



Inside the Reducción: Crafting Colonial Foodways at Carrizales and Mocupe Viejo, Zaña Valley, Peru (1570–1700)

Sarah A. Kennedy¹ · Katherine L. Chiou² · Parker VanValkenburgh³

Published online: 03 January 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

This study explores the politics of indigenous foodways in early colonial Peru, examining the processes by which indigenous households adapted to demographic stress, resettlement, and evangelization in the sixteenth and seventeenth centuries CE. We examine faunal and botanical data from two planned towns (*reducciones*) located in Peru's Zaña Valley—Carrizales and Mocupe Viejo. Inter- and intra-site comparison of food procurement and diet reveal different strategies and timing in the ways that Eurasian products were incorporated into native foodways, suggesting that while Old World animal domesticates were rapidly integrated into the indigenous diet, plant domesticates tied to the Iberian palate were not as readily adopted.

Keywords Foodways · Colonialism · Andes · Identity · Tribute

✉ Sarah A. Kennedy
sak201@pitt.edu

Katherine L. Chiou
klchiou@ua.edu

Parker VanValkenburgh
parker_vanvalkenburgh@brown.edu

¹ Department of Anthropology, University of Pittsburgh, 3302 WWPH, Pittsburgh, PA 15260, USA

² Department of Anthropology, University of Alabama, Box 870210, Tuscaloosa, AL 35487, USA

³ Department of Anthropology, Brown University, 128 Hope St, Providence 02906 RI, USA

Introduction

The Iberian colonization of the Americas was highly diverse in its modes and tempo, and its effects on indigenous communities varied significantly depending on regional demographic, economic, and environmental contexts (Lockhart and Schwartz 1983; Newson 1995). While historical archaeologists devote considerable attention to highlighting this variability (e.g., Deagan 1983, 1995; Ewen 1991; Lightfoot 2005; McEwan 1991), recent critiques suggest that archaeological studies of colonialism have overemphasized the short-term impacts of colonization to the detriment of its longer-term effects (Panich 2013:106; Silliman 2010, 2012; Wilcox 2009:11–15). In other words, archaeologists have often encapsulated colonial history through the model of the “encounter” and the phenomenon of “culture contact,” rather than grappling with how colonization is socially and institutionally articulated at multiple scales between individuals, households, and communities (Ferris 2009:2; Jones 1997; Pauketat 2001; Silliman 2005). Attending to long-term histories of colonialism is particularly critical to the study of status and identity in colonial society, as long-term perspectives provide a corrective to colonial rhetoric that emphasizes the short-term fixation of identity and status categories. Long-term perspectives enable us to examine how status and identity were sedimented through both daily practices and lived experiences of legal and ecclesiastical discourse (Bourdieu 1990; Dietler 2005, 2007; Lightfoot 1995; Lightfoot et al. 1998; Silliman 2009; Stein 2005; Voss 2005). They also facilitate the analysis of how emerging identity categories—including indigenous, mestizo, creole, or Iberian—shifted and changed over time (Ewen 2000; Jamieson 2005; Loren 2000; Voss 2005, 2008).

This paper presents a case study that illustrates both the short- and long-term effects of colonization on indigenous communities living in the north coast region of Peru in an attempt to understand the tempo of culinary change amid severe social, political, and economic disruptions. We examine the transformation of indigenous daily life between 1572 and 1650 CE at Carrizales and Mocupe Viejo, two *reducciones* (planned colonial towns) founded around 1572 CE during the reforms of Viceroy Francisco de Toledo (Málaga Medina 1974; Mumford 2012; Saito and Rosas Lauro 2017).

Viceroy Toledo, in his 1569 instructions for the *Visita General* (General Inspection) of indigenous populations, articulated a program for instilling good government, Christian doctrine, and *policía* (well-ordered living) among native peoples (Mumford 2012:45–51; de Toledo 1986:7–8, 18). As part of this project, Toledo and his administrators sought to intimately shape the organization of native households and behavior within them, mandating that houses be regularly cleaned, and that parents, sons, and daughters sleep in separate bedrooms, on raised benches, ostensibly to promote sexual modesty and good health (de Toledo 1986:28–35). Toledo issued further decrees intended to eradicate native drunkenness, limit coca production and consumption, and regulate the production and consumption of a range of foodstuffs (de Toledo 1986).

Perhaps more than any other marker of identity, cuisine encapsulated the essence of Iberian civilization that Spaniards were so keen to impose in the

New World (Earle 2012:16). A diet rich in wheat bread, grape wine, olive oil, and meat denoted good health, Catholic values, and civilization (Galen of Pergamon 2000:78–108; de León Pinelo 1638:47; Montanari 1999:75; de Rieros Sorapán 1876:36;). Wheat and grapes were especially important symbols of Christian identity, as they reflected the transubstantiation of bread and wine into the body and blood of Christ during the high point of Catholic mass—the Liturgy of the Eucharist (Rubin 1991). In some areas of the Viceroyalty, such as on the north coast of Peru, indigenous communities were required to provide a mix of Andean and Eurasian products as tribute (Ramírez 1996:105–106). In his reforms, Toledo was particularly concerned with the production of wheat—complaining that the native peoples would not plant it—and the need for native herders to raise Eurasian livestock (de Toledo 1986:25, 31).

Consequently, by the late sixteenth century, many native peoples already practiced lifeways in which Old World products were quite central. The adoption and transformation of new foods and tastes into indigenous culinary traditions, nevertheless, was often complex and nuanced. Indeed, the negotiation of food-related practices was a long, multifaceted process intrinsically tied to identity formation, involving differing degrees of indigenous agency and control (Allard 2015; Dawdy 2010; Dietler 2007; Franklin 2001; Gifford-Gonzalez and Sunseri 2007; Sunseri 2017). Native peoples' decisions regarding everyday meals were shaped by a range of factors including legal and ecclesiastical prescriptions (as well as the ability to enforce them), tributary demands, rationing, shared and individual tastes, environmental change, and access to different types of food. People—through the consumption of food—consciously and unconsciously embodied their complex sense of self and place in the world. Thus, in simplistic terms, the adoption of some foods and the rejection of others had real consequences for how colonial individuals were viewed in society (Earle 2012).

The sites of Carrizales and Mocupe Viejo in Peru's Zaña Valley provide an ideal context for examining the short- and long-term dynamics of food and identity in indigenous communities under Spanish colonialism. While both settlements appear to have been founded as *reducciones* in the 1570s, the occupation at Carrizales was relatively short (20–30 years), while Mocupe Viejo remained settled until 1652 CE (VanValkenburgh et al. 2015). Comparing the longer-term occupation at Mocupe Viejo with the shorter-term occupation at Carrizales provides a way to observe the gradual emergence of colonial identities through the sedimentation of daily food practices over the course of nearly a century.

Both datasets cover a relatively short period of time following the *reducción* reforms in the Viceroyalty of Peru, situating our analysis somewhere between very early initial Conquest narratives and longer timescales that run through to the advent of the Peruvian Republic (Silliman 2012). In this article, we use the Mocupe Viejo case study as a proxy for “longer-term” change only in relation to the short-lived occupation at Carrizales, as Mocupe Viejo was occupied for multiple generations over an 80-year span which witnessed the adoption and sedimentation of Spanish agrarian reforms and integrated trade networks (Ramírez 1986). In contrast, Carrizales was occupied for a single generation immediately following the new labor and economic reforms, when cultural disruption and negotiation of foodways practices would have been more immediate and intense.

Food remains from Carrizales indicate that local people transitioned rapidly from a marine-oriented diet to one in which the majority of protein was obtained from Old World animals such as chickens, pigs, sheep, and goats. Conversely, Old World plants, such as wheat and barley, have a much more limited presence at Carrizales, where the assemblage is largely dominated by native plants, particularly in domestic contexts. In contrast to Carrizales, longer-term foodways patterns at Mocupe Viejo include evidence of wheat production, in conjunction with a wholesale switch to Old World domestic animal husbandry.

An examination of intrasite patterns reveal substantial differences in the types of foods that were consumed and discarded in public and private spaces. Within indigenous households at the more short-term Carrizales, marine-food consumption continued in private, whereas exploitation of caprid, pig, and chickens dominated the more public, ecclesiastical contexts. The very few Old World plant species identified at Carrizales (grapes, black pepper) were only recovered in public, church contexts. These results again differ with those from Mocupe Viejo. Over the long-term, spatial analysis of food remains from Mocupe Viejo indicate that Old World foodstuffs, including Old World plants (wheat, grape, lentils), were much more prevalent in both public (church) and private (indigenous household) contexts.

This evidence demonstrates how daily meals that native people consumed within their homes differed from the occasional community-wide feasts consumed for baptisms or religious holidays. Furthermore, the food remains tied to infrequent visits by Spanish priests were also distinct from everyday meals of native peoples, as priests were more prone to eating Christian and “proper” (Iberian) foods. It is in these new contexts of consumption that identities emerged—reinforced and performed through different food practices. Our results mirror both Norman’s interpretation of mortuary treatment at the site of Iglesiachoyoq, where she argues that new religious identities emerged through the everyday performance of both Andean and Catholic burial traditions (Norman, this volume), as well as Cossin’s observation of changing foodways and identity within the hacienda system of Ecuador, consistent with collective community foodways practices (Cossin, this volume). In our study, by examining a variety of food contexts at the sites of Carrizales and Mocupe Viejo, we demonstrate instances of both change and continuity in foodways practices in *reducción* contexts.

The Process and Tempo of Culinary Change

Food is an ideal subject in which to study the mechanisms and timing of long-term colonial negotiations. Foodways are deeply meaningful to people, forming fundamental aspects of their ethnic, political, social, and religious identity (Douglas 1972; Harris 1987; Lévi-Strauss 1969; Mintz 1996; Weismantel 1989). It is widely recognized that food is both a biological necessity and a symbol of cultural, religious, and political values of a specific group of people (Hastorf and Weismantel 2007:308). Recent archaeological scholarship of foodways has focused intensively on social, political, and symbolic power of food (e.g., de France 2009; Hastorf 1991; Twiss 2007; Voss 2008). In these approaches, emphasis is often placed on the daily structuring of

preparing, serving, and consuming meals (Atalay and Hastorf 2006), with the goal of examining how identity is expressed and created in habitual foodways practices (Bourdieu 1990; Dietler 2007; Silliman 2009).

Culinary traditions are often conservative, with practices passed down from generation to generation (Hastorf 2012). Nevertheless, changes, adjustments, and negotiations related to foodways practices are often accelerated in contexts of intense cultural contact and power differential (Buccini 2006; Jansen 2001; Mintz 1996; Rodríguez-Alegria 2005; Spielmann 1989). For instance, the potato replaced oats and barley as the main food source in Ireland during the sixteenth century, due largely to the demands of landowners under British colonial rule (Messer 1997). In Kenya, maize was similarly taken up by Samburu pastoralists under British rule and subsequently caused a major rupture in the traditional diet of milk, blood, and meat (Holtzman 2009). In both cases, local peoples' reactions to these new foods was initially ambivalent. Over the long term of colonial rule, however, native foodways came to center on these new crops, which became important staples in local cuisine.

In the Americas, the Columbian Exchange introduced wheat, olive oil, wine, chicken, sheep, goats, and pigs to the continent (Crosby 2003; Super 1988). Wheat was particularly important element of the performance and inscription of Christian identity, often referred to as the “staff of life” (Millones Figueroa 2010:305; Montanari 1999:71). Iberian Catholics considered wheat a symbol of righteousness and civilization (Earle 2012:159), symbolizing the body of Christ (Rubin 1991:37–49). Eating pork was also a strong expression of Catholicism for Iberians, as its consumption was outlawed by both Jewish and Islamic dietary laws (Earle 2012:61), and Iberian Catholic identity in the sixteenth century was often defined in opposition to Jewish and Islamic identity. Thus, when early Spanish colonists in the Americas encountered unfamiliar foods, they often expressed disgust (Herrera 1601:267–268; López de Gómara 1946:49) and requested shipments of Iberian staples whenever possible (Reitz and Cumbaa 1983; Scarry and Reitz 1990).

While many early Spanish colonists were adamant about continuing their traditional diets in the Americas, indigenous peoples were equally attached to their traditional foodways (Earle 2012:118–120). Clashes over food were frequent, particularly in the context of larger political conflicts. For native peoples, wheat came to represent some of the negative dimensions of Iberian rule and became a target for anti-Spanish sentiment (Gibson 1964:323). For example, during the Pueblo Revolt of 1680, in the province of Santa Fé de Nuevo Mexico, indigenous leaders called for the destruction of wheat fields and other Spanish grains, ordering their followers to plant the “crops of our ancestors” such as maize and beans (Gutiérrez 1991:136). During the 1546 Maya revolt against Spanish rule in the Yucatán, participants killed Spanish cats, dogs, and chickens and ordered the death of “everyone who had eaten the Spaniards’ bread” (de Díaz Alpuche 1900:202). In the Andes, the *Taki Onqoy* (dancing sickness) resistance movement that promoted indigeneity also called for the rejection of Catholicism and Spanish products throughout the highlands (Norman, this volume). In addition to the rejection of Spanish clothes, ceramics, and religious symbols (e.g., crucifixes), Iberian food products were prohibited (Molina 2011:86). The bodily ingestion of foreign foods was seen as a link to the perceived illness brought to the Andes by Spaniards (Molina 2011:85).

