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**Exploring the Historic Use of Animal Traps in the Andes and their Lasting Effects on the
Vicuña**

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Abstract

Excavations and satellite data of recently discovered animal traps in the Andes indicate a large industry for animal driving in the Andean altiplano during the colonial and post-colonial eras. Vicuña (*Vicugna vicugna*) are a small camelid species that occupy the altiplano, and they possess fine, highly prized, wool. While humans and vicuña have a longstanding history of interactions from early hunter-gatherer groups to later large-scale empires, most knowledge of vicuña management comes from Inkan *chaccu* hunts and contemporary government sanctioned roundups. In the centuries following colonization, the vicuña suffered a major population decline, and though their numbers now stable and sustainably managed, the drivers of this ecological catastrophe are still not well understood. This research centers on questions such as: is there a connection between the archaeological animal traps and the decline in the vicuña population? Why were vicuña rapidly declining during the colonial and post-colonial eras? Was there a market for vicuña wool, and what is a potential model for the vicuña wool economy? By examining and analyzing academic literature, colonial accounts, archaeological data, and ethnographic material, this paper aims to shed light on these unanswered questions regarding the relationship between humans and the vicuña.

Key words: vicuña, Andes, *chaccu*, colonial

Exploring the Historic Use of Animal Traps in the Andes and their Lasting Effects on the Vicuña

Recent research has discovered hundreds of previously unknown animal traps in the Andes. Excavations and satellite data show that they are historic suggesting a rather large but undocumented industry involved with animal driving (Figure 1). Over 300 of these v-shaped structures have been identified mainly throughout the Southern Peruvian altiplano, but have also been documented at lower elevation in the Northern region of Chile and in Southwestern Bolivia (Figure 2). However, there is little academic or historical literature linking the archaeological evidence to the phenomenon of communal animal driving. The dating of these traps are somewhat imprecise due to imprecision on the radiocarbon calibration curve, but they show generally that the structures were used sometime between 300 and 70 years ago, placing them in the Colonial or Post-Independence Eras (Figure 3). The centuries following colonization saw a major decline in the native vicuña (*Vicugna vicugna*) population, with little to no information of the social and economic drivers causing this ecological catastrophe. At first glance climate change or disease might have played a role in the population collapse, but the most likely cause is overexploitation. The majority of knowledge of Andean vicuña management is based on Inkan *chaccu* hunts and contemporary vicuña roundups sanctioned by the Peruvian Ministry of Agriculture. This paper seeks to understand the vicuña industry through the lens of historic documentation. I first provide an overview of vicuña ecology. Then I review literature on vicuña use in the Andes over the past 10,000 years including Prehistoric, Inka, Colonial, and contemporary use. Drawing insights from these diverse histories, I conclude with a working model of the vicuña political ecology in Late Historic Andes.

Ecology

Vicuña are a South American ungulate belonging to the family Camelidae (Figure 4). They occupy the Andean altiplano at altitudes of 3900 to 4900 meters in Peru, Bolivia, Chile, and Argentina (Borgnia et. al., 2010). Altiplano climate consists of a summer wet season and an arid winter season. Temperatures in the summer tend to peak at 60° to 70° F, and winter climate does not typically drop below 0° F. However, the high elevation heightens solar radiation, which makes it so organisms struggle to retain heat on overcast days, while they easily absorb heat during cloudless days. Vicuña have adapted dense wool as a protective barrier to handle this extreme environment. They are small in stature, only about half the size of the domestic llama, and weigh approximately 100 pounds (Koford, 1957).

Vicuña social organization consists of two types of groups: all male and family. The family units typically occupy a consistent territory and include one male, multiple mature females, and their offspring. The movement of bachelor males in and out of groups introduces gene flow and thus genetic diversity (Koford, 1957).

Vicuña diets are generally stable throughout the year since they are herbivores and their main source of food are bunch grasses along with evergreen shrubs (Lichtenstein and Vilá, 2003). Vicuña wool is very thick and fine, on the order of 10 microns in diameter and likely contributes to the animal's adaptive capacity in the cold environment. Vicuña have played an important role in human economies for at least 10,000 years.

