’ve been working on conserving it because my family is here, my mother is here right now preparing food, she’s making the same dishes she’s known since she was a girl.”<sup>17</sup> This translation represents an attempt at reclaiming a portion of their history and knowledge by sharing it with a wider audience.

### **Approaching the Foodways Narrative**

In my experience learning Spanish over the years, I had always thought of “comida” as a casual term for “food,” whether in the context of someone about to prepare or serve it, or in reference to specific dishes. A closer look at its definition, however, reveals some of the deeper implications of this term, and how I arrived at my translation into “foodways.” *El pequeño Larousse Gastronomique en español* indicates not only the association “comida” has with a specific meal, but also how meals are a vehicle through which people engage and experience important social occasions.<sup>18</sup> “Comida” in effect reflects a cultural way of life, a lens through which we can arguably see a group of people in their most elemental state of nourishing themselves to continue performing the work of maintaining what they consider valuable. It is through this lens of understanding the root of the source text that I approached this translation.

The Spanish title *Comida de los Tarahumaras* alludes to these deeper cultural undertones of the Rarámuri. It is not merely a book that catalogues ingredients and provides

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<sup>17</sup> see Pérez, 2022.

<sup>18</sup> Larousse Cocina, “Comida,” 2018, <https://laroussecocina.mx/palabra/comida/>.

recipes, but one that tells of how the edible landscape sustains a group of people, and how their use of that landscape's offerings can teach us more about who they are and the unique environment where they live. The book is something beyond technical foods and meals, and is rather the intersection of food with culture, which is generally understood to mean "foodways."<sup>19</sup> The scholarly journal *Food and Foodways* explains in its "Aims and scope" that food is a "pervasive social phenomenon" and that "reflecting on the role food plays in human relations...explores the powerful but often subtle ways in which food has shaped, and shapes, our lives socially, economically, politically, mentally, nutritionally, and morally."<sup>20</sup> Part of my aim in translating this work is to help us understand and trace our own relationship with foods that have grown and spread from this region. The survival of these foods is at the core of this pursuit, as it peels back a layer from a pre-Hispanic civilization that has for most of its history been intentional in its efforts to maintain these ways of living through what they eat and how they eat it.

A 1984 review of *Ralámuli Nu'tugala Go'ame* by Joseph E. Laferriere refers to it as a unique "ethnobiological" work,<sup>21</sup> but I think a more accurate term would be a *foodways narrative*. Ethnobiology and ethnobotany, despite being predicated on offering primary accounts focused on cultural practices through plants, tend to be formal studies where food and foodways are not at the center of research. *Foodways of the Rarámuri* aims to share the experience of working with food through the eyes of the Rarámuri, ostensibly through the voice

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<sup>19</sup> see Darnton, 2012.

<sup>20</sup> "Aims and scope," *Food and Foodways*, Taylor & Francis Online, <https://www.tandfonline.com/action/journalInformation?show=aimsScope&journalCode=gfof20>.

<sup>21</sup> see Laferriere, 1984, 190. <https://ethnobiology.org/sites/default/files/pdfs/JoE/4-2/BookReviews4-2.pdf>

of Albino Mares Trías, one of its members. It is thus not a study, but his personal *narrative* that allows us a glimpse into their daily life and cultural practices.

In keeping with the essence of this foodways narrative, I also thought it important to replace the term “Tarahumara” with “Rarámuri.” The name “Tarahumara” was first used by Jesuit missionaries in reference to those they converted<sup>22</sup> in the sixteenth century, likely a by-product of mispronunciation or misunderstanding when listening to the Rarámuri speak their own language. I have chosen to use the pre-colonial term Rarámuri, because they still identify themselves this way, and I was trying to look at their way of life through their eyes on their own terms rather than through a colonial lens. Their identity is central to the foodways narrative and its documentation of their culture, so the name represents the clearest way to reclaim and assert that identity. For the sake of simplicity, and since I translated from a Spanish source text, I have included corresponding Rarámuri terminology where possible in the headings of each section and my glossary, but not in the narrative body of the text.

Questions about terminology in the title bring up what was perhaps the central challenge in translating this text from Spanish: it is a translation of a translation. Yet another paradox in this process is that the Rarámuri have sought isolation and previously avoided graphical documentation of their language, yet it is only through a parallel Spanish text that I am attempting to document and better understand their foodways by translating into English. Nonetheless, this third degree of separation adds a significant layer of complexity in the quest to better understand the essence of their way of life. One translational approach with such a text is to foreignize, or get as close to the source text as possible by intentionally preserving

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<sup>22</sup> see Parmer Barrett, 2017, 5.

syntax and structure, even in cases where it may sound awkward or unusual in the target language. As I worked through the text, I chose to approach it by domesticating the language more to make it intelligible for an English-speaking audience and focus more on the root of its message.

This book's publisher Don Burgess Mcguire explains his long-term project of documenting Rarámuri life in a 1977 interview, where he hoped to get books written by the Rarámuri in their language about how they hunt, fish, play sports, eat, and drink.<sup>23</sup> He spent twelve years living in one of their communities for 4 – 6 months at a time as part of his work with the Summer Institute of Linguistics (SIL), a Christian evangelical nonprofit organization focused on translation, literacy, education, development, and linguistic research with communities that speak languages of limited diffusion.<sup>24</sup> He would then have the books printed through SIL and sell a few thousand copies to the Mexican government to cover the cost, and distribute other copies to schools in Rarámuri communities. The audience was thus within the Rarámuri community, and cultural institutions associated with the Mexican government. Nearly half a century after the publication of *Ralámuli Nu'tugala Go'ame*, I am considering the value this narrative would have not just for scholarly research, but also for contemporary authors and readers of works such as cookbooks and gardening guides, interested in learning more about the nuances of Mexican foodways, culture, and ingredients. I felt it important to lean more into a domesticated translation of the text to make it approachable, and at the same time achieve a balance of its linguistic roots by including Rarámuri terms in the headings and text where

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<sup>23</sup> See Burgess, Don. 1977. "Interview No. 423." ScholarWorks@UTEP. <https://scholarworks.utep.edu/interviews/423/>.

<sup>24</sup> See "About Us," sil.org.

possible, compiling a comprehensive glossary, and including robust research footnotes and citations throughout my preface, translation, and bibliography.

A foreignized approach would have required me to preserve syntax and repetition for the sake of preserving an oral style that was elusive at best. Though there is a certain “orality” evident in the source text style, this style is based on a language that has resisted formal written documentation, so preserving that style in writing was, to my mind, counter-intuitive and potentially deliberately obtuse. In one example, the author describes making corn tortillas: “Después, cuando ya esté bien caliente el comal, ya se pueden cocer las tortillas. El comal es de barro.” I combined these two sentences to make them more concise, as the sudden reference at the end of the material composition of a *comal* seemed jarring in the context of a step-by-step procedure: “Afterward, when the ceramic *comal* is hot, the tortillas can be cooked.” This translation is more straightforward, and keeps the focus on the process of preparation, which was ostensibly the purpose of that section.

The Spanish translation also included many parentheses throughout the text that often came across as confusing or problematic in my efforts to determine the most appropriate term, and thus usually unnecessary in my translation. Toward the beginning, Mares Trías recounts the oral history of ancient ancestors in a sentence that reads, “también ellos mismos se mataban unos a otros para comer carne, (caníbales).” The term “caníbales” has its origins in Christopher Columbus’s invasion of the Caribbean, where their accounts referred to the Tainos with this variation on “Caribe” as “eaters of human flesh” based on their ethnocentric perception.<sup>25</sup> Just as I thought it important to update the term “Tarahumara” to “Rarámuri,” a similar level of

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<sup>25</sup> See Merriam-Webster, <https://www.merriam-webster.com/dictionary/cannibal>.

sensitivity seemed appropriate here. The use of parentheses in general seemed disruptive to the narrative flow, and reflected a level of knowledge about certain concepts at the time, so I wanted to update this aspect of the text by integrating them into the language where possible.

Another example was the use of “enredadera” in parentheses after “huirote” in reference to various types of bean. I did extensive research to determine which beans would be considered “runner beans,” a term that ultimately seemed arbitrary or subjective. The accurate distinction was between pole beans and bush beans,<sup>26</sup> but that distinction neither clarified which category “huirote” represented, nor did it add useful information or context to the types of beans described in the narrative. In this case, it made most sense to omit the cultural term to preserve clarity regarding the type of plant being described.

I also felt comfortable with a domestication approach as I noticed some clear differences between the Indigenous source text and the Spanish text from which I was translating. I first noticed a disconnect between the Spanish parallel text in the third section I translated, “*Bilé rió re'malí nila rejcholi* (On How to Drink *Tesgüino*” (3). This section relates the narrator’s first experience drinking the traditional alcoholic beverage at a festival where others are also under its influence. It is in the third paragraph where the Spanish begins to deviate significantly from the Rarámuri, when the narrator says some shakers were put on his ankles at the home of an acquaintance named Abaristo, who played the violin. A look at the Rarámuri version makes it apparent that Abaristo is not the only participant in this story, as there are

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<sup>26</sup> See MasterClass, “How to Tell the Difference between Bush Beans and Pole Beans,” November 8, 2020, <https://www.masterclass.com/articles/how-to-tell-the-difference-between-bush-beans-and-pole-beans>.

references to Ulalia, Ro'colobo, José María Morillo, and Rosalina in the space of three sentences.<sup>27</sup> A page later, there is an initial exchange of dialogue that seems much shorter in Spanish than in Rarámuri:

*Rarámuri*

—Narepogo —aní o'noca. —'A lisensia nejima neba —aniru o'nó a'ligue,  
 nánatiri —napurigá bajímala mué suguí —aníru'e 'ligue. —'A hua'lú rió  
 came mué. A'lá hue 'la 'nátaga bajíhuago elagá ta'mé recuca —aníre'e.