While the example of wheat highlights the strong relationship between food and identity, changes in foodways did not operate on a simple sliding scale between indigenous

and Iberian patterns. New cuisines and tastes also emerged from the Columbian Exchange. For instance, New World spicy chilies were readily accepted into Iberian diets and substituted for the expensive black pepper when flavoring foods (Earle 2012:129). Old World fruits such as peaches and watermelon were, in some cases, enthusiastically consumed by indigenous peoples (Ruhl 1990:556). Native peoples adopted barley cultivation in higher altitude locations, as growing practices were similar to their traditional quinoa cultivation practices (Jamieson and Sayre 2010:215–216). These complexities highlight the contextual nature of foodways-related changes in colonial encounters, underscoring the layers of complicating factors at work.

In the examples detailed above, the pace and character of changes in foodways are largely dependent on the underlying economic and social structures of the groups involved. During periods of intense political upheaval, new foods and culinary practices can change in a number of different ways depending on the local context. These changes are manifested through the acceptance, rejection, restriction, and forced adoption of certain food products and practices. While the maintenance of certain ethnic, religious, and culinary identities likely played some part in these decisions, the critical driver in many colonial and frontier contexts was likely related to more immediate issues of economic production and survival. This is exemplified in a nineteenth-century case study from a Jewish family living in frontier Arkansas in the American South where zooarchaeological remains reveal the consumption of non-kosher pork, catfish, and hindlimbs of deer and cattle; in these circumstances, eating kosher would have been an economic and social liability in a marginal, frontier setting (Markus 2011; Stewart-Abernathy and Ruff 1989). The frontier of the Spanish American colonies would have provided similar challenges for the adoption and/or maintenance of new foodways practices.

Negotiating Colonial Foodways and Identity on the North Coast of Peru

In the case of the sites at the center of this study—Carrizales and Mocupe Viejo—multiple factors influenced which foods were incorporated into indigenous foodways and identities, as well as how and when these changes occurred. Indigenous people living in *reducción* settlements were asked to fulfill specific tributary requirements, limiting choice over what foods they foraged, raised, or grew (Ramírez 1996). The locations chosen for the Carrizales and Mocupe Viejo *reducciones* were in marginal and unproductive environments located away from some of the indigenous inhabitants' native landscapes, making it difficult to continue prehispanic foodways despite Toledo's insistence on placing *reducciones* in areas with access to multiple natural resources such as abundant land, pastures, and mountains (Mumford 2012; Ramírez 1986; Toledo 1986:33–34). It was under these suboptimal conditions that the indigenous communities of Carrizales and Mocupe Viejo were required to raise and provide Eurasian plants and animals for tribute. During this time, many communities often fell short of these requested payments, citing shrinking labor pools due to death, disease, and outward migration (Wightman 1990).

A 1564 example of how indigenous communities managed their tribute requirements comes from the town of Chérrepe, one of the communities that was likely

resettled into nearby Carrizales in the 1570s (Ramírez 1996:105–106; VanValkenburgh 2012). While Chérrepe's assigned tribute included several Eurasian and native plants and animals, the community only partially met their required demands. Residents did provide Eurasian products, such as wheat, chickens, and pigs, but were laxer with contributing the required native products. For instance, they chose to plant beans instead of maize, only gave fish seasonally, and did not supply eggs at all, but instead simply paid cash for their value (Kennedy and VanValkenburgh 2016; Ramírez 1996:106; Zevallos Quiñones 1996). This example highlights how indigenous residents were able to maintain some degree of agency and control over their traditional foodways, although it is necessary to emphasize the level of control was variable and dependent on the context and the tribute products in question.

Further complexities arise when considering the geographical and ecological constraints that inhibited or facilitated the introduction and proliferation of food products to the various ecological niches of the Americas. European livestock, for example, was introduced early throughout the Americas (Crosby 2003) and rapidly became a part of the local systems of production in lower-elevation areas of the Andes (deFrance 1993, 1996). In more humid regions of the Americas, however, livestock mortality rates were high and larger animals did not adapt well to local conditions (de France and Hanson 2008; Reitz and Scarry 1985). Regarding the north coast region of Peru, we have previously argued that the drier conditions were more favorable for caprid and poultry husbandry (Kennedy and VanValkenburgh 2016), although these same coastal and marginal environments would have been less ideal for other products, such as wheat and barley agriculture (Ramírez 1996).

Another complicating factor in this discussion is how indigenous communities would have balanced maintaining foodways with the potential nutritional (and political) benefits of new Iberian food products. Indeed, as the aforementioned example of the adoption of peaches, watermelon, and barley into native food systems shows, indigenous peoples may have been just as concerned with producing new foodstuffs, altering their labor schedules, and accommodating new tribute demands, as they were with expressing their indigenous identities through the consumption of traditional foodstuffs. On the other hand, those in power, especially Iberian colonists and priests, had greater flexibility and more at stake in making statements about their identity with food and Iberian domesticates (Voss 2008). Having access to a horse, for instance, was a mark of high-status and ethnicity for colonists (AGI Seville, Spain, Justicia 456–457).

Even with the complicating variables outlined above, newly crafted colonial foodways, produced partly by choice and partly by constraint and demand, became cemented in the identity of colonized peoples over time (Holtzman 2009; Messer 1997; Robb 2007; Smith 2006). This occurred as these new foodways became part of indigenous daily practice, memories, taste preferences, favorite recipes, and daily family routines (Atalay and Hastorf 2006; Hastorf 2017). For example, this process occurred in Oglala Lakota hunting groups in North America, as their traditional cuisine and subsistence strategies were drastically altered during European colonization. Fry bread, an Old World product, was adapted into diets by native peoples living under famine-like conditions, and only over time has it now become a powerful symbol of “native” food (Powers and Powers 1984:63,92–93).

Indigenous peoples on the north coast of Peru followed a similar process, accommodating Iberian foods following forced resettlement for reasons not necessarily of

their own choosing. As colonial foodways slowly changed and developed, new identities also emerged, reproducing distinctions between colonial elites, commoners, natives, Africans, and mestizos (O'Toole 2007; Silverblatt 2004). New consumption situations also materialized, as individuals crafted new foodways endowed with their own meanings (Mintz 1996:17). Regarding our interpretation of food remains at Carrizales and Mocupe Viejo, we approach the subject of changing foodways through a similar lens. While the long-term association with European goods and products may have been out of the control of native Andeans, their acceptance and reformulation of these foods was very much part of their daily practice.

Archaeological Investigations

Carrizales and Mocupe Viejo are located near the Pacific coast in the lower Zaña Valley of Peru (Fig. 1). Both sites were first identified and mapped by the Proyecto Arqueológico Zaña Colonial (PAZC) during pedestrian survey. Carrizales lies along the lowest reaches of a secondary drainage within the Zaña Valley, the Río Carrizal, alongside the Pacific Ocean. The site consists of a low-density scatter of artifacts covering approximately one square kilometer, surrounding a series of low ridges that seem to have been occupied in shifting patterns during antiquity. Our research at the site has focused on three of these ridges – two occupied during the Late Sicán period (1100–1350 CE) and the other topped by a colonial *reducción* that appears to have been abandoned less than a few decades after it was founded circa 1572 CE (VanValkenburgh 2017). Mocupe Viejo is located 10 km north of Carrizales, along the northern slope of a low, barren upland called Cerro Purulén, at the edge of a coastal dry forest. The site covers approximately 10.14 ha and appears to have been occupied until approximately 1652 CE, when its residents petitioned the crown, complaining that their settlement was being overcome by dunes and that they lacked water for their basic subsistence (AGN Ucupe 30: 26r-26v).

During this period, *reducción* settlements in the lower Zaña Valley were embedded in three larger units or *repartimientos* - Zaña, Mocupe, and Chérrepe. Before the Iberian invasion, Mocupe appears to have been a *parcialidad*, or subunit, of the larger district of Zaña, whose members were resettled into Mocupe Viejo during the Toledan reforms (Ramírez-Horton 1978). Chérrepe was the name of an indigenous community that lived in several settlements located near the ocean, which was ruled by a *cacique* of the same name (Biblioteca Nacional del Perú, Lima, Peru, A310, 1584, 31v-33). While archival references to Carrizales are slim, we argue that the site likely represents the first *reducción* of Chérrepe, before this site was moved further inland to a location called Pueblo Nuevo, in the early seventeenth century.

Further analysis of material remains from Carrizales and Mocupe Viejo is important, as the sites represent a snapshot of middle colonial period colonization efforts during the Toledan resettlement initiatives in the Zaña Valley. To investigate these changes further, we employ both inter- and intra-site comparisons of faunal and botanical remains from Carrizales and Mocupe Viejo. At Carrizales, we use spatial and contextual differences to examine variation in domestic and ecclesiastical spaces (Table 1). Here, we have identified separate middens and domestic spaces, as well as specific areas related to the church such as the sacristy and nave. In contrast to Carrizales, the

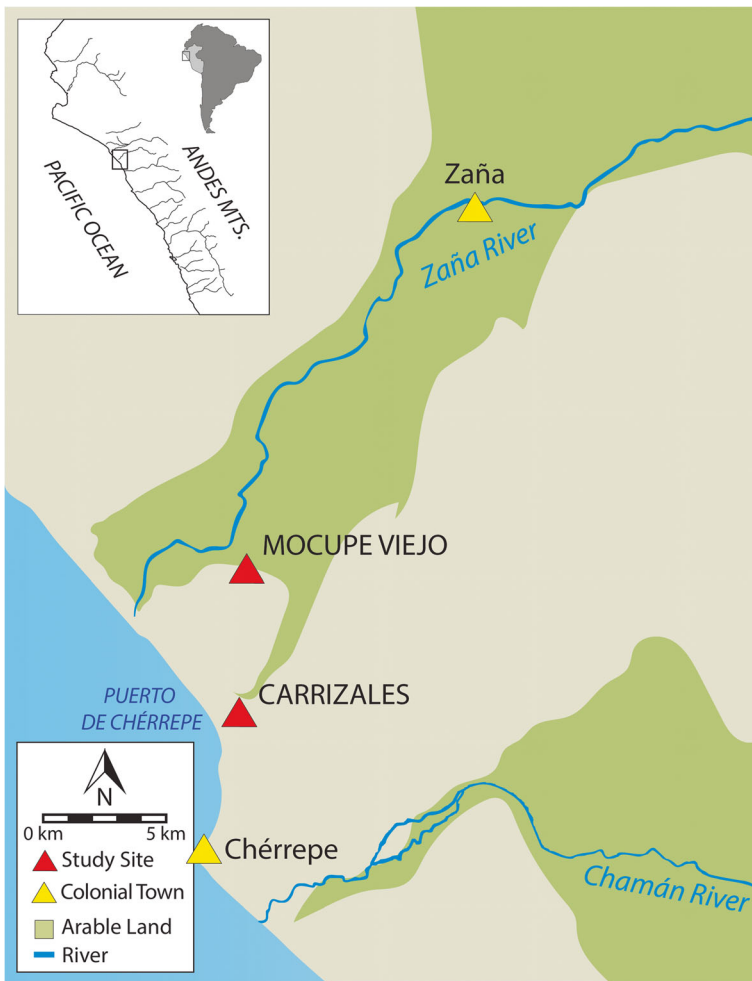


Fig. 1 Regional map of northern Peru with locations of sites mentioned in the text

majority of our data from Mocupe Viejo comes from one midden directly associated with the *reducción*'s church. This context likely represents food patterns associated with church activities and the semi-permanent Spanish priest.