Prehistory

The Andean altiplano was first used by humans approximately 13,000 BP (Capriles and Albarracin-Jordan, 2012). This time period also saw the beginnings of intensive camelid use in

the Andes. Zooarchaeological evidence shows that the earliest hunting of camelids, specifically vicuña skins, were likely used for food, clothing, and shelter (Rick, 1981). Sites like Quebrada Seca in Argentina contain bones, fibers, and skins indicating the relationship between human hunter-gatherers and vicuña as far back as the middle Archaic period 9000 BP (Yacobaccio, 2009). Other sites such as the Middle/Late Archaic Period Soro Mik'aya Patjxa reveal the use of hunting tools like projectile points, knives, flaking tools, and scrapers (Haas and Viviano, 2018). These tools, in conjunction with the presence of bone from large game species, likely of vicuña, indicate that there was a high-emphasis placed on hunting and processing animals by at least 7,000 BP in the Lake Titicaca Basin (Haas and Viviano, 2018).

Vicuña tend to be a predictable resource considering they live in aforementioned territorial family groups. This behavior makes ambush hunting particularly effective. This method of hunting vicuna may be an economically sustainable model as long as the balance between the human and vicuna population remains in equilibrium (Custred, 1979).

Domestication and pastoral economies began approximately 3500BP (Yacobaccio, 2009). This change in societal structure resulted in labor specialization that centered around the processing of resources, such as wool, that results from camelid herding (Yacobaccio, 2009). Pre-Inka states such as Tiwanaku (500 CE to 1100 CE) and Paracas (600 BCE to 100 CE) are known to have used camelids for food, textiles material, fuel, and ritual sacrifices. Additionally, camelid iconography is seen on both ceramics and large scale monuments at Tiwanaku sites (Malpass, 2016). Overall, vicuña and camelid use has been a long standing and integral aspect of human survival and success within the Andean highlands.

Inka

The Inka empire, or *Tawantinsuyu*, existed from 1438 to 1532 and had its own complex structure for managing and using vicuña (Covey, 2008). The Inka were a centralized state that had a main ruler called the Sapa Inka, and predominant religion and language (Quechua). Under the Sapa Inka were various royal and local administrators such as the *curacas* (Graubart, 2000). Vicuña were considered the property of the Sapa Inka, and hunting and killing of the animal was state regulated (Acosta and Markham, 2010). Vicuña wool was typically obtained through state sanctioned *chaccus*, information on these events come from various colonial chroniclers such as Jose de Acosta and El Inca Garcilaso de la Vega (Llosa, 2009). It should be noted that Acosta was a colonist born and raised in Spain, offering a limited foreigner's perspective on Inkan practices. While de la Vega was considered a *mestizo* individual, he used Acosta as a major reference throughout his chronicles (de la Vega and Clements, 1963, p. 749). Furthermore, de la Vega only conducted his writings much later in his life while living in Spain (Llosa, 2009). Keeping this in mind, Acosta described *chaccus* as mass communal roundups of 30 to 40 thousand animals. It is currently unclear if the enormous scale of these estimates are real or hyperbole, but it seems certain that Inka *chaccus* were large in scale. Some animals captured during the *chaccu* were used as meat while others, like the vicuña, were often sheared and released (Acosta and Markham, 2010). This enterprise is understood to have taken place every 3 to 4 years and was conducted by Inka administrators (Laker, 2004; Yacobaccio 2009). Further according to Acosta, these *chaccus* were undertaken by an assembly of 1000 to 2000 men who utilized a "great circuit of wood" to help drive the animals (Acosta and Markham, 2010, p. 287). It is possible that this wooden structure he refers to parallels the function of the later stone structures. Fellow chronicler de la Vega alternatively describes *chaccus* as being undertaken by

large groups, but estimates the number to have been 20 to 30 thousand individuals who would form a “circumference” around vicuña herds, slowly close in, and capture them only using their hands (de la Vega and Clements, 1963, p. 482). While many Spanish or Mestizo individuals were able to observe the lifeways of Indigenous Andean people they were not considered Indigenous, and as colonists in positions of power they did not necessarily strive to truly understand the intricacies of Inkan practices.

Vicuña wool was a precious commodity to the Inka empire and used for strictly royal purposes. Various Spanish chroniclers such as Cieza de León, Beranbé Cobo, and de la Vega support the existence of the integral role of Inkan textiles. The Sapa Inka and his administrators kept control of the empire by regulating a strict hierarchical social system partly through the use of textiles (Graubart, 2000). De la Vega describes the Sapa Inka Pachacutec as having “prohibited any one, except princes and their sons, from wearing gold, silver, precious stones, plumes of feathers of different colours, nor the wool of the vicuña...” (de la Vega and Clements, 1963, p. 593). Every region within the Inkan empire had a specific style of dress, and donning the clothing of a different region or community would be considered offensive (Graubart, 2000). Cobo affirms that the finest cloths were “worn by the Kings, the great Lords, and the entire nobility of the realm, and the commoners were not permitted to use it”, demonstrating that any person below the royal class were not able to wear certain garments (Cobo et. al., 1893, p. 208). He additionally states that, “very rich cloths which were worked for the Inca and for the great Lords were either wholly or in part of Vicuña wool” (Cobo et. al., 1893, p. 208). Undoubtedly, vicuña wool was a luxury item reserved for the elite classes due to its fine qualities and it held a great deal of importance within Inkan society.