*Spanish*

“Recíbelo. Yo ya te doy permiso de tomar”.<sup>28</sup>

The narrator’s father is advising him to consume *tesgüino* for the first time, and he offers insight on doing so responsibly in the paragraph that follows. While I thought it possible that the dialogue had simply been broken up differently, one clear inconsistency was the use of the Rarámuri term for *tesgüino* (“*suguí*”) both in the father’s statement quoted above and in the next paragraph. It is difficult to discern the nuances in dialogue in this anecdote without greater knowledge of the source language. I had to accept early in this process that I was working with a source text that could be incomplete in many ways, and that there were foundational limitations to any amount of research and reading between the lines as I tried to divine the core of this narrative’s perspective.

The more common discrepancy between the two texts I encountered pertained to cooking and preparation procedures, wherein it sometimes seemed that small details had been

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<sup>27</sup> See Mares Trías, Albino, 1982, 27.

<sup>28</sup> see Mares Trías, 1982, 28

omitted, and other times there could be a long description in Rarámuri above a short paragraph in Spanish. In the procedure for roasting agave, (*Imé majíliame* (Fire-Roasting Agave) for example, the Spanish version begins by saying that the agave should be cut with an ax and its leaves stripped with a machete. It then says that wood is added to the oven, the agave is covered with palm leaves, and left to roast for one to two days until fully cooked. This explanation takes three short paragraphs in just over 200 words, whereas the Rarámuri explanation goes on for nearly twice as long, with a count of nearly 400 words. This passage has some of the most obvious differences between the Rarámuri and Spanish, but there are other examples with more nuanced variation that also highlight the importance of small details in culinary translation. In the section about making “*Remé hui'reme 'ligue cobisi* (Hallelujah Tortilla and *Pinole*,” the final Spanish sentence on page 126 alludes to proper handling of the masa for this special tortilla:

*Rarámuri*

Napuligue alué hui'reme reménilisica 'hue ba'huirúgame rusuame cárué  
 alué me'tagá alué sunú párisi. Alueca pecha secate cho'nagá reméliame  
 cahue, alequere alieri rusuame ju alué. Pe alé remélachi achasa culí  
 ra'lanáliame ju alué macúsate, cha ba'irúgame came alué párisi.

*Spanish*

Cuando se va a hacer tortilla aleluya, el trigo se muele más que el maíz y se deja más aguado porque la tortilla no se hace con las manos, sino poniéndola en el comal se extiende con los dedos; lo hacen así porque la masa es muy aguada.



Deciphering the differences between these two passages can be like putting together a jigsaw puzzle with many of its pieces looking blurry. But there are some terms that show a variation in syntax, such as wheat (*tri'ligó* in Rarámuri) and corn (*sunú* in Rarámuri). The Spanish distinguishes between the moisture of wheat and corn to illustrate how differently to handle it in terms of grinding it more finely and spreading it on a *comal* with hands. *Tri'ligó*, however, not only does not appear near *sunú* in the Rarámuri text, but seems to appear nowhere in that passage, which implies a difference in how Mares Trías frames his explanation of technique in the source language. Both these examples illustrate the challenges in reconciling the two texts, and they make a case for further study of this text for publication to document unique culinary techniques used by the Rarámuri. A closer study of this account in its initial source language would reveal layers of meaning that could bring the narrator's account to life in ways I can only begin to imagine as I try to scratch the surface.

I was also surprised by how little information was available about the author, Albino Mares Trías. In the prologue, Don Burgess McGuire states,

El autor es un Tarahumara de treinta años de edad. Creció en la parte oeste de la región Tarahumara de Chihuahua, cerca del río Chínipas.

Asistió a la escuela rural solo por dieciseis días; así que tuvo que aprender a leer y a escribir solo.

El presente libro es el cuarto que él ha escrito. Los tres primeros:

“Hacemos muchas cosas con el mezcal (maguey)”, “Cómo cazamos y pescamos” y “Aquí relata la gente de antes lo que pasaba en su tiempo”,

fueron publicados en Tarahumara con su respective traducción al español.<sup>29</sup>

The above passage tells us his age at the time of publication, his location near the southern part of the border between Chihuahua and Sonora, and that his self-taught literacy was sufficient for various book collaborations. Beyond these details, there was scant information on his biography, an enigma that leaves unanswered questions regarding certain contextual matters around the translation. We are left wondering how he independently acquired his literacy, and how he became a spokesperson for their way of life through Western scholars.

Without any biographical information about the author, what does it tell us about the veracity of information contained within the book? A later paragraph in the prologue states, “[n]o todos los tarahumaras conocen y utilizan todas las plantas que se mencionan en este libro.”<sup>30</sup> This clarification attempts to address some of the obvious shortcomings of a primary account, wherein one person’s perspective cannot categorically represent everyone else in a community. His unknown identity also makes it challenging to understand his role, relationship, and history within the community he describes, in addition to his relationship with Burgess McGuire and Bye, who worked with him on other books.

The narrative aspect of this work also required a keen attention to the author’s simple voice, a factor complicated even more by writing a third translation from an author whose

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<sup>29</sup> “The author is a thirty-year-old Rarámuri raised in the western part of the Rarámuri region of Chihuahua, near the Chínipas River. He attended a rural school for only sixteen days, and thus had to learn how to read and write on his own.

This book is the fourth he has written. His first three—*The Many Things We Make with Agave, How We Hunt and Fish, and Our Ancestors Tell of What Happened During their Time*—were published in Rarámuri with accompanying Spanish translation.” Mares Trías, 1982, 5, translation my own, including book title translations

<sup>30</sup> “Not all Rarámuri know and use all the plants mentioned in this book. While one person may not know a plant or how to prepare it, they may know others that are lesser-known.” Mares Trías, 1982, 6, translation my own.

background is largely unknown. Based on what is stated in the prologue, it is logical to wonder about the process of composing this work. Did Don Burgess McGuire record audio of interviews with Mares Trías in Rarámuri and have those transcribed by one person and translated by another? Did Mares Trías work with more than one individual to record his reflections in writing, and allow them to be passed on for review and publication? These are all questions that further study of archives associated with these individuals and projects could answer, and in turn shed additional light on the Rarámuri as a whole.

The voice in Spanish seems simplistic and conversational, informal at times. Mares Trías refers to many items as “muy sabroso”—which I translated as “very tasty”—and “muy buena para comer”—which I translated as “very good for eating”—with little additional description of their flavors. Reflexive constructions are common, such as when he describes Mexican thistle: “[c]uando se va a comer se queman un poquito las hojas para que no espinen, porque esas hojas de la chinaca tienen muchas espinas.”<sup>31</sup> Translating a sentence such as this one requires attention to its subtleties to achieve a balance between tone and fluency. I maintained the casual tone by adding the pronoun “you” in place of the reflexive construction, with the thought that his words were engaging with a listener: “You have to burn the leaves a little so they don’t prick you, because they have a lot of spines” ([Chiná \(Mexican Thistle\)](#)). I had to engage in a frequent process of editing to both preserve the narrator’s voice and try to make the account readable and intelligible in English, knowing that a significant amount of editing had already occurred in the text’s translation from Rarámuri to English. The act of editing in

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<sup>31</sup> see Mares Trías, 1982, 241.

translation has been a topic of debate, and this text makes a strong case for a point Christina Schäffner makes about the purpose of a text:

[A]s research in Translation Studies has shown, shifts at macro- and micro-level are an integral part of any translation process, not only as a result of differences in the linguistic systems of source and target language . . . but more often as a result of considerations of the target audience, the target, culture, and the purpose the target text is expected to fulfil in its new context.<sup>32</sup>

This translation should ultimately expose a broader English-speaking audience to the relationship and importance of food within an Indigenous culture, in whatever way I could make the information most comprehensible and accurate. I thus had to be attentive to the types of changes I made, but willing to make certain adjustments that were inevitable to achieve my goals with this text.

### **The Process of Curating**

*Ralámuli Nu'tugala Go'ame (Comida de los Tarahumaras)* is unique in scope since Mares Trías presents a primary account of his people's traditions and his experience living off their regional environment, including detailed descriptions of the local flora and fauna, and how they have consumed and used them. His narrative includes simple descriptions and identifications of local foods, explanations of where they can be found, how and when they can be harvested and prepared, and their importance to the daily lives of the Rarámuri. My translation covers a little

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<sup>32</sup> see Schäffner, 2013, <https://doi.org/10.7202/1021222ar>

under half the book, including excerpts from all the main sections attributed to Mares Trías:

*Consejos en cuanto a la comida* (“*Rejcholi napu 'ligue go'ame go'á* (A Guide to Our Foodways)”),  
*Lo que comía la gente de antes* (“*Regá go'lé ralámuli 'ya muchígame* (What People Ate in the  
 Past)”), *Comidas que sembramos* (“*Go'ame echíame* (Foods That We Grow)”), and *Comida del  
 campo* (“*Go'ame jami nerúgame* (Foods from the Field)”).