Carrizales

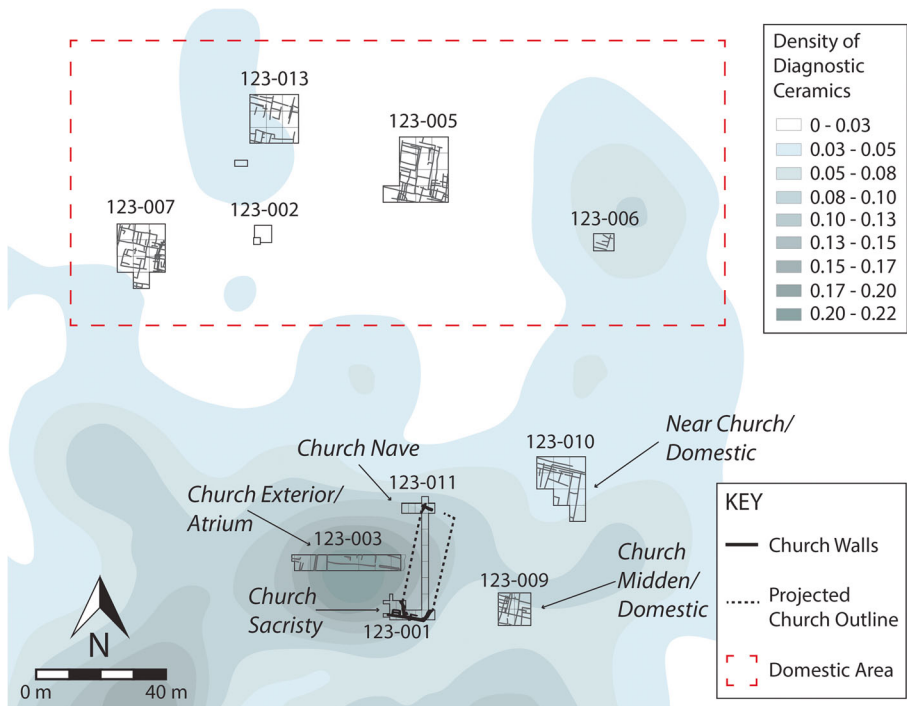
Excavations led by VanValkenburgh at Carrizales in 2010, 2012, 2014, and 2015 targeted both prehispanic and colonial sectors of the site, though our discussion in this paper is limited to colonial contexts. Material remains indicate periods of occupation from the Early Intermediate Period (200–750 CE) through the Early Colonial Period (~1600 CE). The narrow range of sixteenth-century ceramics and shallow deposits in the Carrizales *reducción* suggest that the colonial occupation at Carrizales was relatively short (1570–1600 CE) (VanValkenburgh 2012). The site's remains include the adobe foundations of a humble church, foundation trenches that map out the remains of a series of *quincha* (wattle and

Table 1 Description of excavated units at Carrizales and Mocupe Viejo

Carrizales - Domestic		Carrizales - Near Church		Mocupe Viejo	
Unit	Description	Unit	Description	Unit	Description
123-002	Midden	123-001	Church Sacristy	74-001	Church Midden
123-005	Domestic	123-003	Church Atrium	74-002	Domestic
123-006	Midden/Domestic	123-009	Church Midden/Domestic	74-003	Church Nave
123-007	Domestic	123-010	Domestic, Near Church		
123-013	Domestic	123-011	Church Nave		

daub) domestic structures, and an array of domestic middens scattered among them. While Spanish priests would have visited Carrizales from time to time, they likely would not have established long-term residence at the site due to its small size and the fact that clergy were in notoriously short supply in the late sixteenth century.

Between 2010 and 2015, members of the Proyecto Arqueológico Zaña Colonial excavated ten units within the colonial sector of Carrizales, Conjunto 123 (Fig. 2). Five units covering 1346 m² were located among domestic spaces in the town sector, while five additional units (covering 1142 m²) were located in the southern sector, near the church, including in some additional domestic areas (Table 1). Both the contents and the volume of material excavated in each of these areas varied. Among the strictly domestic contexts, Unit 123-002 and Unit 123-006 were centered on large domestic

**Fig. 2** Map of Carrizales showing excavated contexts

middens, but also revealed the foundations of domestic structures underlying them. Unit 123–005 revealed the foundations of a large house associated with two middens, and Units 123–007 and 123–013 similarly revealed house foundations associated with domestic refuse. Middens within the domestic sector of the site are small and directly associated with houses, suggesting that they likely represent production and consumption of animal and plant products on a family-level scale.

The contexts located in the southern area of the settlement include the church apse and sacristy (Unit 123–001), atrium (Unit 123–003), and nave (123–011). The church is located south of the domestic area and appears to have been directly accessible from multiple areas of the settlement. In addition, project members excavated two more “domestic” spaces in close proximity to the church. Unit 123–009 was a relatively deep (30–40 cm) midden directly east of the church, overlaying earlier house foundations and a pair of hearths. Unit 123–010, a large and relatively artifact-free domestic space to the north of Unit 123–009, appears to contain some material associated with the church midden.

Mocupe Viejo

Excavations at Mocupe Viejo were carried out under a much more limited campaign of test-pitting in 2010. These excavations revealed faunal, botanical, and ceramic remains dating primarily to the middle colonial period, slightly later than the occupation at Carrizales (1600–1652 CE). Diagnostic ceramics indicate at least a century-long colonial occupation, while documentary references to the community’s movement suggest it was relocated in 1653 CE (AGN Ucupe 14). The site contains the remains of an eroded adobe church surrounded by a scatter of domestic refuse placed on top of a nearby hill instead of more traditionally located in the central plaza of the settlement. This high location would have increased the visibility and importance of ecclesiastical activities at Mocupe Viejo, while at the same time distancing those activities from domestic areas of the site (VanValkenburgh et al. 2015).

The faunal and botanical material discussed in this study come from three excavated test pits (Fig. 3). Unit 74–001 contained material from the large midden to the southwest of the church, which was shielded from the town and normal foot traffic by the church structure and its underlying topography. As a result, its contents may reflect the remains of private consumption patterns of clergy. A high proportion of fine, glazed tablewares were also found in this midden. Unit 74–002 was located north of the church in the domestic area of the settlement, along one of the only visible courses of adobe in the town sector. This was overlain by a collection of shells, ceramics, and other domestic artifacts, but with little associated stratigraphy due to high levels of deflation at the site, which is located in a windy area at the interface between a dry forest and the treeless uplands of Cerro Purulén. Unit 74–003 was placed atop the church’s west wall, near the nave and a subsidiary room attached to its northwest corner. Four looter’s pits (Units 74-L1, 74-L2, 74-L3, and 74-L4) were cleaned to define visible architecture, but no material from these units was included in our analysis. Most of the faunal and botanical material from the site come from the two units near the church, and inter-site comparisons in this paper combine all faunal and botanical remains recovered at Mocupe Viejo.

We acknowledge that assemblage size differs dramatically between Carrizales and Mocupe Viejo, as more intensive excavations have been carried out at Carrizales. To

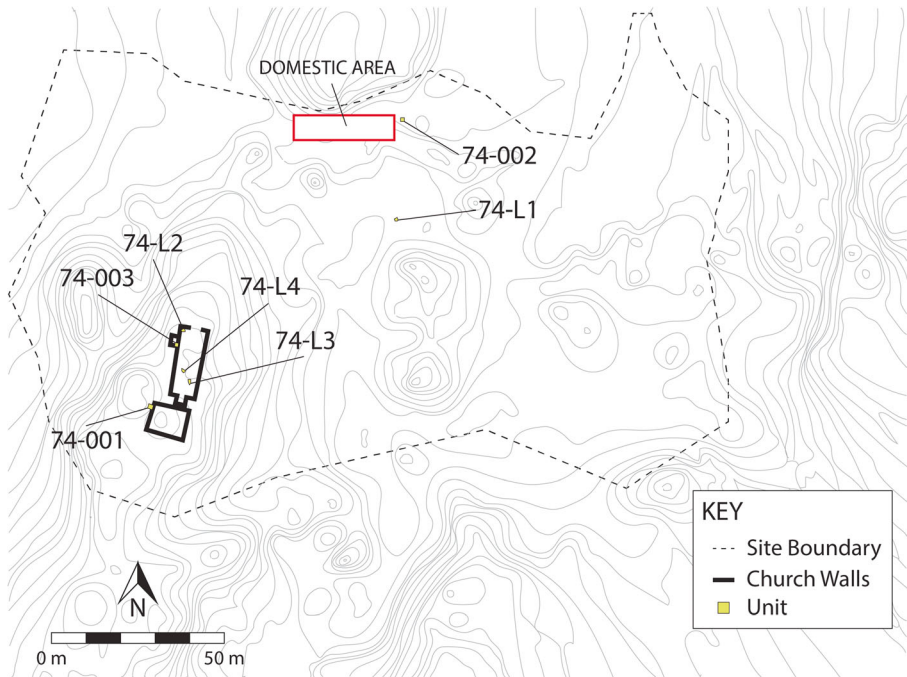


Fig. 3 Map of Mocupe Viejo showing excavated contexts

overcome this bias, we use proportions instead of raw counts in our comparisons. Further, because our data derives from middens, as opposed to distinctive in situ contexts, we argue that the patterns we observe reflect broad patterns of foodways practices within major site sectors and households. As such, inter-site comparisons are meant to reveal general differences between the samples, and we pay less attention to singular variations that could be due to the vagaries of sampling.

Methodology

During the course of excavations, we field-screened for faunal material and collected bulk soil samples for further zooarchaeological research and paleoethnobotanical analysis. Our sampling strategies entailed blanket sampling procedures designed to collect a representative sample featuring a range of context categories (Lennstrom and Hastorf 1995). All excavated contexts (loci) were field-screened with 1/16" (1.6 mm) dry-screen mesh, and 10 L-bulk samples were systematically collected to increase recovery of material for faunal and botanical analysis. When 10 L of excavated sediment was not available, the entire locus was sampled. Each bulk sample was then subjected to water flotation using an SMAP-type mechanized flotation machine (Watson 1976). Zooarchaeological and botanical remains were extracted from each sample by hand and with the assistance of a low-powered stereomicroscope.

Zooarchaeological analysis was conducted by Kennedy in accordance with common zooarchaeological recording principles (Klein and Cruz-Uribe 1984; Reitz and Wing 2008). Vertebrate remains were identified by comparison of the osteological collections

at the PAZC Research Laboratory in Zaña, Peru and at the Museo de Historia Natural in Lima, Peru. A collection of identification guides was also utilized (García-Godos 2001; Pacheco Torres et al. 1986). All faunal remains were identified to the lowest taxonomic level possible. In addition to taxonomic identification, further data recorded included specimen count (NISP, or number of identified specimens), element, element portion, symmetry (side), fusion (age), weight, and any bone surface modification (such as weathering, gnawing, burning, butchery, etc.).

The minimum number of individuals (MNI) was also calculated for this study, using the most highly represented body part in conjunction with conservative criteria such as fusion, size, and symmetry (Reitz 1988; White 1953). While MNI can be problematic due to aggregation, NISP is also problematic when comparing specimens with different numbers of elements in their skeletons (Grayson 1984; Lyman 2008). This is especially significant in faunal assemblages containing a wide range of taxa (fishes, reptiles, birds, and mammals), such as our present study. Here, we use proportions of NISP and MNI whenever possible to overcome this issue, knowing that the real number lies somewhere in the middle of these two metrics. Small sample size within excavation units necessitated the use of comparison with NISP proportions most often in this analysis.

Age at death profiles for mammals were calculated using a combination of fusion, dentition, and wear patterns (Getty 1975). Following de France and Hanson (2008), we employ three mammal age categories: juvenile, sub-adult, and adult. Age at death profiles for birds were calculated using fusion, porosity, and ossification and were only given the categories of juvenile and adult, as they have varying growth patterns (de France 2005). Skeletal frequencies were calculated using NISP, as unit sample sizes were too small to produce meaningful data with MNI or MAU (minimum anatomical units). Anatomical groupings were assigned as follows: head (skull, mandible, and teeth); axial (ribs and vertebrae); forequarter (scapula, humerus, radius, and ulna); hindquarter (os coxae, sacrum, femur, patella, and tibia); forefoot (carpal and metacarpals); hindfoot (tarsals and metatarsals); and foot (metapodials and phalanges).

Paleoethnobotanical analysis was conducted by Chiou on the light fraction component of floated bulk samples after a pilot study demonstrated near-perfect separation of plant remains between the light and heavy fractions. To achieve a representative subsample, 228 loci were selected from excavated soil samples using a random number generator. These samples were exported from Peru to the United States and analyzed at the McCown Archaeobotany Laboratory located at the University of California, Berkeley. Due to the low density of botanical remains in each sample, all samples were hand-sorted without need for further sub-sampling.

The sorting procedure involved the standard separation of sample components into similarly sized fractions to facilitate analysis (Pearsall 2015). This involved separation of the sample into 4 mm, 2 mm, 1 mm, 0.5 mm, and pan fractions which were weighed and sorted individually with the use of a low-powered stereomicroscope (6.7–45x magnification). Plant remains were collected in gelatin pill capsules and bags. Counts and weights pertaining to each botanical or faunal taxon were recorded on sample sort forms. All seeds greater than 50% intact were collected. Wood charcoal, plant stems and leaves, and human paleofecal remains were collected from >4 mm and >2 mm fractions only. Qualitative observations based on preservation, firing conditions, distortion, and fragmentation were also recorded on the sample sort forms (Hubbard and al Azm 1990). The identification of macrobotanical remains (primarily in the form of

seeds) relied largely on the use of a Eurasian and Andean comparative collection housed in the McCown Archaeobotany Laboratory. Like the faunal remains, plant remains were identified to the most specific taxon possible.

The overall goals of the faunal and paleoethnobotanical analyses focused on conducting a unit-by-unit analysis of food remains at Carrizales and Mocupe Viejo. Initial analysis emphasized the identification and frequency of Andean and Iberian taxa, while subsequent analyses detailed broader foodways practices, such as identifying the differing locations of production and consumption of food remains, as well as determining the context of higher-status, exotic foodstuffs.