The finest high quality textiles were called *cumbi*, and were said to be crafted from vicuña wool and other fine materials. Cobo writes: “cumbi cloth /was made of/ finer and more select wool, and the most delicate and precious Cumbis were made of lamb wool, which is extremely delicate” (Cobo et. al., 1893, p. 208). The phrase “lamb wool” is probably referring to infant camelid wool since the Spanish, and specifically Cobo, thought of Andean camelids as the “sheep of the land” and were likely not well-versed in differentiating between the species (Cobo et. al., 1893, 208). While Cobo does reference vicuña wool as a material used in the fine textiles for Inkan nobility, there is some confusion as to whether or not it was the exclusive wool used for *cumbi* cloths but it was used nonetheless. In describing the weavers that worked with vicuña wool, Cieza de Leon reports that “the dresses of the Yncas [sic] consisted of shirts of this cloth, some embroidered with gold and silver work, some with emeralds and other precious stones, some with feathers of birds, and some merely with the cloth” (de Leon and Clements, 1963, p. 405). These garments reserved for the Sapa Inka and the royal family would be made by specially chosen female artisans the *acllas* or *mamaconas* along with expert male weavers called *cumblikanayuc* (Phipps, 2015; Graubart, 2000). Overall, there was a high emphasis on the regulation and use of vicuña wool as culturally significant material within Inkan society.

Colonial

The Spanish, under the command of Francisco Pizarro, arrived in South America with the intention to colonize in the year 1532. The Viceroyalty of Peru was established in 1542 and spanned the modern countries of Peru and Chile (Covey, 2008). When Andean people became subjects of the Spanish crown they were expected to pay tribute in whatever form they could. The most preferred objects were textiles *de la tierra*, translated to “of the earth”, and usually

referred to items that were Native-made (Stanfield-Mazzi, 2013, p. 44). These textiles were usually created out of camelid fiber and thus were considered a practical and luxurious item to the Spanish. During the 1570s, the Spanish created *obrajes* which were large industrial workshops that mass-produced both coarse and fine textiles. *Cumbi* textiles made of vicuña wool were produced by weavers in the Lake Titicaca region during this time period (Stanfield-Mazzi, 2013). The fine textiles described as being “like silk” were used as decorations of newly established Catholic churches (Stanfield-Mazzi, 2013, p. 44). The description of the fiber as silk-like suggests vicuña fiber but may also represent baby alpaca fiber. Decorations such as rugs, tapestries, furniture covers, and altar pieces would have been made using Andean style looms up until 1577 (Stanfield-Mazzi, 2015). Many designs incorporated both Spanish and Andean cultural aspects, and paintings within churches often showcased colonial officials wearing camelid fiber. However, when Spanish Viceroy Francisco de Toledo came into power in 1572 he enacted reforms that banned and destroyed textiles that exhibited Andean flora, fauna, and culture (Stanfield-Mazzi, 2015). Therefore, the Spanish largely influenced changes to the ways camelid wool was used within Peru.

Under Spanish control, the hunting and killing of vicuña was largely unregulated and initiated a major population decline. Indigenous Andean people were expected to contribute to the production of goods such as agricultural products, silver, and wool/textiles, for trade. The *encomienda* was an institution that utilized Andean labor for primarily agrarian purposes, however *chaccu* roundups were also conducted under this system (Rock, 1985; Yacobaccio, 2009). *Encomenderos* were the Spanish individuals given land grants and allowed to employ indigenous people for low wages (Reséndez, 2016). While the *encomienda* was under the control

of Spanish administrators, they also took advantage of previous Inkan organizations and used *curacas* as overseers for *chaccu* hunts (Reséndez, 2016; Yacobaccio, 2009). The *curacas* (also known in literature as *caciques*), are considered Native ‘chiefs’ and were allowed to live as their own governing entities. The Spanish likely allowed indigenous administrators to remain in power in the case of the *chaccu* hunts because the traditional methods of vicuña hunting were probably the most efficient and more easily managed by indigenous individuals (Reséndez, 2016).