When I submitted the proposal for this project, I anticipated translating most of the book. Its nearly 500 pages contain Spanish text that takes up much smaller portions of each page compared to the parallel Rarámuri text, in addition to many cover pages and black-and-white photographs. I quickly discovered, however, that I had underestimated the word count, and would need to make some decisions about what and how much I could include to both comply with the translation length requirements and still provide a document that showcases important aspects of Rarámuri food culture. On a superficial level, the content I included skews toward domesticated ingredients (“Foods That We Grow”) over wild ones (“Foods from the Field”), with more than twice as many of the former included here over the latter. Though I would have liked to continue translating sections about lesser-known or autochthonous items such as *cholla* and madras thorns, I justify this decision based on achieving a balance between a few factors. I was trying to capture some of the edible biodiversity of the Sierra Tarahumara and highlight an Indigenous voice that tells of how the Rarámuri live through what they eat. But I also thought it crucial to consider the influence of Rarámuri foodways beyond their homeland. The first section on domesticated foods gives us a better idea in that regard, with more information about heirloom ingredients that have quietly made their mark on the American culinary heritage, how they prepare the ingredients, where and when they consume ingredients

or specific dishes, and how each item influences their daily life. “Foods from the Field” underscores the untamed environment around them and what they can find within it, but also includes information on how they prepare these wild ingredients. I employed this line of thinking on a more granular level as well, basing my decision of which specific sections to translate off their influence within and outside Rarámuri culture. I considered which ingredients were important and influential for the Rarámuri, and which ones have gained a broader influence in the world as the cuisine and ingredients associated with Mexico have become increasingly popular.

As mentioned earlier, corn lies at the foundation of pre-Hispanic cuisine in Mexico, and it serves as an effective lens through which to view some staple Rarámuri tools and dishes. For that reason, I thought it important to translate the section pertaining to the *metate*, a tool used for grinding many things, including corn-based items that make up staples in the Rarámuri diet. The text mostly focuses on superstitions related to its use, but in a way, it reinforces the important role it has in Rarámuri life because of how particular they apparently are about their treatment of this frequently used tool. Its use for grinding corn for tortillas and tamales is more commonly known, but the corn porridge-like drink *atole* is considered more essential for the Rarámuri to maintain energy when they do work at home or make journeys to other communities and the market to sell their wares and food. To make *atole*, corn must be ground into a powder (*pinole*) and/or paste (*esquiate*), both of which are done on a *metate*, so it is these unique items and technique that both nourish the Rarámuri and connect them to broader pre-Hispanic traditions in Mexico.

Though the section on corn is the longest, much of it is devoted to preparations involving corn. The section on beans that comes immediately after solely focuses on different heirloom bean species, and thus takes up the most space of any single plant genus in this translation. I chose to keep it this way with few cuts to showcase the broad and versatile agricultural tradition evident within just one legume. Bye's earlier point about the *tekomari* heirloom runner bean developing from their foodways is but one example of how the care in preserving a set of plants can yield value, potential, and nourishment for the future. Mares Trías's account includes beans ranging from poles, runners, peas, and cowpeas, most of which are unique to this region and provide their staple protein. The preservation of this knowledge represents an agricultural and culinary heritage that has become increasingly valuable in the midst of how our modern agricultural sector endures a struggle against corporate-backed monocultures, particularly through monopolistic stipulations against the distribution of certain types of beans and corn.

I believe that the consequences of such monocultures extend beyond an environmental threat, and in fact make what we eat less interesting in some ways. Two other items detailed in this book make a strong argument for how much flavor we can discover simply by looking at what is less familiar. It was important that I translate the section on *chile piquín* for this reason, as the cuisine of so many other places around the world would taste vastly different if their parentage had not spread and spawned the endless variations of chile peppers we now know. On the other hand, corn fungus maintains a status of "disease" and "invasive" outside Mexico, with one of its more common English names being "corn smut." As a recent article from *Eater* notes, "[l]ike other ingredients with Indigenous roots, *huitlacoche's* present-day reputation is a

byproduct of European colonization and the adoption of certain Mesoamerican crops versus others. And it's a reminder of how branding certain ingredients as exotic or even adventurous can ultimately minimize a culture's culinary heritage."<sup>33</sup> My inclusion of it in this translation is my way of asserting its merit on our tables in Mexican establishments the world over, and reclaiming its identity through language.

My longest section in "Foods from the Field" is the one devoted to *quelites*, or wild greens. This decision is again a nod to their importance in Rarámuri life, but also another way of showing how we have lost our culinary way by not paying attention to the healthy resources at our fingertips. In nearly everywhere I have lived, I have encountered greens such as purslane and amaranth growing in both lush public parks and disturbed areas within sidewalk cracks. Since Mares Trías describes more than twice the number of *quelites* I was able to include in this translation, it should serve as a reminder of what we can learn about sustainability, self-sufficiency, and long-term health by paying greater mind to the foodways of the Rarámuri.

## Glossary and Methodology

The foodways narrative category constitutes a hybrid of sorts that encompasses anthropology, culinary natural history, and personal reflection from a marginalized voice. It thus became apparent early in this process that a comprehensive glossary would be essential to effectively document and provide context for the information and terminology contained in this account. The narrative comprises not just ingredients and techniques, but also unfamiliar places, tools, and cultural artifacts. The words of Mares Trías provide a snapshot of common aspects of his

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<sup>33</sup> see Martins, 2021, <https://www.eater.com/22688579/what-is-huitlacoche-corn-usa-mexican-food-bias>.



everyday life, yet the audience for this book will look at this snapshot as outsiders, unfamiliar with most regional and cultural references he makes. Some terms defy translation from Rarámuri into any other language, and others have become so closely associated with their Pre-Hispanic roots that their Spanish term was the most fitting. My glossary catalogues these terms with their corresponding names in Rarámuri, Spanish, scientific terms where applicable, and a definition to provide context and relevant background. It is, in effect, a foundational reference tool for this English translation and future use of this text for further research.

The focus on food in this text highlights the care required in producing an accurate culinary translation. One of the most challenging aspects of culinary translation pertains to terminology management, insofar as there is neither consensus nor consistency in this field of study. I came across numerous terms for ingredients and techniques in this book that seemed to have a relatively straightforward English equivalent, but I quickly learned that finding their correct name was more complex than I thought. The inclusion of a “Lista de identificación” at the end of the book proved indispensable for initiating the research required to find equivalent, accurate terms in English, because it included not only terms in Rarámuri and Spanish, but also the corresponding scientific names, including genus, species, and family. In instances where there was confusion or inconsistency between the scientific term and the Spanish term, I translated based on the scientific term, as those terms are used for the express purpose of establishing consistency in nomenclature across cultures.

The process of assembling a glossary such as this one required extensive research from specialized databases and resources. Since I had chosen to expand the book’s “Lista de identificación” with English terms and definitions, the glossary leans into the hybrid nature of

this text by dealing with the technical requirements of taxonomy and natural history. Most items on the list are unique and particular to the region, such that a general dictionary or encyclopedia did not provide sufficient information to verify the details and attribute them to the Rarámuri and the Sierra Tarahumara. I thus consulted specialized resources to ensure accuracy and clarity for my definitions and choices of terms, such as botanical garden databases, including archives from the Missouri Botanical Garden, North Carolina State Extension Gardener Toolbox, and Purdue University; organizations dedicated specifically to botanical research in the southwest region of the continent, such as Native-Seeds-Search, a seed conservation non-profit organization based in Arizona dedicated to preserving heirloom seeds used by Indigenous groups in that region; and unique articles and case studies, such as the one on mushrooms in the Sierra Tarahumara published by the *Journal of Ethnobiology and Ethnomedicine*.

In my last few sections on agave, for instance, I had to employ both research and discretion starting at the basic term for the plant. The Rarámuri term is “imé,” but the Spanish text and reference list refers to it as “mezcal”—with “maguey” in parentheses—which technically should only refer to the spirit that arrived when the Spanish introduced distillation to Mexico.<sup>34</sup> Since the Rarámuri instead consume agave as a food and use it to make *tesgüino*, the use of “mezcal” would create confusion, so I used the botanical term “agave.” The conundrum of classifying agave did not end there though, as the information pertaining to the various species of agave referenced in the book was inconsistent. *Agave bovicornuta* translates

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<sup>34</sup> see Shaw, 2023, <https://tothebone.substack.com/p/oaxaca-interlude>.

directly as “cow horn agave,” and that is the common nomenclature amongst nurseries that reference this agave, but the Spanish term provided was “lechuguilla,” which refers to the species *Agave lophantha* var. *poselgeri*,<sup>35</sup> a type of agave known for its use as a single varietal mezcal. In the case of *Agave pacifica*, the identification list indicates its association with two entries in the book, each with the nearly identical Rarámuri terms *imé gusime gusírale nerúgame* and *imé gusime galírale nerúgame*. The Spanish distinguishes one as “monte,” ostensibly grown at higher elevations, and the other as “casero,” so I referred to one as “Mountain Agave Pacifica” and the other as “Domesticated Agave Pacifica.” Both these examples were an opportunity for me to update the text through translation, and also remove some of the colonial influence in the language by using more technically accurate terms rather than colloquial ones that harken to the acts of conquistadors.