Carrizales Results

Initial archaeological investigations in the prehispanic sector of Carrizales documented an emphasis on marine subsistence and fishing (Kennedy and VanValkenburgh 2016). Prehispanic faunal remains revealed high diversity and richness of marine taxa, including many species of drum fish (Sciaenidae), anchovies (Engraulidae), and sardines (Clupeidae). In addition to the wide diversity of fish taxa, many fish were from diverse ocean habitats with some located far from shore. In contrast, faunal remains from colonial sectors of Carrizales indicate a dramatic shift from marine to terrestrial subsistence, with large amounts of mammal and bird remains.

To date, the ten excavated units at colonial Carrizales have produced 38,348 vertebrate specimens representing at least 396 individuals. Higher proportions of mammals and birds were found in areas near the church, while domestic contexts had higher proportions of fish (Fig. 4). Within Carrizales, there were significant differences in mammal, bird, and fish proportions between the domestic and church sectors, although the strength of these differences was relatively weak ($\chi^2 = 339.23$, $df = 2$, $\Phi = 0.094$, $p < 0.000$). The majority of mammal remains identified represent introduced Old World domesticates such as sheep and goats (Caprinae), pig (*Sus scrofa*), cows (*Bos taurus*), and horses (Equidae). Bird remains included high numbers of Old World species like chicken (*Gallus gallus*) and geese (*Anser anser*). Fish remains included drum fish, anchovies, and sardines.

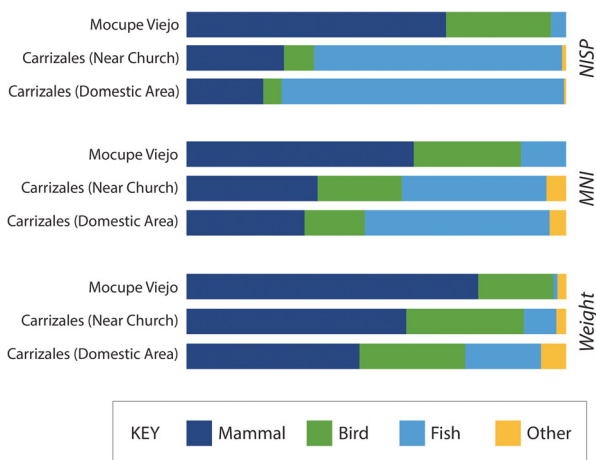


Fig. 4 Proportions of faunal remains by class at Carrizales and Mocupe Viejo

A closer examination of Old World mammals by species reveals higher proportions of individuals near the church and church contexts. Caprids, pigs, cows, and horses make up 29% of all individuals in ecclesiastical contexts (MNI = 51), while they only made up 19% of individuals in domestic areas (MNI = 42) (Fig. 5). Furthermore, we observe statistically significant differences in the frequencies of all Old World and New World animals between the domestic and church sectors of the site ($\chi^2 = 322$, $df = 1$, $\Phi = 0.278$, $p < 0.000$). Caprids, chicken, and pigs were the most prevalent Old World taxa in units near the church. Chicken remains were especially prevalent in the church atrium and exterior and were found with the remains of eggshells and chicken excrement. This is indicative of on-site poultry husbandry during the occupation of Carrizales, rather than post-abandonment, as ceramic chronologies and radiocarbon dates suggest the site was not occupied again after 1600.

New World fauna were found more frequently in the domestic contexts of Carrizales (Fig. 6). Fish dominate all five domestic units, contributing to over 60% of their total NISP. Fish are also the most abundant in each of these units (Fig. 7). Fish species richness was high (17 taxa), and included a variety of drums and croakers, catfish (Aridae), mullet (*Mugil* sp.), anchovies, and sardines. Wild birds, such as cormorant (*Phalacrocorax* sp.), booby (*Sula* sp.), pelican (Pelicaniformes), and penguin (*Spheniscus humboldti*), were present along with the remains of seals or sea lions (Pinnipidae). Small numbers of New World domesticate animals (Muscovy duck – *Cairina moschata*, guinea pig – *Cavia porcellus*, and camelid- Camelidae) were also found in domestic and ecclesiastical contexts.

Interestingly, the botanical remains recovered from Carrizales do not mirror the patterns we observe in the faunal assemblage. The vast majority of plant remains identified in all units were native, New World species and were typical staples in coastal Andean diets (Fig. 8). Algarrobo (*Prosopis pallida* Kunth) dominates the assemblage, followed by maize (*Zea mays* L.) and chili pepper (*Capsicum baccatum*

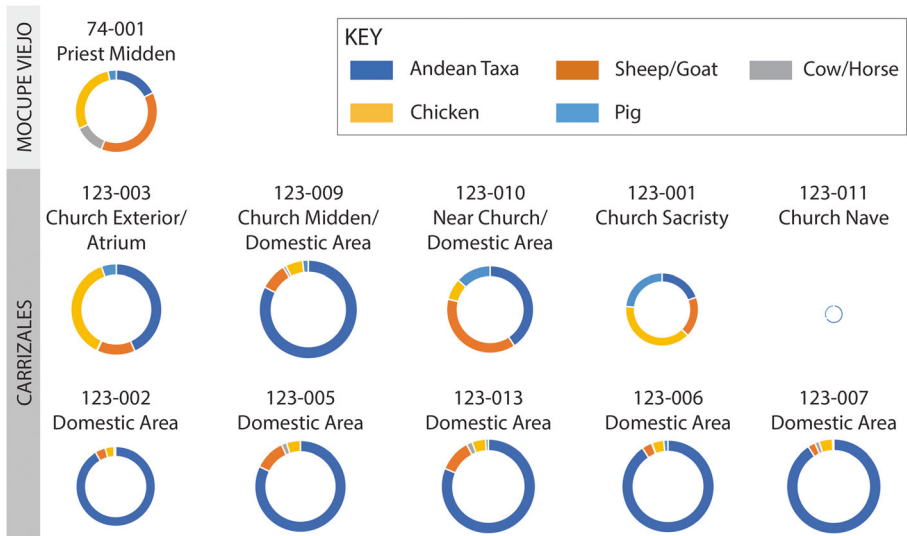


Fig. 5 Proportions of Eurasian and Andean faunal taxa in each excavated context at Carrizales and Mocupe Viejo. Each donut is scaled by count (NISP) using a log scale

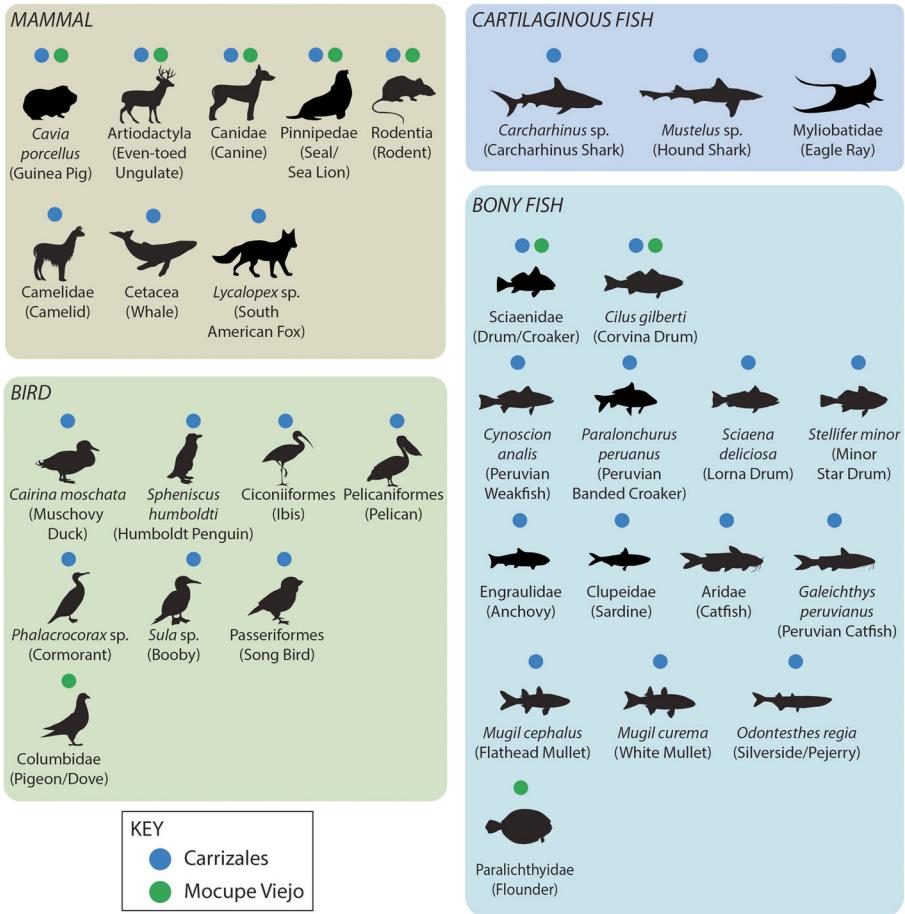


Fig. 6 Presence/absence of identified Andean animals at Carrizales and Mocupe Viejo

Kunth). Fruit, such as chirimoya (*Annona cherimola* Mill.), guava (*Psidium guajava* L.), passionfruit (*Passiflora edulis* Sims) and aguaymanto (*Physalis peruviana* L.), as well as squash and beans, were present in all units.

Intriguingly, the recovery of Old World plant species was very low. The majority of Old World seeds were found in units located in the ecclesiastical sector of the site (Fig. 9). Grape (*Vitis vinifera* L., $n = 4$) was found in the church exterior/atrium, black pepper (*Piper nigrum* L., $n = 3$) was recovered in the church sacristy, and lentil (*Lens culinaris* Medik., $n = 29$) was found in the church midden. Grapes are directly associated with wine used during Catholic mass and communion, although the presence of grape seeds do not necessarily indicate wine consumption. In the sixteenth century, black pepper was still a high-value and expensive spice that was sourced from India (Earle 2012:137). Citrus (*Citrus sp.* L., $n = 1$) and barley (*Hordeum vulgare* L., $n = 1$), however, were not located in church contexts and were uncovered in the domestic area of the site.

The Carrizales church midden (Unit 123–009) differs from other church contexts at the site, as plant and animal remains are overwhelmingly New World (Table 2). The amount of material recovered from this midden is also much greater than from the other

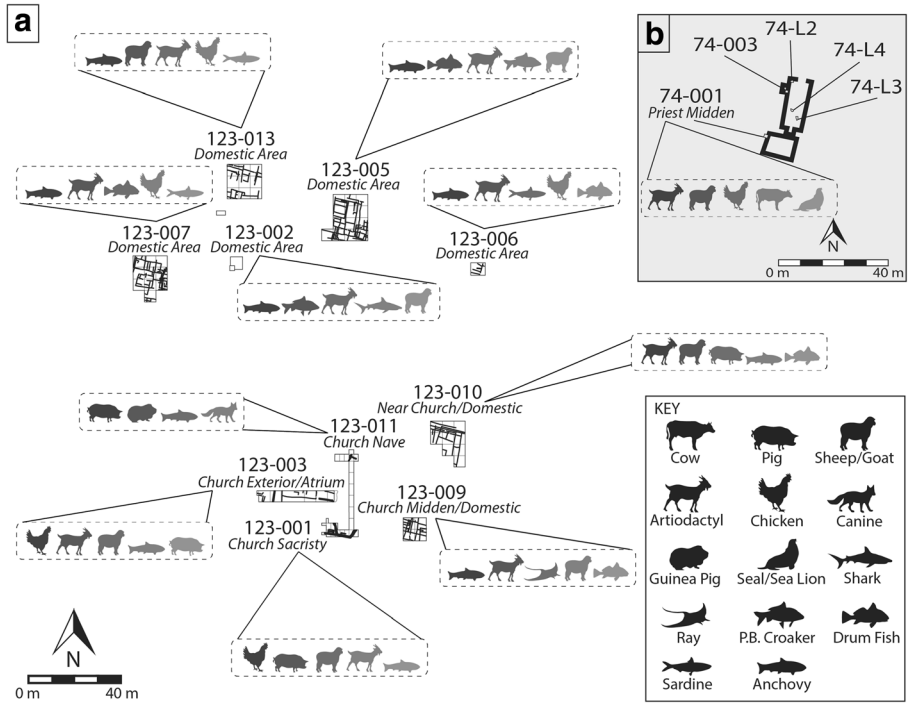


Fig. 7 Map showing the top five animal species by context, in order of abundance (NISP), at: (A) Mocupe Viejo and (B) Carrizales. The animals are ranked in descending order from left to right (black signifies the most abundant species)