The *chaccu* hunts were described by Acosta as previously being “the most common hunting manner at the Indies”, however there may have been other similar hunting methods considered distinct from Inkan associated hunts (Acosta and Markham, 2010, p. 288). These hunts were called *qayqus*, and as discussed in Yacobaccio (2009) “they were carried out by professional hunters (*huaricatur*) or directed by *curacas* in special game reserves” (Yacobaccio, 2009, p. 12). Yacobaccio (2009) also observes, citing Quiroga (1929/1895), that around 60 men and some of their wives would participate in the *qayqu* hunting process. *Qayqus* are briefly mentioned as a different hunting method than the *chaccu* by Spanish Jesuit missionary Bernabé Cobo (Custred, 1979). Cobo implies that the *qayqus* function similarly to the encircling methods utilised in *chaccu* hunts, but that they additionally “corral the livestock gathered in the above-mentioned fashion into enclosures made between hills and narrow passages” (Cobo et. al., 1893, p. 224). Furthermore, Custred (1979) cites a personal correspondence with his colleague George Miller who reported:

“an interesting crude stone construction of unknown antiquity lying at an elevation of some 4,600 meters above sea level in the punas above Mazocruz in

the department of Puno, southern Peru. This structure consists of two stone fences approximately 1.8 meters high and some 100 meters long built in the shape of a closed funnel with an opening of about 20 meters in width” (Custred, 1979, pp. 11-12).

This described structure is strikingly similar to the recently excavated v-shaped stone structure at Ccoypani since the walls are shown to be positioned on the down-slope of a hill with the point of the structure culminating in an opening for the corralled animals to fall into (Figure 1). Whether or not *chaccus* and *qayqus* are entirely different hunting practices merits further investigation, but the prevalence of mass vicuña hunting certainly played a role in diminishing the vicuña’s population.

Both *chaccu* and *qayqu* hunts likely supplied the colonial textile industry, which shipped mass amounts of wool to Europe. According to data collected by Yacobaccio’s (2009) research, “An average of 20,410 vicuña skins per year was exported from the port of Buenos Aires (now in modern day Argentina) in the eighteenth century”, and a total amount of 50,000 were exported from the entire Viceroyalty of Rio de la Plata, modern day Argentina and Bolivia, by the early 1800s (Yacobaccio, 2009, 14). These figures Yacobaccio (2009) presents come from an amalgamation of data from Silvia Palomeque’s (1989) study on commerce during 1800s colonial Peru, as well as documents on livestock production from regions such as Jujuy, Peru (Yacobaccio, 2009, p. 14). As a result of these high number of exports, Cieza de Leon describes a decrease in the vicuña and guanaco populations as early as the mid 1500s, and Acosta seemingly attributes the diminishing numbers to the arrival of the Spanish (Laker, 2004; Yacobaccio, 2009). Acosta notes in the 1590s that “too much license has been granted to the

chacos or vicuña hunts, and that they have diminished” in reference to the declining populations of both guanacos and vicuñas (Yacobaccio, 2009, p. 14).

During the late and post-colonial eras, various laws and ordinances were enacted to help better control the decline of the vicuña population within the Andes. In 1778 laws put in place by the Spanish crown, the *Reales Ordenes*, banned the killing of vicuña. Paralleling the practices of the Inka empire, vicuña were made the official property of the King of Spain and wool could only be obtained through domestication or shearing methods. These laws ultimately failed, vicuña wool was still in high demand, and their populations continued to deteriorate (Yacobaccio, 2009).

European entrepreneurs despite the declining vicuña populations created unmitigated and profitable businesses from selling their wool. Felipe de Vara, a *Mestizo* businessman, bought a monopoly of Peruvian wool mills from an English “adventurer” who developed vicuña wool into highly demanded felt hats (Wiedner, 1960, p. 377). This company was founded while Peru was still under the Spanish crown in 1737, and lasted only until the 1800s (Wiedner, 1960, p. 377). Peru declared independence in 1821 and was free of Spanish royal control by 1826 with the help of Simon Bolivar. Bolivar attempted to establish anti-vicuña hunting laws in 1825, and while this may have stopped large scale vicuña wool industries such as de Vara’s luxury hat business, there was no way to stop illegal hunting on an individual level (Laker, 2004). Overall, this unmitigated hunting and poaching of the colonial times likely continued and intensified into the post-colonial era and further contributed to the overexploitation of vicuña.