Citrus was the family I had most taken for granted before diving into my research for the glossary. My initial translation for “toronja” was “grapefruit,” as it is commonly referred between Spanish and English. Not only did I discover that the corresponding scientific name listed, *Citrus grandis* (*rutaceae*), referred not to grapefruit but to pomelo, one of the three ancestral citrus fruits, but that Spanish does not have a clear distinction between pomelo and grapefruit. In the physical dictionary I have always used, it listed both “pomelo” and “grapefruit” next to “toronja.”<sup>36</sup> The latter is *Citrus paradisi*, a cross between a sweet orange and a pomelo, and in the case of this text, they used its term when the scientific classification

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<sup>35</sup> “Agave Lechuguilla,” n.d., <https://www.fs.usda.gov/database/feis/plants/shrub/agalec/all.html>

<sup>36</sup> *Diccionario de la lengua española*, Online ed., s.vv. “toronja,” “pomelo,” accessed September 6, 2023, <https://dle.rae.es/toronja#FUy47a9>, <https://dle.rae.es/pomelo?m=form>; *Langenscheidt Compact Spanish Dictionary*, 3<sup>rd</sup> ed. (1989), s.vv. “pomelo,” “toronja,” “grapefruit.”

indicates they should have used “pomelo.” This discovery seemed significant insofar as it again forced me to reexamine what are effectively colloquial associations with a word that preclude us from better understanding real aspects of the culinary and ecological heritage of this people and place.

When telling friends and acquaintances about this project, I often joked that one of the biggest headaches centered around “limón” and “lima,” two words whose translations I thought were common knowledge despite many a native Spanish speaker bemoaning how often they would confuse lemons and limes in English. Not only did I discover a lack of consistency between cultures for lemons and limes, but the scientific names of these two items were elusive citrus cultivars themselves. *Citrus aurantifolia* refers to the Mexican lime, likely a tri-hybrid intergeneric cross of three plant species and at least two different genera of citron (*Citrus medica*), pomelo, and a microcitrus species, *Citrus micrantha*.<sup>37</sup> Though its common names range from the generic “key lime” to “West Indian lime,” I thought it important to include “Mexican” in its heading and a few of its references to draw some attention to the distinct flavor of Mexican limes described in the book and other sources.<sup>38</sup> I based my decision for the English term of “mandarin lime” for *Citrus limonia* on similar factors, since its other more common name is Rangpur lime, a reference to a city in Rajasthan, India, near its likely origin as a cross between lemon and mandarin orange.<sup>39</sup> Both of these examples highlight the

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<sup>37</sup> see Crane, 2020, <https://edis.ifas.ufl.edu/publication/CH092>

<sup>38</sup> see Givaudan Citrus Variety Collection at UCR, <https://citrusvariety.ucr.edu/crc1710#:~:text=Mexican%20lime%20is%20known%20by,while%20other%20selections%20are%20thornless.>

<sup>39</sup> see Morton, 1987, 178-179.

complexity in distinguishing between regional fruit cultivars as well as the importance of reviewing available peer-reviewed data associated with each cultivar.

The three different types of figs in the book required a similar amount of careful research in determining and confirming their appropriate names in English, since two of them were more obscure wild or semi-wild species native to Mexico. Both *Ficus petiolaris* and *Ficus maxima* appear in the “Foods from the Field” section in the book, but the former has been domesticated and more specifically named in English based on its presence in the wild near rocky cliffs ranging from Baja California to Oaxaca.<sup>40</sup> *Ficus maxima*, on the other hand, can be found anywhere from Mexico to the Caribbean to the Amazon,<sup>41</sup> and has no official name in English. I chose to call it “wild fig” based on its feral, non-domesticated status, and since there was some association of that name with the Spanish “chalate.”<sup>42</sup> The challenge in choosing that name was finding legitimate information related to *Ficus maxima* that I could attribute to a definition of the species, as much of the documentation I found was either open-sourced or scant on detail. Though it is not my role as a translator to provide detailed scientific data or studies on these different plants, my goal of providing a clearer picture of the Rarámuri’s sense of place through food remained top of mind, so it was important that I offer a clear distinction among different species such as these.

The glossary and my corresponding research for it also allows me to update these terms from how they were published in Spanish more than forty years ago. The first section in “Foods

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<sup>40</sup>Missouri Botanical Garden, s.v. “*Ficus petiolaris*,” accessed September 6, 2023, <https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=282732&isprofile=0&>.

<sup>41</sup> see Plants of the World Online, <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:853200-1/general-information>.

<sup>42</sup> see Schoenhals, 2020, 37.

from the Field” contains three entries of different mushroom species, all of which are given generic names in Spanish, and two of which are listed in the identification list as “undetermined.” My research of more recently published studies enabled me to assign the identity to one of these undetermined species. The source text identifies *hujcoguí repoma bamunú nerúgame* (*repoma* for short) with the generic description “hongo blanco de las aguas,” or literally “white water mushroom.” In a 2014 article for the *Journal of Ethnobiology and Ethnomedicine*, a group of researchers documented the findings from their interviews with 197 inhabitants of the Sierra Tarahumara, 51 of whom were Rarámuri, in an effort to identify various types of mushrooms that were found in that region.<sup>43</sup> Their findings confirm that *repoma* in fact refers to *Russula brevipes*, more commonly known in English as the short-stemmed russula mushroom.<sup>44</sup> The other mushroom in the source text is listed as *Huejcoquí guhuéquigui*, or “hongo de temporal,” which I chose to translate with my own coinage as “storm mushroom” since the Spanish name makes reference to seasonal conditions. Its description indicates that the mushroom grows in the mountains from dead pine trees. These are qualities that could describe many mushrooms, and the journal article contains no reference to it. It also notes that there were about 450 species of mushrooms studied in the state of Chihuahua as of publication, a number considered low due to the magnitude of ecological diversity there.<sup>45</sup> This example thus represents another reason that this text and its content merit publication in English, and further research based on the richness and diversity of species within an ecologically diverse and culturally rich environment.

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<sup>43</sup> see Quiñónez-Martínez et al., 2014, 6.

<sup>44</sup> see Quiñónez-Martínez et al., 2014, 7.

<sup>45</sup> see Quiñónez-Martínez et al., 2014, 2.

## Conclusion, Through the Lens of Present and Future

When this book was first published in 1982, we had perspective of how imperialism and development that prioritized profit had posed threats to the Rarámuri. Up to that point and to this day, they have tried to maintain their ways and embrace a sense of place in areas that proved too inhospitable for those who did not value them and their culture, whether it was Jesuit missionaries or logging companies. The underlying principles behind these threats of a disregard for natural resources and disrespect for Indigenous cultures and customs have also remained steadfast, metastasizing beyond the logging industry and into the war on drugs. The cultivation of marijuana and opium began spreading to areas in the Sierra around the time this book was published,<sup>46</sup> seducing some Rarámuri with the potential for higher income than they could receive from selling their wares to tourists. Not only has this illicit trade put the Rarámuri in its crosshairs, but it has an obvious social and ecological impact of encroachment on their homeland and culture, exacerbated by the Mexican government's effort to militarize the Sierra Tarahumara and lay the groundwork for an increase in violence and human rights violations within the region.<sup>47</sup>

These contemporary influences and conflicts are largely beyond the scope of this translation, but they do speak to the importance of amplifying and expanding this narrative. A document of the Rarámuri's foodways not only preserves their identity and ways of life, but it is important for their land as it remains under the threat of becoming something else due to its treatment by external forces. There are numerous examples of food in this book that show how

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<sup>46</sup> see Guerrero, Reed, Vegter, 2000, 15.

<sup>47</sup> see Guerrero, Reed, Vegter, 2000, 15.

the Rarámuri heritage represents important aspects of human heritage writ large, where we can barely imagine how much something as tiny as a *chile piquín* can change our lives for the better. Our understanding of our own ways begins by looking toward and listening to the people and places who have guarded these aspects of what has nourished our senses. I hope that this translation can play a small part in the greater need to preserve important knowledge that transcends our presence in the world.