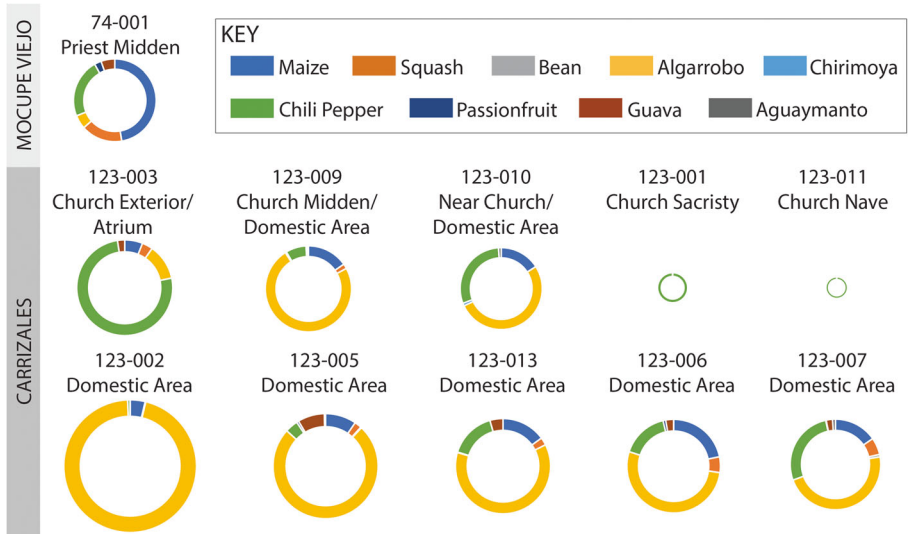


Fig. 8 Proportions of Andean plant taxa in each excavated context at Carrizales and Mocupe Viejo. Each donut is scaled by standardized count (count/L) using a log scale

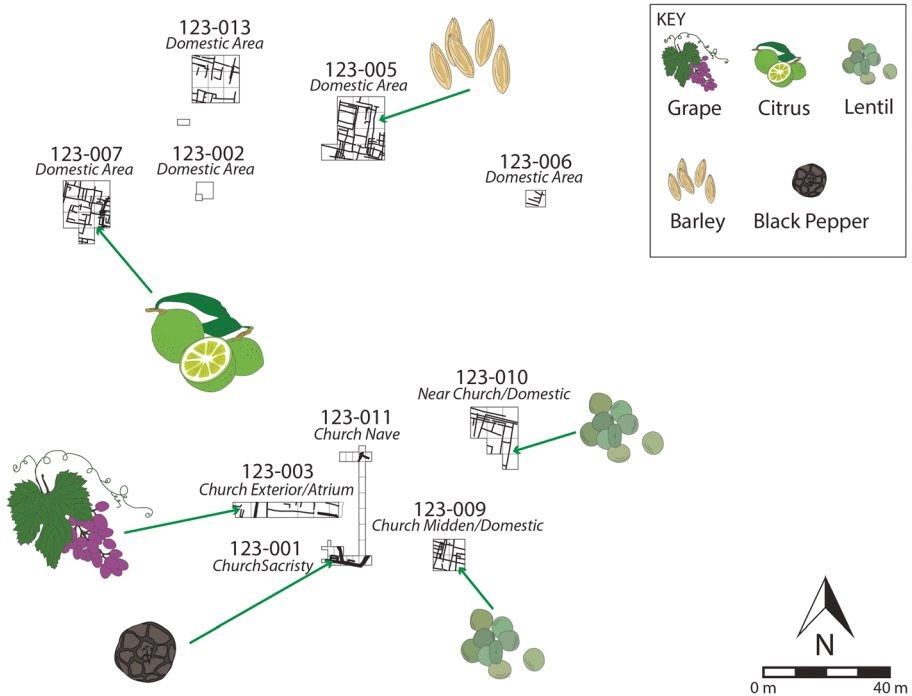


Fig. 9 Map showing the location of Eurasian plant domesticates recovered from Carrizales

church contexts, with over 12,000 vertebrate specimens recorded. The large amount of food remains, including large quantities of fish and maize, is indicative of large, public consumption events, most likely related to church activities.

Closer examination of the animal and plant remains from the church midden support the interpretation of public activities and feasting in this space. Faunal remains are dominated by marine species, which would have provided meat for public gatherings. Although pig, cattle, caprid, and chicken remains were identified in the midden, they were greatly outnumbered by New World taxa (23 to 7). In addition to various species of fish, New World animals included penguin, pelican, pinnipeds, guinea pig, and Muscovy duck. Furthermore, a high maize kernel-to-cupule ratio indicates the church midden was a location where the remnants of pre-processed maize were discarded (Fig. 10) (Scarry and Steponaitis 1997; VanDerwarker 2005). In comparison, the kernel-to-cupule ratio in the domestic sector of the site is much lower, suggesting that this was the locale for intensive maize processing.

Mocupe Viejo Results

Faunal and botanical remains from Mocupe Viejo come from a much more limited sample than Carrizales and are primarily associated with the church context. The church midden (Unit 74–001) produced a total of 831 vertebrate specimens with a total weight of 2282.7 g, representing at least 25 individual animals. The taxonomic variety is relatively low compared with Carrizales. The remains include ten mammal

Table 2 Faunal taxa present in the Carrizales church midden (123–009)

Scientific Name	Common Name	New World	Old World
<i>Cavia porcellus</i>	Guinea pig	X	
Canidae	Canine	X	X
Pinnipedae	Seal/sea lion	X	
Equidae	Horse/donkey	X	X
<i>Sus scrofa</i>	Pig		X
<i>Bos taurus</i>	Cattle		X
Caprinae	Sheep/goat		X
<i>Gallus gallus</i>	Chicken		X
Anseriformes	Goose family		X
<i>Cairina moschata</i>	Muscovy duck	X	
<i>Spheniscus humboldti</i>	Humboldt penguin	X	
Pelicaniformes	Pelican	X	
<i>Phalacrocorax sp.</i>	Cormorant	X	
<i>Sula sp.</i>	Booby	X	
<i>Carcharhinus sp.</i>	Carcharhinus shark	X	
Myliobatidae	Eagle ray	X	
Engraulidae	Anchovy	X	
Clupeidae	Sardine	X	
Aridae	Catfish	X	
<i>Galeichthys peruvianus</i>	Peruvian catfish	X	
<i>Mugil cephalus</i>	Flathead mullet	X	
<i>Mugil curema</i>	White mullet	X	
<i>Odontesthes regia</i>	Silverside/pejerrey	X	
Sciaenidae	Drums/croakers	X	
<i>Cilus gilberti</i>	Corvina drum	X	
<i>Cynoscion analis</i>	Peruvian weakfish	X	
<i>Paralichthys peruianus</i>	Peruvian banded croaker	X	
<i>Sciaena deliciosa</i>	Lorna drum	X	

species, four birds, and three fish. Mammals dominate the sample (68% NISP), followed by birds (28% NISP) and a small percentage of fish (4% NISP) (Fig. 4).

Upon closer examination, Old World animals dominate the sample (Fig. 5). Of the remains that could be identified to species, horse, cow, pig, caprids, chicken, and geese account for 18% of the total NISP. New World mammals include guinea pig and pinnipeds (seal/sea lion), which together only contribute 1% of the total NISP. Fish specimens were quite rare, with only three identified taxa including unidentified drum/croaker, corvina drum (*Cilus gilberti*), and flounder (Paralichthyidae). When we compare the Mocupe Viejo faunal assemblage to Carrizales, we find statistically significant and strong differences in proportion of Old World and New World animals ($\chi^2 = 324$, $df = 1$, $\Phi = 0.273$, $p < 0.000$).

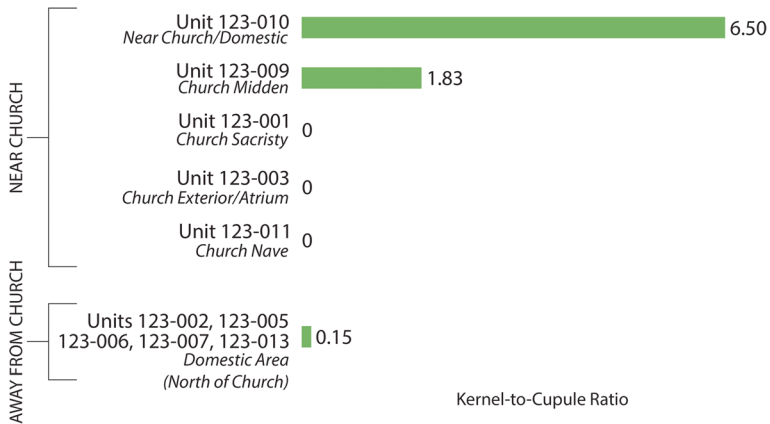


Fig. 10 Kernel-to-cupule ratios of maize remains recovered from Carrizales

In contrast to Carrizales, where age profiles and skeletal frequencies were not noteworthy, these measures revealed preferential access to young, meatier cuts at Mocupe Viejo.

Age profiles for mammals and birds revealed frequent consumption of younger, more tender animals. Over 50% of identified cow and pig elements were unfused. Caprid remains indicated equal levels of juvenile and adult specimens, and at least six juvenile chicken specimens were identified. Additionally, skeletal frequencies indicated preferential access to choicer cuts of meat. Mammal remains, especially caprids, included high

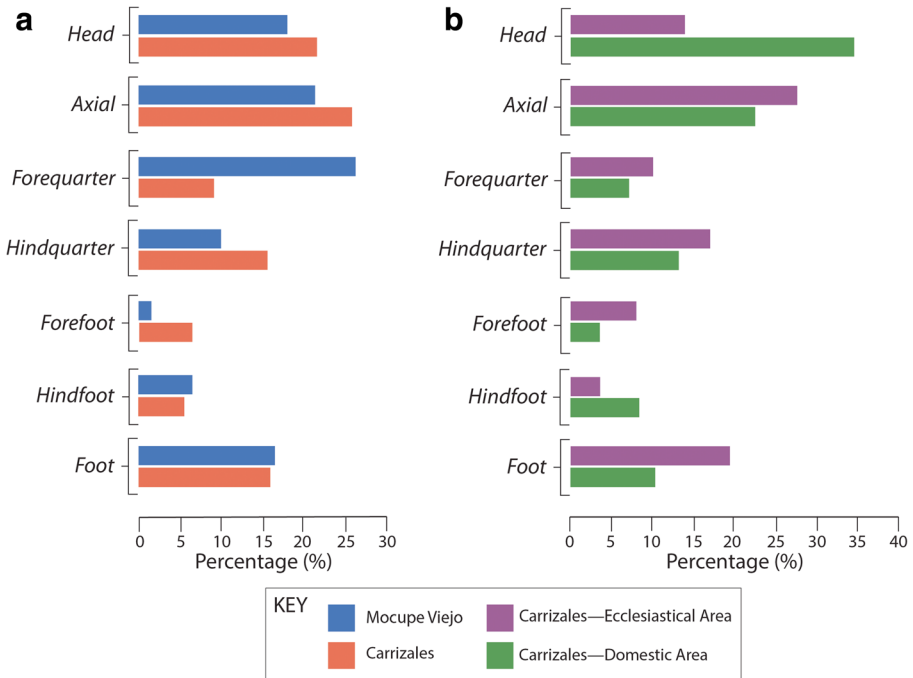


Fig. 11 Comparison of caprid skeletal frequencies using NISP between: (A) Carrizales and Mocupe Viejo and (B) sectors within Carrizales

proportions of axial and forequarter elements with low proportion of lower limb and foot elements (Fig. 11). A large quantity of chicken elements also came from the chest, wing, and thighs, which are considered meatier cuts (NISP = 42, 89% of all chicken elements).

These patterns indicate consumption of higher quality cuts of meat, primarily chicken, lamb, and mutton. While there was a high proportion of forequarter elements in caprids, there were very low frequencies of lower forefoot elements. This indicates there was a different location for the butchering and processing of animal carcasses at Mocupe Viejo, while eventual consumption of meatier forequarter cuts most likely took place near the midden. Overall, these results indicate frequent consumption of younger animals that would have been more tender than older animals.

Botanical remains from Mocupe Viejo reflect similar patterns to the faunal remains. Despite a low number of analyzed samples ($n = 4, 18.7 L$), Eurasian domesticates were recovered in greater quantity than local Andean plants (Fig. 12). Although several native Andean plant foods were present such as maize (*Zea mays*), chili pepper (*Capsicum baccatum*), and guava (*Psidium guajava*), Old World domesticates including wheat (*Triticum aestivum* L.), grape (*Vitis vinifera*), and lentils (*Lens culinaris*) were recovered in greater quantity.

The presence of wheat at Mocupe Viejo is particularly intriguing, as it was wholly absent from the samples from Carrizales, despite indications from the historical record that native peoples in the area were growing it for tribute. This may be an indication of value in this presumably higher-status context and a closer alignment with Iberian cuisine. However, because of Mocupe Viejo's inland location near arable land, the presence of wheat may simply be a function of the up-valley settlement's access to productive land with higher agricultural potential. Wheat cultivation, as a result, would have been more easily undertaken in the fertile fields surrounding Mocupe Viejo than the poor soils in and around Carrizales.