It is noteworthy to add that the historical record of vicuña wool use in Europe during the colonial and post-colonial eras appears to be scant and incomplete. The 2013 book *Interwoven*

Globe: The Worldwide Textile Trade, 1500-1800 covers a global exchange and presence of textiles from India, Portugal, Japan, the Near East, Europe, China, and Latin America. The chapter “The Iberian Globe: Textile Traditions and Trade in Latin America” by Amelia Peck and Amy E. Bogansky (2013) details the Peruvian trade of camelid textiles during the colonial era. She even discusses the presence of *cumbi* within this trade, an item that was often associated with vicuña wool, but Peck and Bogansky make no mention of vicuña specifically (Peck and Bogansky, 2013). Additionally, in the *The Wool Trade of Southern Peru, 1850-1915*, Rory Miller (1982) covers southern Peruvian exports to England during the post-colonial era. According to Miller (1982), there were continuous exporting from the regions of Arequipa, Isaly, and Mollendo and overall exporting of alpaca wool increased from 1840 to 1920. But again, there are no mentions of vicuña wool being an object of trade despite an apparent decline in the population of vicuña which may have contributed declining exports (Miller 1982). A final example is the 1982 journal article *The Spanish Wool Trade, 1500-1780* by Carla Rahn Phillips. This paper is mostly focused on Spain’s domestic exports during this time period and their trade relations with Northern European countries like Flandes, Holland, France, and Italy. During this time period the Americas would have been a major part of Spanish wool trade, but there is only a single mention of wool shipment coming from Lima, Peru with no reference to camelid or vicuña wool (Phillips, 1982).

Contemporary

Almost two-million vicuña are estimated to have occupied the Andes during the 16th century, but by the mid-20th century their numbers greatly dwindled. At this time they were officially declared as an endangered species, and the United Nations, the United States and a

coalition of Andean countries made efforts to protect vicuña populations. These populations had steadily been declining since contact, however there was a major decrease in their numbers from 400,000 in the early 1950s to 10,000 in 1965 (Franklin, 1974; de Franco et. al., 2016). The exact cause of this radical downturn that only spanned 15 years is unknown, but may potentially be the result of illegal poaching and hunting. According to McAllister et. al. (2009), illegal poaching has always been a problem and continues to be even with contemporary protections on the vicuña. Prior to protective legislation the trade of vicuña wool there was “open access exploitation” meaning anyone was allowed to harvest and sell vicuña fibers (McAllister et. al., 2009, p. 121). In 1969, the Vicuña Convention of Argentina, Bolivia, Chile and Peru collectively signed and declared a 10 year ban on the commercial sale of vicuña fibers. Then the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) stepped in and enacted the additional 1975 ban on the international sale of vicuña products to further protect their population on an international basis (International Trade Center, 2018). Once the vicuña population recovered, the fiber became a tradable commodity in 1995 and was allowed on the international market, though harvesting could only occur through sustainable methods (International Trade Center, 2018).

As of 2019 vicuña fibers are collected through government sanctioned shearing techniques such as the *chaccu* in Peru, and through domestication efforts in Argentina and Chile. Italian fashion brand Loro Piana opened the Dr. Franco Loro Piana reserve in 2008 and produced a book describing ancient, historical, and modern importance of the vicuña (Piazza et. al., 2013). Though lacking in academic source citations, Piazza et al. (2013) describe the process of the *chaccu* in conjunction with photographs showing thousands of local Andean participants driving

vicuña by using long stretches of rope adorned with colorful stripes of fabric to direct the herds. Once vicuña is caught, their wool is sheared and then it is typically dehaired and cleaned by the local communities conducting the collection (Piazza et. al., 2013). This process is not limited to the communities that Loro Piana works with, and is shown to occur across the Andean altiplano. The modern *chaccu* in communities such as Laca Laca operates similarly to colonial source accounts in which many members of a community work together to encircle and corral the vicuña (Figure 4). Afterwards, the community members shear the vicuña, release them, and then process the collected wool (Figure 5). This vicuña wool is highly valued at a global market, and the products made from community efforts are turned into luxury goods.