## Glossary

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>Agave</b>	<i>imé</i> <i>mezcal</i>	A type of succulent plant that belongs to the <i>Asparagaceae</i> family and is native to Mexico. It is a required ingredient for the production of tequila and mezcal, is a significant source of fiber, and some species can be used for making rope. The Rarámuri mostly use it for making <i>tesgüino</i> and eat it roasted directly over fire. <sup>1</sup>
<b>Agave wocomaji</b>	<i>imé ojcome</i> <i>mezcal verde</i> <i>Agave wocomahi</i>	A moderate to large size agave that only reproduces by seed, with open and symmetrically spaced rosettes and broad, rigid, thickly fleshed leaves, mostly used for <i>tesgüino</i> . <sup>2</sup>
<b>Agave pacifica (mountain and domesticated)</b>	<i>imé gusime</i> <i>galírale</i> <i>nerúgame/imé gusime galírale</i> <i>nerúgame</i> <i>mezcal gusime del monte/mezcal casero</i> <i>Agave Angustifolia</i> <i>var. Pacifica</i>	A medium-size agave plant with a dense rosette of fleshy leaves, rounded in their outline. More commonly known as <i>espadín</i> , it is the most commercialized type of agave, responsible for 80% of all <i>mezcal</i> sold, due in large part to its higher sugar concentration, which produces a higher yield of distilled spirit. In northern Mexico, it is most known for its use in producing a Sonora spirit called Bacanora. <sup>3</sup>
<b>Agave americana</b>	<i>imé galime</i> <i>mezcal maguey</i> <i>Agave americana</i> <i>var. expansa</i>	An agave that can grow up to 8 feet tall and 11 feet around, known for its infrequent but attractive flowering spikes that typically bloom between its 10 <sup>th</sup> and 25 <sup>th</sup> year of life before the plant dies, also known as “American century plant.” <sup>4</sup>
<b>Aporabo</b>		A small community in the Guazapares municipality in southwest Chihuahua. <sup>5</sup>
<b>Arizona water willow</b>	<i>sehuáchili</i> <i>quelite de invierno</i> <i>Jacobinia</i> <i>candicans</i> (Acanthaceae)	Native to southern Arizona and northern Mexico, a deciduous or semi-evergreen shrub with cordiform leaves and red to orange tubular flowers that are attractive to butterflies. <sup>6</sup>
<b>atole</b>	<i>atónali</i>	From Nahuatl <i>ātōlli</i> , a sweetened porridge-style drink of Maya origin, made from toasted corn masa or wheat and <i>panocha</i> sugar. <sup>7</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>azufrado beans</b>	<i>rohuímini</i> <i>frijol azufrado</i> <i>Phaseolus vulgaris</i>	A medium-sized, egg-shaped pole bean with sulfur- and beige-colored seeds that are smooth when cooked. <sup>8</sup>
<b>Basigochi</b>		A small community in the Guachochi municipality in southwest Chihuahua. <sup>9</sup>
<b>Bacusínare</b>		A small community in the Guazapares municipality in southwest Chihuahua. <sup>10</sup>
<b>Baquépuchi</b>		A region the author references for its agave production, for which the only further documentation appears in some of his other published work.
<b>bird's beak chile</b>	<i>sulagoma</i> <i>chile pico de pájaro</i> (aka <i>chile de árbol</i> ) <i>Capsicum annuum</i> <i>var. annuum</i>	A long, thin chile that starts out green and turns red when fully ripe. It is most commonly consumed in its fully ripe state or dried, added to salsas for its very spicy flavor. <sup>11</sup>
<b>bitter orange</b>	<i>nalaso-lima</i> <i>naranja-lima</i> <i>Citrus aurantium</i>	An aromatic, rough-textured orange with a thick pith used for both medicinal and culinary purposes. Despite what the author says, this fruit is probably the result of crossing the pomelo and a type of mandarin orange. <sup>12</sup>
<b>blandito de Sonora corn</b>	<i>sunú rosilí</i> <i>maíz blandito de Sonora</i> <i>Zea mays</i>	Originally domesticated by Mesoamericans, the author claims this corn is only good for making popcorn, though other sources say it is a flour corn suitable for tortillas and tamales as well. <sup>13</sup>
<b>blood beans</b>	<i>muní elámuni</i> <i>frijol color sangre</i> <i>Phaseolus vulgaris</i>	A high-yielding red bean, possibly referring to a kidney bean variant, such as <i>sangre de toro</i> (“bull’s blood”) beans, Tepehuan red kidneys, or Burro y caballito. <sup>14</sup>
<b>blue corn</b>	<i>sunú ojchilí</i> <i>maíz pinto-negro/azul</i> <i>Zea mays</i> (Graminae)	See source text footnote 4. Originally developed by the Hopi, a flint/flour corn with kernels that are dark due to the presence of anthocyanins. <sup>15</sup>
<b>botija</b>		A large ceramic pot, originally of Hispanic colonial origin, that the Rarámuri use for fermenting <i>tesgüino</i> . <sup>16</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>brown-spine nopales</b>	<i>huilá rapame</i> <i>nopales de cara brillante</i> or <i>duraznillo</i> <i>Opuntia phaeacantha</i>	Despite the Greek root of its genus <i>phaeacantha</i> translating to “grey thorns,” the spines of this cactus are white, and its flowers yellow. It is known for its winter habit of weak stems and pads that sag or even lie flat on the ground. <sup>17</sup>
<b>Caesar’s mushroom</b>	<i>huejcoquí bamanú</i> <i>nerúgame</i> <i>hongo tiempo de aguas</i> <i>Amanita caesarea</i>	An orange-capped, yellow-gilled mushroom that is one of the few edible types in the genus <i>Amanita</i> , whose common name derives from its preferred status among Roman emperors. <sup>18</sup>
<b>caldo de limón</b>		The lime soup described in this text is simpler and more distinct from the <i>sopa de lima</i> associated with the Yucatán, <sup>19</sup> but highlights the importance of staple ingredients of the Rarámuri, such as lime, tortillas, and <i>chile piquín</i> .
<b>cañajote de palma</b>		There is scant information on this ingredient, its use, and nomenclature, but it appears to refer to the surface portion of a palm stalk that is ground and used in place of salt prior to colonial influence. <sup>20</sup>
<b>caríbio chile</b>	<i>o'colí caríbio</i> <i>chile caríbio</i> <i>Capsicum anuum</i> var. <i>anuum</i>	A thin, long, medium-hot chile pepper native to southern Chihuahua, associated with the Tepehuan communities in addition to the Rarámuri. <sup>21</sup>
<b>chacal</b>	<i>chacali</i>	A preparation made with corn or its grains in which they are cooked without salt and dried in the sun to make them shelf-stable.
<b>chapore</b>	<i>cha'poli</i>	A thick tortilla, generally made with the dough left over after making normal tortillas.
<b>chirotero beans</b>	<i>muní gusímini</i> <i>frijoles chiroteros</i> <i>Phaseolus vulgaris</i>	A late maturing variety of pole bean with pods suitable for eating in their tender state. <sup>22</sup>
<b>chile piquín</b>	<i>o'colí síbili</i> <i>chile piquín (aka chiltepín)</i>	A very small globular chile pepper native to Sinaloa in northwest Mexico, and the wild progenitor of all <i>Capsicum anuum</i> chiles. The remaining wild <i>chile piquín</i> grow in upland forests near the borders of Chihuahua and Durango. <sup>23</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
	<i>Capsicum anuum</i> var. <i>glabriusculum</i>	
<b>chocame beans</b>	<i>muní o'chócame</i> <i>frijol negro</i> <i>Phaseolus vulgaris</i> (Leguminosae)	A late maturing bluish-gray pole bean with black mottling from the heart of the Sierra Madre. <sup>24</sup>
<b>citron</b>	<i>Sansigra</i> <i>cidra</i> <i>Citrus medica</i> (Rutaceae)	An oval or oblong citrus fruit that is protuberant at the tip, about 5-6 inches long, and furrowed. The inner portion of the adhesive rind is thick, white, and fleshy, while the other part is thin, greenish yellow, and fragrant. <sup>25</sup>
<b>comal</b>		From the Nahuatl <i>comalli</i> , a basic utensil in Mexican cuisine in the shape of a flat disc, originally made of unglazed clay. As it is now most associated with making tortillas, it is more commonly made from metal or sheet, to prevent tortillas from sticking to its surface. <sup>26</sup>
<b>common fig</b>	<i>chuná galírale</i> <i>nerúgame</i> <i>higo casero</i> <i>Ficus carica</i> (Moraceae)	A small tree or large shrub in the mulberry family that grows to a mature size of 10 - 30 feet tall, and produces spherical edible fruits usually ranging in color from green to purple. <sup>27</sup>
<b>corn</b>	<i>sunú</i> <i>maíz</i> <i>Zea mays</i> (Graminae)	A cereal grain first domesticated by Indigenous peoples in the southwest part of North America. Archaeological evidence suggests it was one of the first farmed seeds, first grown there around 6,000 years ago. <sup>28</sup> Corn is classified into different types (popcorn, flint, flour, dent, or sweet) based on the composition of hard and soft tissues of the kernels. <sup>29</sup>
<b>corn fungus</b>	<i>sunú o'lichila</i> <i>hongo del maíz</i> <i>Ustilago maydis</i>	The result of a fungal infection in corn that causes kernels to swell into tumor-like growths, with an appearance, texture, and taste reminiscent of mushrooms. Also called "corn smut" or <i>huitlacoche</i> . <sup>30</sup>
<b>corn tassel</b>	<i>sunú mulala</i> <i>sehualá</i> <i>flor de la espiga del maíz</i>	The part of the corn plant that includes the female or hermaphroditic flowers and grains. The tassel is the male reproductive structure of the corn plant, while the cob or ear is the female reproductive structure. The tassel produces pollen, which is then carried by the wind to fertilize the kernels on the ear of corn. This process is essential for corn to produce viable seeds for reproduction. <sup>31</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>cow horn agave</b>	<i>imé sapulí</i> <i>mezcal lechuguilla</i> <i>Agave bovicornuta</i>	A small to medium-sized agave with an open rosette and yellow-green leaves, usually maturing in 12 years or more. Its common and scientific names derive from its teeth recurving in opposing fashion like that of a bull's horn. Its flowers were washed and used to make tortillas, and the stems used for mezcal, though it is noted as being more bitter than other agave for both these purposes. The Spanish term provided by the text seems to be inaccurate, referring to a different species of agave. <sup>32</sup>
<b>coyote oregano (lemon beebalm)</b>	<i>napá o'cógame</i> <i>oregano coyote</i> <i>Monarda austromontana</i> (Lamiatae)	A plant in the mint family known for attracting pollinators such as butterflies, bees, and hummingbirds. When the leaves or stems are crushed it has a fragrance likened to citrus and oregano. <sup>33</sup>
<b>crab apple</b>	<i>masana</i> <i>manzana</i> <i>Malus sylvestris</i> (Rosaceae)	Descendant of the more common <i>Malus domestica</i> , this apple is very light-demanding with weak competitive abilities, and is grown by the Rarámuri at higher elevations. <sup>34</sup>
<b>crested anoda</b>	<i>rehué</i> <i>rehueque</i> <i>Anoda cristata</i> (Malvaceae)	An annual plant in the mallow family native to the southwest of North America that produces verdant triangular leaves and solitary purple flowers off a ridged, branching stem. <sup>35</sup>
<b>duraznillo nopal cactus</b>	<i>huilá rapame</i> <i>nopal cara brillante o duraznillo</i> <i>Opuntia sp.</i> (Cactaceae)	See first footnote on page 50. The author's description and name for this cactus do not match.
<b>esquiate</b>	<i>gue'halí</i>	A mixture of roasted, ground corn used to make <i>pinole</i> or <i>atole</i> , usually made with corn that has coarse kernels. Once toasted, it is ground with a little water added for moisture, and then added as a base for a healthy soup or beverage. The corn can occasionally be replaced with <i>tekomari</i> beans. <sup>36</sup>
<b>esquite</b>		Toasted corn kernels, cooked to make them pliable for grinding into <i>esquiate</i> . <sup>37</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b><i>Ficus maxima</i></b>	<i>chuná jami</i> <i>nerúgame</i> <i>chalate</i> <i>Ficus maxima</i>	A fig tree native to Mexico, the Caribbean, and Central America with leaves that vary from long and narrow to more oval. <sup>38</sup> The text notes that it does not flower before fruiting, but this point largely applies to all figs, wherein the flower blooms are contained within an enclosed structure that has a very small opening, where a species of fig wasp unique to each cultivar enter to reproduce and pollinate the female flowers that ultimately produce fruit. <sup>39</sup>
<b>fine apple</b>	<i>masana jino</i> <i>manzana fina</i> <i>Malus sylvestris</i>	A type of red crabapple, species undetermined.
<b>field mustard</b>	<i>a'lásini</i> <i>quelite mostaza</i> <i>Brassica rapa ssp. sylvestris</i> (Cruciferae)	A bitter, spicy green whose scientific name derives from the Latin for cabbage, originally growing wild in Italy and Siberia, and likely feral in the Americas. <sup>40</sup>
<b>green amaranth</b>	<i>guilibá huasolí</i> <i>quelite de las aguas</i> <i>Amaranthus hybridus</i> (Amaranthaceae)	An annual herbaceous plant that reproduces by seeds, yielding a tap root and thick, branched stems that are often ribbed or tinged with red. The leaves are suitable for eating raw or sautéed, with an intense and full, vegetal flavor profile. <sup>41</sup>
<b>huare</b>		A traditional woven basket made from locally available raw materials found in Chihuahua's deep tropical canyons and vine and Apache pine tree-covered mountain ranges. <sup>42</sup>
<b>huejas (jícaras)</b>		Small wooden vessels, ordinarily made from the skin of the calabash fruit, and used like the earthenware vessel of the same name in Spain. <sup>43</sup>
<b>kidneywood</b>	<i>sipalí</i> <i>sipariqui</i> <i>Eysenhardtia polystachya</i> (Leguminosae)	A semi-evergreen shrub in the pea family that produces fragrant white flowers, used in Mexico by Indigenous peoples medicinally for centuries. Its English name derives from the use of the plant for treating ills of the kidney. <sup>44</sup>
<b>machihui</b>		Originating from the Nahuatl, this term refers to water containing corn residue from the process of grinding and moistening nixtamalized corn to make tortillas. <sup>45</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>mandarin lime</b>	<i>limó</i> <i>limón</i> <i>Citrus limonia</i>	Based on the scientific term, and also known as Rangpur lime, this hybrid of lime and mandarin orange originated in India and was introduced to the Americas in the 19 <sup>th</sup> century. It is orange in color with a round, irregular surface, and a peel that separates easily from the flesh to reveal a lime aroma and a very sour juice that is suggestive of orange. <sup>46</sup>
<b>masa</b>	<i>párisi</i>	Nixtamalized, ground corn made into a dough that forms the basis of tortillas and tamales, often made from dent and flint varieties of corn, but flour corn is also suitable. <sup>47</sup>
<b>mahuechi</b>		A system of slash-and-burn agriculture typical of the northwest region of Mexico, and primarily used for the cultivation of grains based on the suitability of soil. <sup>48</sup>
<b>mesegori</b>	<i>mesegoli</i>	A sun-dried pulp made from the interior of a fire-roasted agave stalk.
<b>metate</b>	<i>majtá</i>	From the Nahuatl word <i>metlatl</i> , a rectangular stone supported by three other stones, the Rarámuri version is trough-shaped and used primarily for grinding corn with the help of a cylindrical stone in a back-and-forth motion. <sup>49</sup>
<b>Mexican lime</b>	<i>Lima</i> <i>lima</i> <i>Citrus aurantifolia</i>	A variety of lime similar to the key limes cultivated and naturalized in the West Indies, but with slightly thicker skin and less juice that has more bitterness. <sup>50</sup>
<b>Mexican thistle</b>	<i>chiná</i> <i>chinaca</i> <i>Cirsium</i> <i>mexicanum</i> (Compositae)	A fast-growing annual cosmopolitan herb native to Mexico which spreads by seeds through wind distribution. <sup>51</sup>
<b>nixtamal</b>	<i>napiáliame</i>	The result of soaking and cooking corn kernels in an alkaline solution, usually limewater. This process removes the outer pericarp (hull), to make the corn easier to grind and more nutrient-dense. <sup>52</sup>
<b>nopales</b>	<i>huilá</i> <i>nopal</i> <i>Opuntia</i>	From the Nahuatl term <i>nopalli</i> , a cactus native to the Americas that produces oval-shaped, flat spiny paddles with mucilaginous flesh, and round, purplish fruit, which is known as <i>tuna</i> if sweet and <i>xoconstle</i> if acidic. <sup>53</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
<b>norote</b>		A Rarámuri term used to describe the foam that accumulates when boiling sugarcane juice, which is boiled down and turned into a sort of taffy. <sup>54</sup>
<b>orange</b>	<i>nalaso</i> <i>naranja</i> <i>Citrus sinensis</i>	The commonly known sweet orange that is a cross of pomelo and mandarin orange, whose scientific name refers to this cross having likely occurred in China. <sup>55</sup>
<b>orejón</b>	<i>olioni</i>	A term resembling the Spanish word for “ear” that refers to slices of sun-dried fruit, most commonly apples or peaches.
<b>panocha</b>	<i>banóchaca</i>	The term for a dense cone of sweetener made from unrefined cane sugar juice, cooked slowly until very thick. <sup>56</sup>
<b>pascole</b>		A Rarámuri dance typically performed on Easter and to celebrate other joyous occasions. <sup>57</sup>
<b>petate</b>		From the Nahuatl <i>petlatl</i> , a mat usually used as a bedroll made of dried palm leaves or grass. <sup>58</sup>
<b>peach</b>	<i>hue'ca</i> <i>ru'lasí/pirísico</i> <i>durazno</i> ( <i>clingstone</i> )/ <i>prisco</i> ( <i>freestone</i> ) <i>Prunus persica</i> (Rosaceae)	A deciduous fruit tree in the rose family native to Asia with hundreds of cultivars, with subtle differences in texture and ripeness based on how much the pit adheres to the flesh. <sup>59</sup>
<b>pinole</b>	<i>cobisi</i>	Whole corn kernels, typically from flint or popcorn types, are toasted or parched and then ground to mix with ingredients such as cocoa, sugar, cinnamon, chia seeds, vanilla, or other spices. The resulting powder is then used as a nutrient-dense ingredient for baked goods, tortillas, beverages, or trail food. The toasting gives the cornmeal a sweet, slightly smoky flavor. <sup>60</sup>
<b>pole bean</b>	<i>muní</i> <i>frijol de huirote</i> <i>Phaseolus vulgaris</i>	Also known as runner beans, a large genus of annual vegetable in the pea family that is primarily native to Central America and South America, with a few species native to North America. <sup>61</sup>
<b>pomelo</b>	<i>toronja</i> <i>toronja</i> <i>Citrus grandis</i> (Rutaceae)	A very large thick-rinded, usually pear-shaped citrus fruit differing from the closely related grapefruit especially in its loose rind and often coarse dry pulp. Its pulp varies from greenish- or pale-yellow to pink or red, with a flavor that is mildly sweet and bland to subacid or



Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
		rather acid. It is the largest citrus fruit, and one of the original four citrus from which all others are ancestors. Note that the pomelo ( <i>Citrus maxima</i> ) is in many languages called by the equivalent of its French name “ <i>pamplemousse</i> .” These languages (Spanish among them) have assigned the name “grapefruit” to <i>pomelo</i> . <sup>62</sup>
<b>pozole</b>		From the Nahuatl <i>pozolli</i> , a soup of Pre-Hispanic origin traditionally made with pork and hominy in large batches. Today it is one of the most popular and representative dishes of Mexican cuisine. <sup>63</sup>
<b>purslane</b>	<i>sa'luchi</i> <i>verdolaga</i> <i>Portulaca oleracea</i> (Portulacaceae)	A low-growing succulent annual of unclear origin with a crisp, moist texture, and a fresh, tart flavor. <sup>64</sup>
<b>quelites</b>	<i>go'ame hue'cá</i> <i>guilibá</i>	Wild, semi-wild, and feral leafy edible greens high in nutrition and often with medicinal properties. <sup>65</sup>
<b>quiote</b>	<i>balilá</i>	The edible flower stalk of an agave plant that is cut, roasted on coals, peeled, and then eaten, with a taste reminiscent of squash. <sup>66</sup>
<b>reventador corn</b>	<i>sunú chapalote</i> <i>maíz malpache</i> <i>Zea mays</i> , cultivar: “Reventador”	A popcorn type corn with hard, translucent kernels that vary from a white to red pericarp, suitable for both <i>pinole</i> and popcorn. <sup>67</sup>
<b>Rocoroibo</b>		A stream in Chihuahua that is also associated with a specific dialect in the Rarámuri language and some of their folklore. <sup>68</sup>
<b>Rock fig</b>	<i>huajtolí</i> <i>descalama</i> <i>Ficus petiolaris</i>	A fig native to Mexico often found growing in rocky areas where the roots stretch over rocks in search of rooting soil. Its trunk is yellowish-green, leaves are pale green and heart-shaped with pink veins on the upper side, and tufts of white hair on the back. Green flowers are followed by figs that appear in pairs. <sup>69</sup>
<b>San Juan crab apple</b>	<i>masana sajuani</i> <i>manzana San Juan</i> <i>Malus baccata</i>	More commonly known as the Siberian crabapple, it is a flowering crab apple tree native to parts of Asia and Siberia. It has been introduced to parts of North America and produces edible fruit in the Fall. <sup>70</sup>
<b>San Juan corn</b>	<i>sunú sajuani</i> <i>maíz San Juan</i> <i>Zea Mays</i> , hybrid	A white dent corn planted on the Día de San Juan (June 24) when the coming of the summer rains is celebrated. <sup>71</sup>