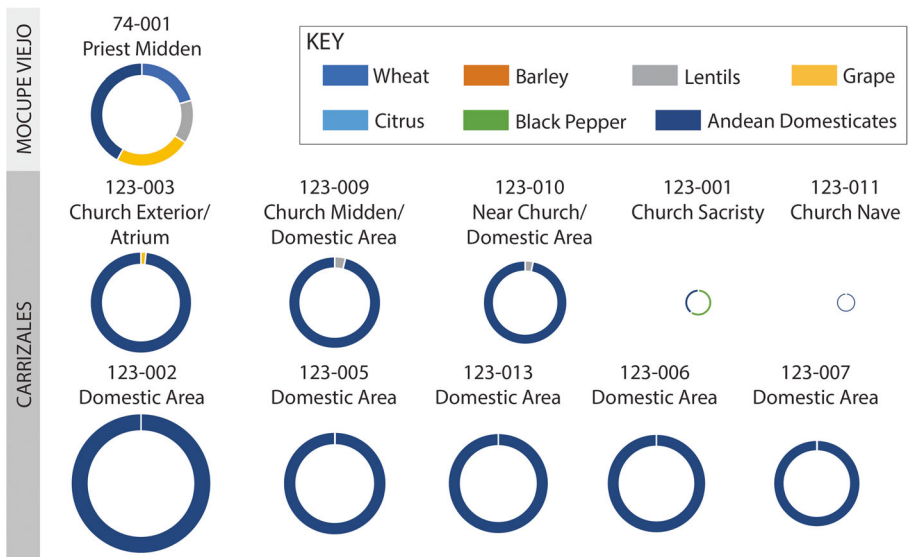


Fig. 12 Proportions of Eurasian and Andean plant taxa in each excavated context at Carrizales and Mocupe Viejo. Each donut is scaled by standardized count (count/L) using a log scale

Discussion

The findings at Carrizales and Mocupe Viejo are significant because they provide a view of changing indigenous foodways within two *reducción* settlements over different timescales. We interpret these results as illustrating that, while native peoples were forced to live in these towns and provide Eurasian tribute goods to landowners and priests, on a day-to-day basis they were also relatively autonomous and most often left to their own devices for subsistence and daily household necessities.

Differential Adoption of Old World Plants and Animals

One of the most striking results of our analysis is the differential adoption of Eurasian animals and plants. Chickens, sheep, goats, and pigs dominate the Mocupe Viejo assemblage. Similarly, these introduced animals contribute to roughly a quarter of all the animals identified at Carrizales. In contrast, Old World plant remains are quite rare at both settlements. We found only four species of Eurasian plants at Carrizales (Fig. 9), and most of these were found near the church. Important to note is the lack of wheat anywhere at Carrizales. While wheat was listed on tribute requests for Chérrepe communities, there is no indication it was processed or consumed within the site (Ramírez 1996:106–106).

The high presence of Old World animals at Carrizales and Mocupe Viejo is somewhat unsurprising, as it reflects early Spanish attempts at introducing Eurasian livestock to American colonies (Reitz 1992). The dry coast of Peru was an especially good location for raising sheep and goats, and our results correspond to what Melville (1994:7–8) has called the *ungulate eruption*. This dramatic increase in livestock populations, which occurs when hoofed animals are introduced into unfamiliar environments, was occurring in parts of the Andes as early as the 1560s (Earle 2012:74).

While Eurasian animals would have been common in the Zaña Valley by the 1570s, the ways in which indigenous groups and Spaniards incorporated these products into their foodways varied. Most often, indigenous groups accepted chicken and caprids into their diets, as they were the easiest to incorporate into indigenous agricultural and livestock systems (Bauer 2001; Crosby 2003). Given the high numbers of chicken and caprids at Carrizales and Mocupe Viejo, this seems to have been the case for Zaña Valley communities. Caprid pastoralism would have required similar strategies as raising traditional Andean camelids, and this practice appears to have proliferated throughout the period.

For Spanish colonists, the maintenance of Iberian identity through meat consumption was quite strong and pork was particularly stressed for its taste and healthy qualities (Earle 2012:74). At Carrizales, pig remains are only found in ecclesiastical contexts (see Fig. 7) and are much more infrequent than caprids and chickens. These patterns indicate how the practice of pork consumption may have become more restricted in this period, as priests and other high-status individuals set themselves apart from quotidian eating habits by sharing occasional meals of pork or bacon. Alternatively, pork may have become more associated with Spanish culture throughout the period and was actively avoided by indigenous individuals residing at Carrizales.

Animals were also much more economical to the early tribute system than plants. Animal husbandry could take place around the home and required less labor and time than agricultural pursuits such as wheat farming. Because animal husbandry was less

time-intensive, indigenous peoples were able to continue traditional subsistence strategies, such as fishing. This is evidenced by the large numbers of fish remains in domestic contexts at Carrizales. Further, raising Eurasian animals would have provided more meat and stability to indigenous diets. In this way, increased meat consumption was a key adaptive strategy for indigenous communities during colonization.

While Eurasian plant remains were infrequent at both sites, Mocupe Viejo's inland location and longer occupation help explain the presence of wheat at the site. Mocupe Viejo was located near much more agriculturally productive soils than Carrizales, making wheat agriculture a less risky strategy to adopt during this period. Mocupe Viejo was also occupied well into the seventeenth century, when the push for agriculture in the Zaña Valley was much stronger (Ramírez 1986). Further, because wheat at Mocupe Viejo was recovered in ecclesiastical contexts, it may again indicate a strong desire by Spanish priests to maintain their Iberian and Christian foodways when visiting indigenous communities.

Differences in Ecclesiastical and Domestic Contexts at Carrizales

Another strong pattern is the difference in foodways practices between domestic and ecclesiastical spaces at Carrizales. Domestic, household remains had higher proportions of fish (see Fig. 7), and likely represent daily meals of indigenous families. Low maize kernel-to-cupule ratios (see Fig. 10) indicate these spaces were also the primary locations of daily maize processing within the site (Chiou 2017). Only two Eurasian plant seeds (barley and citrus) were recovered in the domestic areas away from the church (see Fig. 9). The presence of barley, but not wheat, at Carrizales is not wholly surprising. Although wheat and barley were often introduced to regions at the same time, barley was commonly associated with food for the poor and marginalized (Earle 2012:60). Jamieson and Sayre (2010) have shown that barley was actively adopted into the diets of indigenous commoners in Riobamba, Ecuador during the seventeenth century.

The private and secluded ecclesiastical areas of Carrizales, including the church sacristy, nave, and atrium, revealed much stronger adherence to Iberian foodways than the domestic sectors of the site. For example, the remains of imported black pepper and grapes, along with large quantities of chicken, were recovered. Grapes in these contexts are not surprising, as grape wine was an important part of Christian religion. Wine was necessary for the celebration of communion, which would have occurred in the adjacent church nave. Black pepper was less expected, as it was not associated with religious activities. Instead, it was an exotic and expensive import during this period and its presence within the church sacristy suggests maintenance of Iberian, high-status foodways within private and restricted contexts (Earle 2012).

The high proportions of chicken remains in the church sacristy, atrium, and church exterior indicate controlled poultry production in ecclesiastical spaces (see Fig. 7). Juvenile chickens, as well as the remains of feathers, egg shells, and bird excrement, were recovered in the church exterior. This controlled space adjacent to the church would have been an easy location to observe on-site poultry husbandry, as chicken and eggs were frequent tribute requests in this region (Ramírez 1996). Often, landowners would gift their chicken tribute to local priests to entice them to reside more frequently on their land, so as to provide mass and religious education to indigenous individuals living in their *reducciones* (Rostworowski de Diez Canseco 1975:126–127). The high numbers

of chicken found in and around restricted church contexts support these accounts and indicate controlled production of chicken at Carrizales.

The Carrizales church midden differs from the domestic and private church areas of the site, as it represents a more public context of consumption. The large quantity of faunal material recovered from the midden is indicative of large-scale consumption events. In the context of a *reducción*, this likely represents the remains of community wide celebrations, such as Christian mass and baptisms. However, the large number of fish remains correspond to more traditional cuisine of coastal feasts and celebrations (Rostworowski de Diez Canseco 1981:148). The high kernel-to-cupule ratio of maize in the church midden further indicates feasting events, as large quantities of preprocessed (off the cob) maize suggests cooking and consumption.

In sum, intra-site foodways patterns at Carrizales indicate different contexts and scales of consumption within the site. The area to the east of the church, including the church midden, was most likely used for public, community-level feasts incorporating a mix of Christian and indigenous traditions. In contrast, secluded areas within church buildings were more rigidly Iberian in nature, and most likely represent restricted and private meals of priests and higher-status individuals. Domestic contexts at Carrizales also indicate the location of daily meals and food processing routines, though they include a mix of New World and Old World food products.

The Sedimentation of Foodways in the Long(er) Term: Mocupe Viejo

Foodways practices observed at Mocupe Viejo were distinctly Iberian in nature, which can be explained in part due to the settlement's longer-term occupation. Spanish demand for Eurasian agriculture and products on the north coast of Peru was more intense in the mid-1600s, well after the abandonment of Carrizales (Ramírez 1996). This demand is reflected in the food remains recovered from the church midden at Mocupe Viejo, where high frequencies of wheat, grapes, lentils, sheep, goat, pigs, and chicken have been identified. Long-term negotiations of foodways and tribute demands would have produced a gradual shift in coastal economies, and by the time Mocupe Viejo was abandoned, the *reducción* movement had been in effect for almost one-hundred years. Many of the early additions to the tribute system, such as chicken and caprid husbandry, had become an integral part of coastal lifeways by the mid-seventeenth century. Additionally, while wheat and barley were introduced to the region in the early colonial period, the adoption of these crops was gradual and took many generations to develop (Ramírez 1986).

The church midden at Mocupe Viejo is also quite distinct from the church midden at Carrizales, both in its location and its contents. The midden was located to the rear of the church and was likely a more restricted area of consumption, highlighting the cultivation of Christian identity in more private contexts outside the public eye. Additionally, as the church at Mocupe Viejo sits atop a hill, removed from the everyday activities of indigenous townspeople, eating in an "Iberian" fashion in this context would have been a powerful act of separation and distinction. Very few fish remains were recovered in this midden, and Old World plants (wheat, lentil, and grape) and animals (sheep,

goats, and chicken) dominate the entire assemblage. These patterns indicate a prerogative to maintain a Christian diet, especially as wheat was a powerful symbol of Christian and civilized life (Millones Figueroa 2010).

In colonial settings, such as Spanish mission sites in Florida and Georgia, wheat is also rare until the late seventeenth century (Ruhl 1997; Scarry 1987, 1988). Similar to Mocupe Viejo, wheat remains were highly concentrated in church contexts at the mission of Santa Catalina de Guale on St. Catherine's Island, and only a few grains were found in domestic sectors (Ruhl 1997). While wheat became more abundant throughout the seventeenth century, wheat storage continued to concentrate in church contexts and was likely consumed by wealthier Spanish priests and friars who preferred wheat bread over local substitutes (Ruhl 1997). As Mocupe Viejo was a slightly larger *reducción* located in a less marginal environment than Carrizales, we can assume priests would have visited the church more frequently. Thus, the Mocupe Viejo church midden likely reflects the long-term consumption patterns of priests and higher-status individuals, quite possibly setting an example of Christian and "civilized" behavior through their daily meals. However, as the private nature of these consumption practices suggest, highly prized Christian foods, such as wheat, may have been restricted to high-status individuals. Over time, these divisions in food consumption patterns would have led to different categories of ethnicity, identity, and prestige.

Conclusions

Indigenous peoples and Spanish priests living at Carrizales and Mocupe Viejo had different relationships to their traditional and adopted foodways practices. While foodways from domestic contexts at Carrizales can be characterized as maintaining many aspects of prehispanic north coastal cuisine, we also find strong evidence for the production and consumption of Eurasian foodstuffs such as barley, citrus, chickens, sheep, and goats. Living in these relatively autonomous *reducción* contexts, native peoples crafted new foodways, taking advantage of select Eurasian products that were easily adopted into their traditional subsistence practices. In the early period of the *reducción* movement (1570–1600 CE), Eurasian animals rather than plants were more readily accepted into the coastal Andean agricultural and livestock systems.

While we know from historical records that tribute demands for wheat, pigs, chickens, and fish were quite high (Ramírez 1996), our data demonstrate that indigenous peoples also incorporated some of these products into their cuisine. This pattern suggests that native peoples living at Carrizales had some degree of agentive control over their everyday lives, although it appears they were not particularly focused on pursuing the maintenance of an "indigenous" identity through their foodways practices. In contrast, Spanish priests visiting Carrizales and Mocupe Viejo interacted in contexts where stricter adherence to Iberian identity through Christian food products was an important strategy of identity performance.