Built on a model of sustainability the vicuña is now a recovering population of 350 thousand, and their wool is a coveted good well known on a global stage (de Franco et. al., 2016). Since 1995 the trade of vicuña wool has produced millions in U.S. dollars, with an estimate of \$100 per kilogram (de Franco et. al., 2016). Many garments of vicuña wool are made for the high-fashion culture of Europe. A Loro Piana scarf is valued at 4,000 US dollars, an Italian Kiton Sport Coat is worth \$21,000, and an Ermenegildo Zegna suit comes out to \$46,500 (Lakshmanan et. al., 2016). Considering the expensive nature of vicuña wool during modern times it stands to reason that the material would have also been an important luxury in previous eras as well, suggesting a potential explanation for why the animal was a dangerously scarce resource by the mid-20th century. Alternatively, the animals could have been poached for subsistence of local craft production purposes.

A Model of the Colonial Vicuna Wool Economy

This article began with the observation of over 300 recently discovered Colonial or Independence Period vicuña traps in the South Central Andes and the question of how those traps fit into the political and economic landscape of those times. Having summarized archaeological and historic records, I am now in a position to suggest a model for how historic vicuña use in the Andes as well as areas in need of further research.

There was certainly a large international and domestic market for vicuña wool during the Colonial era. During the Inkan empire, the collection of vicuña wool would have been managed on a sustainable system. However, when the Spanish colonized the Andes their ultimate goals were to profit off of Native resources. Vicuña wool was a noticeably desirable good to the Spanish considering it was fine in quality and well-suited to the Andean environment they occupied. There were no rigidly enforced laws prior to the 20th century that effectively stopped mass-hunting of vicuña, and as a result both the Spanish and Indigenous populations likely saw an opportunity for enterprise. The archeological *chaccu* and or *qayqu* structures show that there were organized mass hunting events. The fine vicuña wool cloths that came from these hunts were known to have been appropriated by the Spanish to adorn the newly constructed Catholic churches. However, these textiles do not survive and are only known within the literary record; and furthermore, there is no way to confirm the materials used were actually vicuña. Additionally, there is currently no known physical evidence of vicuña wool being present in Europe outside of modern luxury goods, but shipments of raw vicuña wool and products are documented to have left the Americas during the colonial and postcolonial periods. This may be due to lack of surviving textiles, or it may be due to the inability of colonial-era individuals to distinguish between other camelid fibers and vicuña wool.

According to archaeological radiocarbon dates, the stone *chaccu* or *qayqu* structures were intermittently used throughout the centuries. The earliest use of these drives was likely during the late colonial era. Although, considering the limited amount of information on the dating of these structures, further excavations and dating need to take place in order to determine the exact time periods in which they were being used. Keeping in mind that the changing laws and protections throughout the colonial and post-colonial eras were largely ineffective, the sanctions against the hunting of vicuña probably caused these animal drives to be used intermittently by both the Spanish and local populations. Additionally, if *chaccus* and *qayqus* were indeed separate hunting practices, the stone structures may be more associated with the *qayqu* hunts and therefore concentrated in areas away from Inkan centers like Cusco.

While there is no way to accurately quantify the extent to which illegal poaching also affected vicuña, these illegal practices were probably major suppliers of the wool trade since the 16th century, and therefore contributed to the decline of vicuña numbers until the mid-20th century. In all likelihood, *chaccus* and or *qayqus* were adapted during the colonial era to further improve the animal driving process, and the unregulated practice of animal driving and hunting would have ultimately been a major stressor on the vicuña population, but not the only one. Much of what happened to vicuña wool and products has been lost, most likely a victim of colonial and post-colonial institutions. However, the economy of the vicuña wool trade is still important to understanding the complexities and lasting cultural and environmental effects that occurred during and after colonization. While the vicuña experienced drastically negative effects post-European contact, conscious efforts on the parts of modern day local communities,

governments, and academics are contributing to the reinvigoration of the vicuña population across the Andes, as well as the deserved revival of pre-colonial Indigenous practices.