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
	<i>of blandito de Sonora</i>	
<b>San Miguel apple</b>	<i>masana cho'coasi manzana San Miguel Malus sylvestris</i>	See first footnote on page 20. There is little information available about this cultivar of apple.
<b>short-stemmed russula mushroom</b>	<i>huejcoquí repoma bamunú nerúgame hongo blanco tiempo de las aguas Russula brevipes</i>	A whitish funnel-shaped mushroom with a central depression and thin gills. Its flavor is considered nondescript and it has become more prized as a parasitic host for the fruiting of lobster mushrooms on its body. <sup>72</sup>
<b>sonajas</b>	<i>saúrika</i>	Gourd rattles used in the <i>pascole</i> . <sup>73</sup>
<b>storm mushroom</b>	<i>huejcoquí bamanú nerúgame hongo temporal undetermined</i>	The specific taxonomy of this mushroom is unclear, as the source text description fits with any number of mushrooms that grow in that area with minimal accompanying information. I used my own coinage of “storm” rather than “seasonal.”
<b>sugarcane</b>	<i>omá caña de azúcar Saccharum officinarum (Graminae)</i>	A perennial grass with unbranched stems or stalks that are 1-2 inches thick and with clearly marked internodes, used by the Rarámuri to make sucrose in the form of <i>panocha</i> , and also fermented into <i>tesgüino</i> . Sucrose supplies about 13 percent of all energy derived from foods, making sugarcane one of the most important energy crops. <sup>74</sup>
<b>sweet corn</b>	<i>sunú si'liguchi maíz dulce Zea Mays var. saccharata</i>	A corn picked at what is called the “milk stage” when the sugars are higher than the starches, due to genes that control the conversion from one to the other. <sup>75</sup>
<b>tamale</b>	<i>ramari</i>	A dish in which masa, usually from nixtamalized dent or flour corn, is steamed in a corn husk. <sup>76</sup>
<b>tekomari scarlet runner beans</b>	<i>muní recamoli frijol tecómare Phaseolus coccineus</i>	An heirloom cultivar from a large genus of twining perennial vine in the pea family known for their scarlet flowers. Runner beans twine clockwise whereas most other types of beans twine counterclockwise. This cultivar is native to the Rarámuri region in Mexico, and it

Term in English translation	Rarámuri term Spanish term Scientific term [ <i>genus, species, (family)</i> ]	Definition
		produces beans in the pod of different colors, ranging from black to light mauve, whereas most scarlet runner beans are only black. <sup>77</sup>
<b>tesgüino</b>	<i>suguí</i>	From the Nahuatl <i>tescuini</i> , which means “heartbeat,” this fermented beverage is usually made from soaking corn kernels long enough to turn their starches into sugars. It is common among many speakers of Yuco-Aztec stock, including the Rarámuri, who consume it for ceremonial purposes in festivities with music and dance that blend Catholic and ancient religious traditions, intended to please Father Sun and Mother Moon to bring rain. <sup>78</sup>
<b>tortilla</b>	<i>Remé</i>	A thin round of unleavened corn or wheat flour usually eaten hot. <sup>79</sup>
<b>tomato</b>	<i>romate</i> <i>tomate</i> <i>Lycopersicon lycopersicum</i> (Solanaceae)	From the Nahuatl <i>tomatl</i> , an annual fruiting vine in the nightshade family with alkaloid rich leaves, thought to have first been domesticated in Mexico. <sup>80</sup>
<b>wild fig</b>	<i>chuná jami</i> <i>nerúgame</i> <i>chalate</i> <i>Ficus maxima</i>	A fig tree native to Mexico with leaves that vary from long and narrow to more oval. <sup>81</sup> The text notes that it does not flower before fruiting, but this point largely applies to all figs, wherein the flower blooms are contained within an enclosed structure that has a very small opening, where a species of fig wasp unique to each cultivar enter to reproduce and pollinate the female flowers that ultimately produce fruit. <sup>82</sup>
<b>wheat</b>	<i>tri'ligo</i> <i>trigo</i> <i>Triticum aestivum</i> (Graminae)	An annual grass, one of the most consumed cereal grains in the world, known for its uses in baking and cooking. <sup>83</sup>
<b>yori muni peas</b>	<i>muní o'limuni</i> <i>frijoles yurimún</i> <i>Vigna sinensis</i> OR <i>Vigna unguiculata</i> (Leguminosae)	Small-seeded black and white cowpea requiring lots of water. <sup>84</sup>

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<sup>1</sup> see Petruzzello, 2023, <https://www.britannica.com/plant/Agave>.

<sup>2</sup> The Encyclopedia of Succulents, “Agave wocomahi,” accessed September 6, 2023, [http://www.llifl.com/Encyclopedia/SUCCULENTS/Family/Agavaceae/18149/Agave\\_wocomahi](http://www.llifl.com/Encyclopedia/SUCCULENTS/Family/Agavaceae/18149/Agave_wocomahi)

<sup>3</sup> see Anastasia Klimova et al., 2022, 3-4.

<sup>4</sup> Missouri Botanical Garden, s.v. “Agave americana,” accessed September 6, 2023, <https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=275719>.

<sup>5</sup> Mexico PueblosAmerica, “Aporabo (Chihuahua) Guazapares | PueblosAmerica,” accessed September 6, 2023, <https://en.mexico.pueblosamerica.com/i/aporabo/>.

<sup>6</sup> see Fontana, 1979, 60.

<sup>7</sup> see Siciliano-Rosen, 2023. <https://www.britannica.com/topic/atole>.

<sup>8</sup> see Frías Neve and Vargas Valdez, 1996, *Cocina Regional Chihuahua*. Chihuahua Chih: Ediciones Nueva Vizcaya, excerpted from PressReader, posted December 23, 2018, <https://www.pressreader.com/mexico/el-heraldo-de-chihuahua/20181223/282583084122121>.

<sup>9</sup> Mexico PueblosAmerica, “Basigochi (Chihuahua) Urique | PueblosAmerica,” accessed September 6, 2023, <https://en.mexico.pueblosamerica.com/i/basigochi-17/>.

<sup>10</sup> Mexico PueblosAmerica, “Bacusínare (Chihuahua) Guazapares | PueblosAmerica,” accessed September 6, 2023, <https://en.mexico.pueblosamerica.com/i/bacusinare/>.

<sup>11</sup> see Bray, 2022, <https://pepperscale.com/chile-de-arbol/#h-what-are-chile-de-rbol>.

<sup>12</sup> PFAF Plant Database, “Citrus Aurantium – L,” accessed September 6, 2023, <https://pfaf.org/User/Plant.aspx?LatinName=Citrus+aurantium>.

<sup>13</sup> see Wellhausen, Roberts, and Hernandez, 1952, 196-198.

<sup>14</sup> Native-Seeds-Search, *Seed Listing 2018*, Tuscon, AR, 2018, 22, <https://images.nativeseeds.org/pdfs/seedlisting2018webversion.pdf>.

<sup>15</sup> see Johnson and Jha, 1997, 228-230, <https://hort.purdue.edu/newcrop/proceedings1993/V2-228.html>.

<sup>16</sup> see Sánchez, 2019, 289-290, doi: [https://doi.org/10.1163/9789004273689\\_014](https://doi.org/10.1163/9789004273689_014).

<sup>17</sup> North Carolina State Extension Gardner Toolbox, s.v. “Opuntia Phaeacantha,” accessed September 7, 2023, <https://plants.ces.ncsu.edu/plants/opuntia-phaeacantha/>.

<sup>18</sup> see Quiñónez-Martínez et al., 2014, 8.