From the culinary and spatial data presented here, we argue that the process and pace of changing foodways was different at Carrizales and Mocupe Viejo, in part due to their environmental and temporal differences. Additionally, contexts of consumption were

crucial in how we viewed patterns of change and continuity of foodways practices. At the shorter-term occupation of Carrizales, native peoples adopted a variety of Iberian tribute items into their diet while still maintaining many aspects of their traditional food procurement and consumption traditions, as evidenced by the differing remains of domestic and ecclesiastical contexts. However, during the longer occupation of Mocupe Viejo, we observe less of a distinction between ecclesiastical and domestic (public and private) contexts of consumption. Spanish priests residing at Mocupe Viejo may have maintained Iberian consumption practices to heighten their distinction from the communities they evangelized. Further, the lessening of a distinction between public and private consumption contexts indicates the emergence of new foodways practices over a longer period of time.

The data presented in this article not only speak to the long-term negotiations of foodways, but also articulate with broader patterns of how social groups incorporate different cultural norms to define and distinguish themselves. Food, language, dress, music, and other forms of material culture are important symbols of social identity and collectively these markers of everyday practice condition the development of group identities (Eckert 1989). In the Americas, colonial identities were formed through the cumulative effects of daily interactions on the individual, household, and community scale, and what it meant to be indigenous, mestizo, creole, or Iberian changed through time (Fisher and O'Hara 2009). These interactions took place within both private and public arenas, conditioning how and when identities were presented, contested, and maintained (Pavao-Zuckerman and Loren 2012).

Cuisine practices at Carrizales and Mocupe Viejo suggest the continued emergence of new social identities following the Toledan resettlement reforms of the 1570s. Today, the flavors that encapsulate the famous north coast cuisine of Peru are reflective of this period of culinary encounters. Citrus (foreign) and chili peppers (native) are used to flavor the rich ceviche prepared with local fish, while goat (foreign) is the centerpiece of many hearty stews (*seco de cabrito*). Fish (native) dishes are ubiquitous, and shark and ray (native) are still very common and tasty additions to any lunchtime meal. Finally, chicha (maize beer, native) and beer (barley, foreign) are the common beverages used to wash down a delicious Peruvian dish. These ingredients, recipes, and meals - part of what one would describe as the north coast foodways of today - were active agents in the social and economic changes of colonial society.

Acknowledgments Research was funded by a National Endowment for the Humanities Collaborative Research Grant (RZ-51748-14) to VanValkenburgh, a University of Pittsburgh Center for Latin American Studies Graduate Student Research Grant (to Kennedy), and a University of Pittsburgh International Studies Fund Research Grant (to Kennedy). Elizabeth Arkush, Marc Bermann, Igor Chechushkov, Peiyu Chen, Deb Neidich, Ryan Smith, John Walden, and Nicole Wong provided initial and valuable feedback on earlier drafts of this manuscript. Special thanks to Karen Durand Caceres, Danilo Depaz Romero, Amy Fann, Sarita Fuentes Villalobos, Winnie Looc, and Mercedes Vera Urbina for their assistance in laboratory research. Specimen identification was aided by the expertise of Susan deFrance, Philippe Béarez, Sadie Weber, Nicole Cannarozzi, Ali Altamirano, and Isabel Salvatierra. Finally, we would like to thank Ellen Lofaro and Brendan Weaver for their insightful reviews and valuable feedback.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

- Allard, A. (2015). Foodways, animal husbandry and Nipmuc identity: faunal analysis from Sarah Boston's farmstead, Grafton, MA, 1790–1840. *International Journal of Historical Archaeology* **19**(1): 208–231.
- Atalay, S. and Hastorf, C. A. (2006). Food, meals, and daily activities: food *habitus* at Neolithic Çatalhöyük. *American Antiquity* **71**(2): 283–319.
- Bauer, A. J. (2001). *Goods, Power, History: Latin America's Material Culture*. Cambridge University Press, New York.
- Bourdieu, P. (1990). *The Logic of Practice*. Polity Press, Cambridge.
- Buccini, A. F. (2006). Western Mediterranean vegetable stews and the integration of culinary exotica. In Hosking, R. (ed.), *Authenticity in the Kitchen*. Prospect Books, Totnes, pp. 132–145.
- Chiou, K. L. (2017). *Common Meals, Noble Feasts: An Archaeological Investigation of Moche Food and Cuisine in the Jequetepeque Valley, Peru, AD 600–800*. Doctoral dissertation. University of California, Berkeley.
- Crosby, A. W. (2003). *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Praeger, Westport, CT.
- Dawdy, S. L. (2010). “A wild taste”: food and colonialism in eighteenth-century Louisiana. *Ethnohistory* **57**(3): 389–414.
- Deagan, K. ed. (1983). *Spanish St. Augustine: The Archaeology of a Colonial Creole Community: Studies in Historical Archaeology*. Academic Press, New York.
- Deagan, K. (1995). *Puerto Real: The Archaeology of a Sixteenth-Century Spanish Town in Hispaniola*. University Press of Florida, Gainesville.
- de Díaz Alpuche, G. (1900 [1579]). Relaciones de Yucatán. In Asensio, J. M. (ed.), *Colección de Documentos Inéditos Relativos al Descubrimiento, Conquista y Organización de las Antiguas Posesiones Españolas del Ultramar (Vol. 13)*. Real Academia de la Historia, Madrid, pp. 3–408.
- Dietler, M. (2005). The archaeology of colonization and the colonization of archaeology: Theoretical challenges from an ancient Mediterranean colonial encounter. In G. J. Stein (ed.), *The Archaeology of Colonization and the Colonization of Archaeology*. School for American Research Press, Santa Fe, pp. 33–68.
- Dietler, M. (2007). Culinary encounters: food, identity, and colonialism. In Twiss, K. C. (ed.), *The Archaeology of Food and Identity*, Occasional Paper No. 34, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 218–242.
- Rostworowski de Diez Canseco, M. (1975). Pescadores, artesanos y mercadores costeños en el Perú prehispánico. *Revista del Museo Nacional* **41**: 311–359.
- Rostworowski de Diez Canseco, M. (1981). *Recursos naturales renovables y pesca, siglos XVI y XVII, Vol. 8*. Instituto de Estudios Peruanos, Lima.
- Douglas, M. (1972). Deciphering a meal. *Daedalus* **101**(1): 61–81.
- Earle, R. (2012). *The Body of the Conquistador: Food, Race, and the Colonial Experience in Spanish America, 1492–1700*. Cambridge University Press, New York.
- Eckert, P. (1989). *Jocks and Burnouts: Social Categories and Identity in the High School*. Teachers College Press, New York.
- Ewen, C. R. (1991). *From Spaniard to Creole: The Archaeology of Cultural Formation at Puerto Real, Haiti*. University of Alabama Press, Tuscaloosa.
- Ewen, C. R. (2000). From colonist to creole: archaeological patterns of Spanish colonization in the New World. *Historical Archaeology* **34**(3): 36–45.
- Ferris, N. (2009). *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes*. University of Arizona Press, Tucson.
- Fisher, A. B., and O'Hara, M. D. eds. (2009). *Imperial Subjects: Race and Identity in Colonial Latin America*. Duke University Press, Durham, NC.
- deFrance, S. D. (1993). *Ecological Imperialism in the South-Central Andes: Faunal Data from Spanish Colonial Settlements in the Moquegua and Torata Valleys*. Doctoral dissertation. University of Florida, Gainesville.
- deFrance, S. D. (1996). Iberian foodways in the Moquegua and Torata valleys of southern Peru. *Historical Archaeology* **30**(3): 20–48.
- deFrance, S. D. (2005). Late Pleistocene marine birds from southern Peru: distinguishing human capture from El Niño-induced windfall. *Journal of Archaeological Science* **32**(8): 1131–1146.
- deFrance, S. D. (2009). Paleopathology and health of native and introduced animals on southern Peruvian and Bolivian Spanish colonial sites. *International Journal of Osteoarchaeology* **20**(5): 508–524.

- deFrance, S. D. and Hanson, C. A. (2008). Labor, population movement, and food in sixteenth century Ek Balam, Yucatán. *Latin American Antiquity* **19**(3): 299–316.
- Franklin, M. (2001). The archaeological dimensions of soul food: interpreting race, culture, and Afro-Virginian identity. In Orser, C. E. Jr. (ed.), *Race and the Archaeology of Identity*, University of Utah Press, Salt Lake City, pp. 88–107.
- Galen of Pergamon. (2000 [ca. 180 C.E.]). *On the Powers of Food*. Grant, M. (trans.). Routledge, New York.
- García-Godos, I. (2001). Patrones morfológicos del otolito sagitta de algunos peces óseos del mar peruano. *Boletín IMARPE* **20**(1–2): 1–83.
- Getty, R. (1975). *Sisson and Grossman's the Anatomy of the Domestic Animals*. WB Saunders, Philadelphia.
- Gibson, C. (1964). *The Aztecs under Spanish Rule: A History of the Indians of the Valley of Mexico, 1519–1810*. Stanford University Press, Stanford.
- Gifford-Gonzalez, D. and Sunseri, K.U. (2007). Foodways on the frontier: Animal use and identity in Early Colonial New Mexico. Twiss, K. (ed.), *We Are What We Eat: Archaeology, Food, and Identity*, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 260–287.
- Grayson, D. K. (1984). *Quantitative Zooarchaeology: Topics in the Analysis of Archaeological Faunas*. Academic Press, Orlando.
- Gutiérrez, R. A. (1991). *When Jesus Came, the Corn Mothers Went Away: Marriage, Sexuality, and Power in New Mexico, 1500–1846*. Stanford University Press, Stanford.
- Harris, M. (1987). Foodways: historical overview and theoretical prolegomenon. In Harris, M. and Ross, E. (eds.), *Food and Evolution: Toward a Theory of Human Food Habits*. Temple University Press, Philadelphia, pp. 57–90.
- Hastorf, C. A. (1991). Gender, space, and food in prehistory. In Conkey, M. W. and Gero, J. M. (eds.), *Engendering Archaeology: Women and Prehistory*. Basil Blackwell, Oxford, pp. 132–159.
- Hastorf, C. A. (2012). The habitus of cooking practices at Neolithic Çatalhöyük: what was the place of the cook? In Graff, S. R. and Rodríguez-Alegria, E. (eds.), *The Menial Art of Cooking: Archaeological Studies of Cooking and Food Preparation*. University Press of Colorado, Boulder, pp. 65–86.
- Hastorf, C. A. (2017). *The Social Archaeology of Food: Thinking about Eating from Prehistory to the Present*. Cambridge University Press, Cambridge.
- Hastorf, C. A. and Weismantel, M.J. (2007). Food: where opposites meet. In K. C. Twiss (ed.), *The Archaeology of Food and Identity*. Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 308–331.
- Herrera, A. de. (1601). *Historia General de los Hechos de los Castellanos en las Islas y Tierra Firme del Mar Océano, Vol. 1*. Imprenta Real, Madrid.
- Holtzman, J. (2009). *Uncertain Tastes: Memory, Ambivalence, and the Politics of Eating in Samburu, Northern Kenya*. University of California Press, Berkeley.
- Hubbard, R. N. L. B. and al Azm, A. (1990). Quantifying preservation and distortion in carbonized seeds; and investigating the history of friké production. *Journal of Archaeological Science* **17**(1): 103–106.
- Jamieson, R. W. (2005). Caste in Cuenca: colonial identity in the seventeenth century Andes. In Conlin Casella, E. C. and Fowler, C. (eds.), *The Archaeology of Plural and Changing Identities: Beyond Identification*. Springer, New York, pp. 211–232.
- Jamieson, R. W. and Sayre, M. B. (2010). Barley and identity in the Spanish colonial Audiencia of Quito: archaeobotany of the 18th century san Blas neighborhood in Riobamba. *Journal of Anthropological Archaeology* **29**(2): 208–218.
- Jansen, W. (2001). French bread and Algerian wine: conflicting identities in French Algeria. In Schoolliers, P. (ed.), *Food, Drink and Identity: Cooking, Eating and Drinking in Europe since the Middle Ages*. Berg, Oxford, pp. 195–218.
- Jones, S. (1997). *The Archaeology of Ethnicity: Constructing Identities in the Past and Present*. Routledge, London.
- Kennedy, S. A. and VanValkenburgh, P. (2016). Zooarchaeology and changing food practices at Carrizales, Peru following the Spanish invasion. *International Journal of Historical Archaeology* **20**(1): 73–104.
- Klein, R. G. and Cruz-Urbe, K. (1984). *The Analysis of Animal Bones from Archeological Sites*. University of Chicago Press, Chicago.
- Lennstrom, H. A. and Hastorf, C. A. (1995). Interpretation in context: sampling and analysis in paleoethnobotany. *American Antiquity* **60**(4): 701–721.
- de León Pinelo, A. (1638). *Question Moral si el Chocolate Quebranta el Ayuno Eclesiástico: Trata de Otras Bebidas j Confecciones que se Vsan en Varias Provincias*. Madrid.
- Lévi-Strauss, C. (1969). *The Raw and the Cooked: Introduction to a Science of Mythology*. Weightman, J. and Weightman, D. (trans.). Harper and Row, New York.