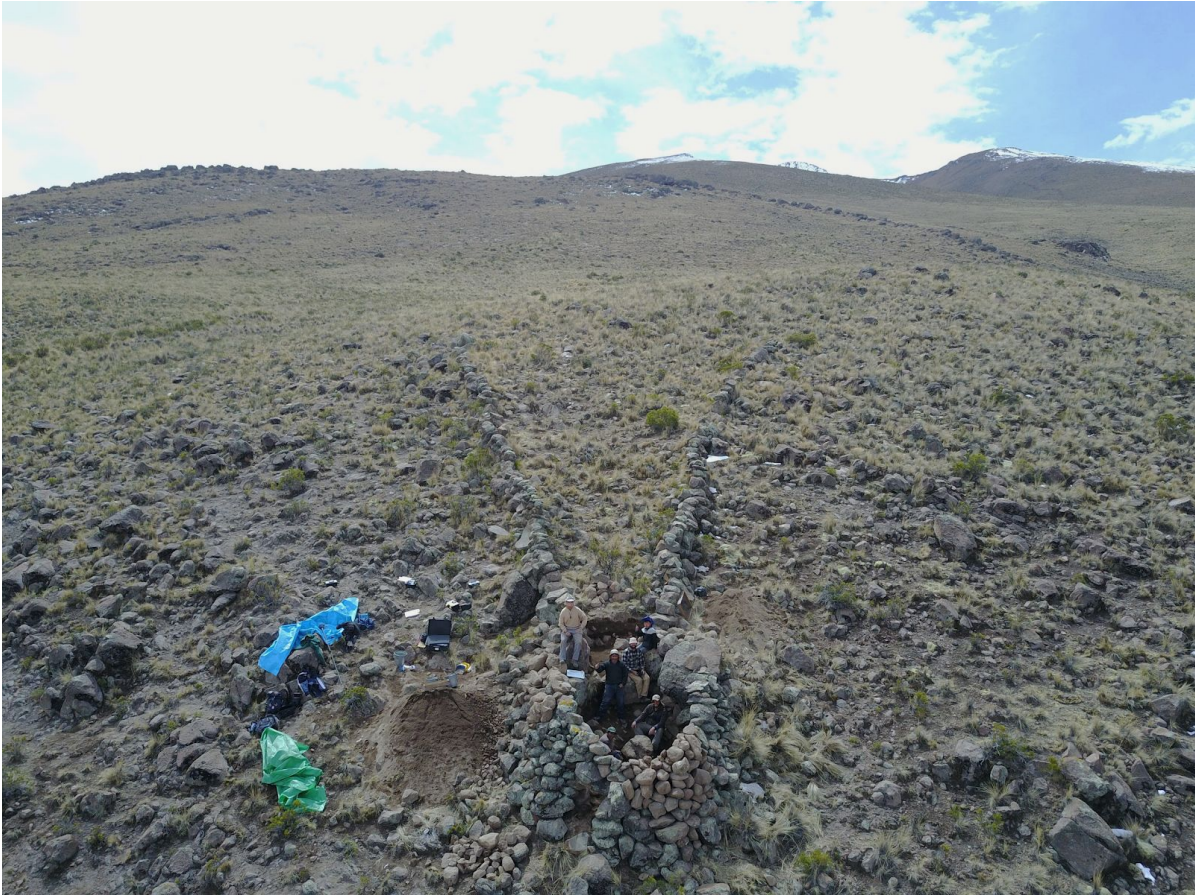
Figures

Figure 1. An archaeological excavation of a stone *chaccu* structure at Ccoypani, Peru. Photo by Randy Haas.