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<sup>19</sup> see Shaw, “Sopa de Lima,” 2021, <https://honest-food.net/sopa-de-lima-chachalaca-recipe/>.

<sup>20</sup> “#MéxicoPopular La cocina de campo de los tarahumaras,” 2017, <https://www.animalgourmet.com/2017/03/14/la-cocina-los-tarahumaras/>.

<sup>21</sup> Native-Seeds-Search, “Caribe,” accessed September 7, 2023, <https://www.nativeseeds.org/products/d055?variant=41583351333018>.

<sup>22</sup> see Frías Neve and Valdez, Jesús. 1996.

<sup>23</sup> see Snyder, “The Surprising, Shrimp-Less History of Aguachile,” 2019, <https://www.eater.com/2019/3/13/18253272/aguachile-seafood-mexico-city-chef-luis-valle-don-vergas-los-mochis-sinaloa>.

<sup>24</sup> Native-Seeds-Search, “Muni Chocame,” accessed September 7, 2023, <https://www.nativeseeds.org/products/pc043>.

<sup>25</sup> The BRAHMS Project, “Oxford University Plants 400: Citrus Medica,” accessed September 7, 2023, <https://herbaria.plants.ox.ac.uk/bol/plants400/profiles/CD/Citrusmedica>.

<sup>26</sup> Casa De Colores School of Traditional Mexican Cooking, “AZTEC COOKWARE,” 2012, <https://casadecolores.wordpress.com/2012/06/14/aztec-cookware-3/>.

<sup>27</sup> North Carolina State Extension Gardner Toolbox, s.v. “Ficus carica,” accessed September 7, 2023, <https://plants.ces.ncsu.edu/plants/ficus-carica/>

<sup>28</sup> see Benz, 2001, <https://doi.org/10.1073/pnas.98.4.2104>.

<sup>29</sup> see Native-Seeds-Search, *Seed Listing 2023*, 2023, 19-20, [https://cdn.shopify.com/s/files/1/0157/0808/files/SL\\_2023\\_seedlisting\\_catalogue\\_11-09.pdf?v=1670082511](https://cdn.shopify.com/s/files/1/0157/0808/files/SL_2023_seedlisting_catalogue_11-09.pdf?v=1670082511).

<sup>30</sup> see Martins, 2021, <https://www.eater.com/22688579/what-is-huitlacoche-corn-usa-mexican-food-bias>.

<sup>31</sup> See Espinosa-Calderón et al., “Eliminación de Espiga y Hojas en un Híbrido de Maíz Androestéril y Fértil,” 2010, [https://www.researchgate.net/publication/262542177\\_Eliminacion\\_de\\_espiga\\_y\\_hojas\\_en\\_un\\_hibrido\\_de\\_maiz\\_androesteril\\_y\\_fertil](https://www.researchgate.net/publication/262542177_Eliminacion_de_espiga_y_hojas_en_un_hibrido_de_maiz_androesteril_y_fertil).

<sup>32</sup> San Marcos Growers, “Agave bovicornuta,” accessed September 7, 2023, [https://www.smgrowers.com/products/plants/plantdisplay.asp?plant\\_id=3218](https://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=3218).

<sup>33</sup> See Sturla, “Monarda Citriodora, Lemon Beebalm, Southwest Desert Flora,” accessed September 7, 2023, [http://southwestdesertflora.com/WebsiteFolders/All\\_Species/Lamiaceae/Monarda%20citriodora,%20Lemon%20Beebalm.html](http://southwestdesertflora.com/WebsiteFolders/All_Species/Lamiaceae/Monarda%20citriodora,%20Lemon%20Beebalm.html).

<sup>34</sup> North Carolina State Extension Gardner Toolbox, s.v. “Malus sylvestris,” accessed September 7, 2023, <https://plants.ces.ncsu.edu/plants/malus-sylvestris/>.

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- <sup>35</sup> See Sturla, “Anoda Cristata, Crested Anoda, Southwest Desert Flora,” accessed September 9, 2023, [http://southwestdesertflora.com/WebsiteFolders/All\\_Species/Malvaceae/Anoda%20cristata,%20Crested%20Anoda.html](http://southwestdesertflora.com/WebsiteFolders/All_Species/Malvaceae/Anoda%20cristata,%20Crested%20Anoda.html).
- <sup>36</sup> see Fontana, 1979, 60.
- <sup>37</sup> see Mares Trías, 146.
- <sup>38</sup> Plants of the World Online. “Ficus Maxima Mill.” accessed September 7, 2023, <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:853200-1/general-information>.
- <sup>39</sup> see Janzen, Daniel H., 1979, [doi:10.1146/annurev.es.10.110179.000305](https://doi.org/10.1146/annurev.es.10.110179.000305)
- <sup>40</sup> see McAlvay et al., 2021, <https://doi.org/10.1093/molbev/msab108>.
- <sup>41</sup> Native-Seeds-Search, “Seeds > Amaranth,” accessed September 7, 2023, <https://www.nativeseeds.org/collections/amaranth>.
- <sup>42</sup> MUSEO DE CULTURAS POPULARES, “Huare,” accessed September 7, 2023, <https://mncp.cultura.gob.mx/coleccion-del-museo/huare-2/>.
- <sup>43</sup> “Definition of jicara,” in *Merriam-Webster Dictionary*, accessed September 7, 2023, <https://www.merriam-webster.com/dictionary/jicara>.
- <sup>44</sup> see Gonzalez Stuart, “Kidneywood,” University of Texas El Paso online, accessed September 6, 2023, <https://www.utep.edu/herbal-safety/herbal-facts/herbal%20facts%20sheet/kidneywood.html>.
- <sup>45</sup> “Definition of machihui,” in *Diccionario del español de México*,” accessed September 7, 2023, <https://dem.colmex.mx/ver/machihuis>.
- <sup>46</sup> see Morton, 1987, 178-179, [https://hort.purdue.edu/newcrop/morton/mandarin\\_lime.html](https://hort.purdue.edu/newcrop/morton/mandarin_lime.html).
- <sup>47</sup> see Fontana, 1979, 60.
- <sup>48</sup> see Camou Healy, 2005, 59.
- <sup>49</sup> see Adams, 2017, <https://desert.com/mano-metate/>.
- <sup>50</sup> see Givaudan Citrus Variety Collection at UCR. <https://citrusvariety.ucr.edu/crc1710#:~:text=Mexican%20lime%20is%20known%20by,while%20other%20selections%20are%20thornless>.
- <sup>51</sup> see Plants of the World Online, “Cirsium Mexicanum DC,” accessed September 7, 2023, <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:195679-1>.
- <sup>52</sup> see Aliseda, 2021, <https://www.epicurious.com/ingredients/what-is-nixtamal-article>.

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- <sup>53</sup> see Larousse Cocina, “Nopal ★ Larousse cocina,” 2018, <https://laroussecocina.mx/palabra/nopal-2/>.
- <sup>54</sup> see “La Molienda de Baymena abre sus puertas a partir del 17 de Marzo y cierra terminando Semana Santa, Ven a conocer esta tradición,” 2018, <https://vimeo.com/261565124>.
- <sup>55</sup> see North Carolina State Extension Gardner Toolbox, s.v. “Citrus x sinensis,” accessed September 7, 2023, <https://plants.ces.ncsu.edu/plants/citrus-x-sinensis/>
- <sup>56</sup> see Larousse Cocina, “Piloncillo, panela, panocha o rapadura ★ Definición ★ Larousse cocina,” February 17, 2023, <https://laroussecocina.mx/palabra/piloncillo-panela-o-panocha-2/>.
- <sup>57</sup> see Acuña Delgado, 2006, <https://www.dimensionantropologica.inah.gob.mx/?p=3543>.
- <sup>58</sup> “Definition of *petate*,” in *Merriam-Webster Dictionary*, accessed September 8, 2023, <https://www.merriam-webster.com/dictionary/petate>.
- <sup>59</sup> see Martinez, 2023, <https://www.foodrepublic.com/1301067/clingstone-vs-freestone-peaches-texture-difference-explained/>.
- <sup>60</sup> see Fontana, 1979, 60.
- <sup>61</sup> see MasterClass, 2020, <https://www.masterclass.com/articles/how-to-tell-the-difference-between-bush-beans-and-pole-beans>.
- <sup>62</sup> see Markoulakis, 2004, <https://www.sfgate.com/homeandgarden/article/pomelo-growing-the-granddaddy-of-grapefruit-2627497.php>.
- <sup>63</sup> see Larousse Cocina, “Pozole ★ Larousse cocina,” <https://laroussecocina.mx/palabra/pozole-2/>.
- <sup>64</sup> see Shaw, “All About Purslane,” 2020, [honest-food.net/purslane-edible-verdolagas](https://honest-food.net/purslane-edible-verdolagas).
- <sup>65</sup> See Bergo, “Quelites: The Edible Wild Greens of Mexico,” accessed November 5, 2023, <https://foragerchef.com/quelites-mexicanos/>.
- <sup>66</sup> See Bye et. al., 1975, 89, <http://www.jstor.org/stable/41762295>.
- <sup>67</sup> See Wellhausen, E.J., Roberts, L.M., and Hernandez X., E., 91.
- <sup>68</sup> See Ibarra Valenciana, Koldovike Yosune, 2010, 73-98, <https://elibros.uacj.mx/omp/index.php/publicaciones/catalog/download/64/59/496-1?inline=1>.
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