CHACCU DISTRIBUTION MAP

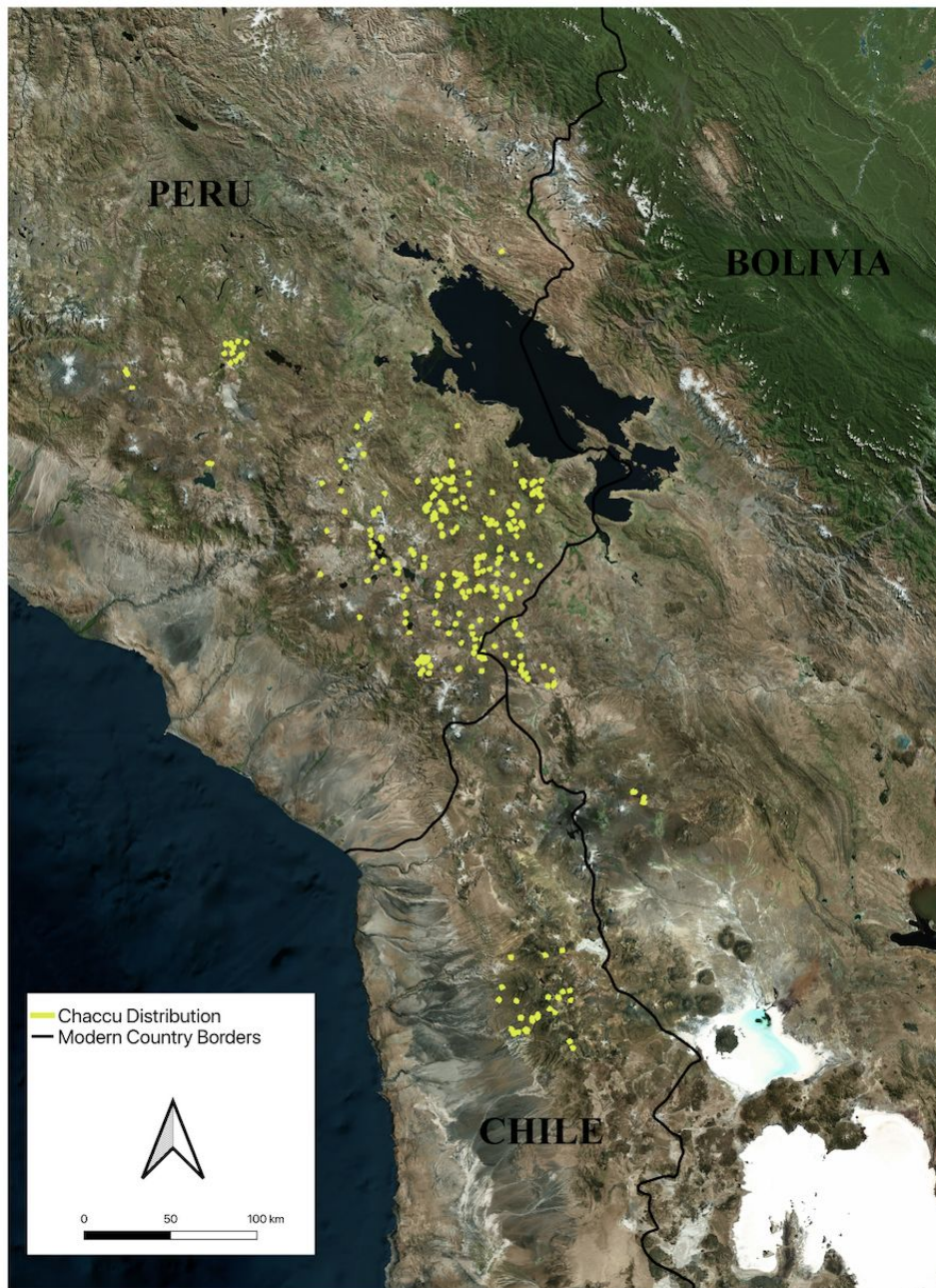


Figure 2. The distribution of stone *chaccu* structures across Peru, Chile, and Bolivia.

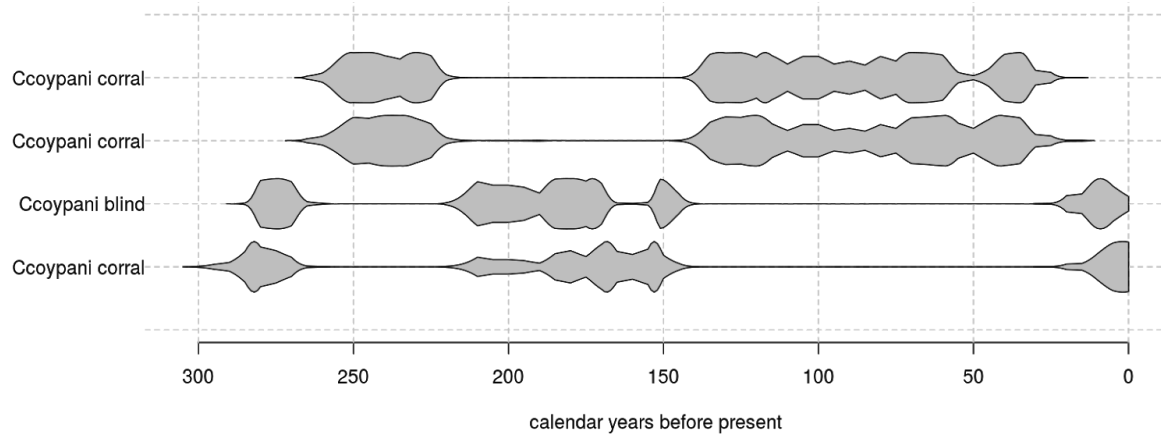


Figure 3. *Chaccu* radiocarbon dates from Ccoypani excavation, Peru. Provided by Dr. Randy Haas.



Figure 4. Image of chaccu hunt taken at the Laca Laca community. Photo by Randy Haas.



Figure 5. Image of vicuña wool processing done by the community women of Laca Laca. Photo by Randy Haas.

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