- Lightfoot, K. G. (1995). Culture contact studies: redefining the relationship between prehistoric and historical archaeology. *American Antiquity* **60**: 199–217.
- Lightfoot, K. G. (2005). The archaeology of colonization: California in cross-cultural perspective. In G. J. Stein (ed.), *The Archaeology of Colonial Encounters*. School of American Research Press, Santa Fe, pp. 207–236.
- Lightfoot, K. G., Martinez, A., and Schiff, A. M. (1998). Daily practice and material culture in pluralistic social settings: an archaeological study of culture change and persistence from Fort Ross, California. *American Antiquity* **63**(2): 199–222.
- Lockhart, J. and Schwartz, S. B. (1983). *Early Latin America: A History of Colonial Spanish America and Brazil*. Cambridge University Press, Cambridge.
- López de Gómara, F. (1946). *Historia General de las Indias*. Biblioteca de Autores Españoles. Atlas, Madrid.
- Loren, D. D. (2000). The intersections of colonial policy and colonial practice: creolization on the eighteenth-century Louisiana/Texas frontier. *Historical Archaeology* **34**(3): 85–98.
- Lyman, R. L. (2008). *Quantitative Paleozoology*. Cambridge University Press, Cambridge.
- Málaga Medina, A. (1974). Las reducciones en el Perú durante el gobierno del virrey Francisco de Toledo. *Historia y Cultura* (Lima) **31**: 819–842.
- Markus, D. M. (2011). “Of the House of Israel in America”: The Archeology of Judaism, Slavery, and Assimilation on the Arkansas Frontier. Master’s thesis, University of Arkansas, Fayetteville.
- McEwan, B. G. (1991). The archaeology of women in the Spanish New World. *Historical Archaeology* **25**(4): 33–41.
- Melville, E. G. K. (1994). *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Cambridge University Press, Cambridge.
- Messer, E. (1997). Three centuries of changing European tastes for the potato. In Macbeth, H. M. (ed.), *Food Preferences and Taste: Continuity and Change*. Berghahn Books, New York, pp. 101–114.
- Millones Figueroa, L. (2010). The staff of life: wheat and “Indian bread” in the New World. *Colonial Latin American Review* **19**(2): 301–322.
- Mintz, S. W. (1996). *Tasting Food, Tasting Freedom: Excursions into Eating, Power, and the Past*. Beacon Press, Boston.
- Molina, Cristóbal de. (2011). *Account of the Fables and Rites of the Incas*. Brian S. Bauer, B. S., Smith-Oka, V., and Cantarutti, G. E. (eds.). University of Texas Press, Austin.
- Montanari, M. (1999). Food systems and models of civilization. In Sonnenfeld, A., Flandrin, J. L., and Montanari, M. (eds.), *Food: A Culinary History from Antiquity to the Present*. Columbia University Press, New York, pp. 69–78.
- Mumford, J. R. (2012). *Vertical Empire: The General Resettlement of Indians in the Colonial Andes*. Duke University Press, Durham, NC.
- Newson, L. A. (1995). *Life and Death in Early Colonial Ecuador*. University of Oklahoma Press, Norman, OK.
- O’Toole, R. S. (2007). From the rivers of Guinea to the valleys of Peru: becoming a *bran* diáspora within Spanish slavery. *Social Text* **92** **25**(3): 19–36.
- Pacheco Torres, V. R., Altamirano Enciso, A. J. and Guerra Porras, E. (1986). *The Osteology of South American Camelids*. Institute of Archaeology, University of California, Los Angeles.
- Panich, L. M. (2013). Archaeologies of persistence: reconsidering the legacies of colonialism in native North America. *American Antiquity* **78**: 105–122.
- Pauketat, T. R. (2001). A new tradition in archaeology. In Pauketat, T. R. (ed.), *The Archaeology of Traditions*, University Press of Florida, Gainesville, pp. 1–16.
- Pavao-Zuckerman, B. and Loren, D. (2012). Presentation is everything: foodways, tablewares, and colonial identity at presidio Los Adaes. *International Journal of Historical Archaeology* **6**(1): 199–226.
- Pearsall, D. M. (2015). *Paleoethnobotany: A Handbook of Procedures*. 3rd ed. Left Coast Press, Walnut Creek, CA.
- Powers, W. K. and Powers, M. M. N. (1984). Metaphysical aspects of an Oglala food system. In Douglas, M. (ed.), *Food in the Social Order: Studies of Food and Festivities in Three American Communities*. Routledge, London.
- Ramírez, S. E. (1986). *Provincial Patriarchs: Land Tenure and the Economics of Power in Colonial Peru*. University of New Mexico Press, Albuquerque.
- Ramírez, S. E. (1996). *The World Upside Down: Cross-Cultural Contact and Conflict in Sixteenth-Century Peru*. Stanford University Press, Stanford.
- Ramírez-Horton, S. E. (1978). Chérepe en 1572: un análisis general del Virrey Francisco de Toledo. *Historia y Cultura* **11**: 79–121.

- Reitz, E. J. (1988). Faunal remains from Paloma, an archaic site in Peru. *American Anthropologist* **90**(2): 310–322.
- Reitz, E. J. (1992). The Spanish colonial experience and domestic animals. *Historical Archaeology* **26**(1): 84–91.
- Reitz, E. J. and Cumbaa, S. L. (1983). Diet and foodways of eighteenth-century Spanish St. Augustine. In Deagan, K. A. and Koch, J. K. (eds.), *Spanish St. Augustine: The Archaeology of a Colonial Creole Community*. Academic Press, New York, pp. 151–185.
- Reitz, E. J. and Scarry, M. C. (1985). *Reconstructing Historic Subsistence with an Example from Sixteenth-Century Spanish Florida*. Society for History Archaeology, Glassboro, NJ.
- Reitz, E. J. and Wing, E. S. (2008). *Zooarchaeology*. 2nd ed. Cambridge University Press, New York.
- de Rieros Sorapán, Juan (1876[1616]). *Medicina Española, Contendida en Proverbios Vulgares de Nuestra Lengua*. Madrid.
- Robb, J. (2007). *The Early Mediterranean Village: Agency, Material Culture, and Social Change in Neolithic Italy*. Cambridge University Press, Cambridge.
- Rodríguez-Alegría, E. (2005). Consumption and the varied ideologies of domination in colonial Mexico City. In Kepecs, S. and Alexander, R. T. (eds.), *The Postclassic to Spanish-Era Transition in Mesoamerica: Archaeological Perspectives*. University of New Mexico Press, Albuquerque, pp. 35–48.
- Rubin, M. (1991). *Corpus Christi: The Eucharist in Late Medieval Culture*. Cambridge University Press, New York.
- Ruhl, D. L. (1990). Spanish mission paleoethnobotany: an overview and some speculations for the 16th and 17th century La Florida. In Thomas, D. H. (ed.), *Columbian Consequences, Vol. 2: Archaeological and Historical Perspectives on the Spanish Borderlands East*. Smithsonian Institution Press, Washington, DC, pp. 560–580.
- Ruhl, D. L. (1997). Oranges and wheat: spanish attempts at agriculture at La Florida. *Historical Archaeology* **31**(1): 36–45.
- Saito, A. and Rosas Lauro, C. eds. (2017). *Reducciones: La Concentración Forzada de las Poblaciones Indígenas en el Virreinato del Perú*. National Museum of Ethnology and Pontificia Universidad Católica del Perú. Lima, Perú.
- Scarry, J. F. (1987). A provisional sequence for Apalachee province. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.
- Scarry, J. F. (1988). Stability and change in the Apalachee chiefdom: Centralization, decentralization, and social reproduction. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.
- Scarry, C. M. and Reitz, E. J. (1990). Herbs, fish, scum, and vermin: subsistence strategies in sixteenth-century Spanish Florida. In Thomas, D. H. (ed.), *Columbian Consequences, Vol. 2: Archaeological and Historical Perspectives on the Spanish Borderlands East*. Smithsonian Institution Press, Washington, DC, pp. 343–354.
- Scarry, C. M. and Steponaitis, V. P. (1997). Between farmstead and center: the natural and social landscape of Moundville. In Gremillion, K. J. (ed.), *People, Plants, and Landscapes: Studies in Paleoethnobotany*. University of Alabama Press, Tuscaloosa, pp. 107–122.
- Silliman, S. (2005). Culture contact or colonialism? challenges in the archaeology of native North America. *American Antiquity* **70**(1): 55–74.
- Silliman, S. (2009). Blurring for clarity: archaeology as hybrid practice. In Bikoulis, P., Lacroix, D., and Peuramaki-Brown, M. (eds.), *Postcolonial Perspectives in Archaeology. Proceedings of the 39th Annual Chacmool Conference*. Department of Anthropology and Archaeology, University of Calgary, Calgary, AB, pp. 15–25.
- Silliman, S. (2010). Indigenous traces in colonial spaces: archaeologies of ambiguity, origin, and practice. *Journal of Social Archaeology* **10**(1): 28–58.
- Silliman, S. W. (2012). Between the longue durée and the short purée: postcolonial archaeologies of indigenous history in colonial North America. In Oland, M., Hart, S. M., and Frink, L. (eds.), *Decolonizing Indigenous Histories: Exploring Prehistoric/Colonial Transitions in Archaeology*. University of Arizona Press, Tucson, pp. 113–131.
- Silverblatt, I. (2004). *Modern Inquisitions: Peru and the Colonial Origins of the Civilized World*. Duke University Press, Durham, NC.
- Smith, M. (2006). The archaeology of food preference. *American Anthropologist* **108**(3): 480–493.
- Spielmann, K. A. (1989). Colonists, hunters, and farmers: Plains-Pueblo interaction in the seventeenth century. In Thomas, D. H. (ed.), *Columbian Consequences, Vol. 1: Archaeological and Historical Perspectives on the Spanish Borderlands West*. Smithsonian Institution Press, Washington, DC, pp. 101–113.
- Stein G.J. (ed.), (2005). *The Archaeology of Colonization and the Colonization of Archaeology*, School for American Research Press, Santa Fe, NM.

- Stewart-Abernathy, L. C. and Ruff, B. L. (1989). A good man in Israel: zooarchaeology and assimilation in antebellum Washington, Arkansas. *Historical Archaeology* **23**(2): 96–112.
- Sunseri, J. U. (2017). Grazing to gravy: faunal remains and indications of Genízaro foodways on the Spanish colonial frontier of New Mexico. *International Journal of Historical Archaeology* **21**(3): 577–597.
- Super, J. C. (1988). *Food, Conquest, and Colonization in Sixteenth-Century Spanish America*. University of New Mexico Press, Albuquerque.
- de Toledo, F. (1986 [1574]). *Disposiciones Gubernativas para el Virreinato del Perú, 1569–1574*. Escuela de Estudios Hispano-Americanos, Seville, Spain.
- Twiss, K. C. (2007). We are what we eat. In Twiss, K. C. (ed.), *The Archaeology of Food and Identity*. Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 1–15.
- VanDerwarker, A. M. (2005). Field cultivation and tree management in tropical agriculture: a view from gulf coastal Mexico. *World Archaeology* **37**(2): 275–289.
- VanValkenburgh, N.P. (2012). *Building Subjects: Landscapes of Forced Resettlement in the Zaña and Chamán Valleys, Peru, 16th and 17th Centuries C.E.* Doctoral dissertation. Harvard University, Cambridge, MA.
- VanValkenburgh, N. P. (2017). Unsettling time: persistence and memory in Spanish colonial Peru. *Journal of Archaeological Method and Theory* **24**(1): 117–148.
- VanValkenburgh, P., Walker, C. P., and Strum, J. O. (2015). Gradiometer and ground-penetrating radar survey of two *reducción* settlements in the Zaña Valley, Peru. *Archaeological Prospection* **22**(2): 117–129.
- Voss, B. L. (2005). From Casta to California: social identity and the archaeology of culture contact. *American Anthropologist* **107**(3): 461–474.
- Voss, B. L. (2008). Gender, race, and labor in the archaeology of the Spanish colonial Americas. *Current Anthropology* **49**(5): 861–893.
- Watson, P. J. (1976). In pursuit of prehistoric subsistence: a comparative account of some contemporary flotation techniques. *Midcontinental Journal of Archaeology* **1**: 77–100.
- Weismantel, M. (1989). *Food, Gender, and Poverty in the Ecuadorian Andes*. University of Pennsylvania Press, Philadelphia.
- White, T. E. (1953). A method of calculating the dietary percentage of various food animals utilized by aboriginal peoples. *American Antiquity* **18**(4): 396–398.
- Wightman, A. M. (1990). *Indigenous Migration and Social Change: The Foresteros of Cuzco, 1570–1720*. Duke University Press, Durham, NC.
- Wilcox, M. V. (2009). *The Pueblo Revolt and the Mythology of Conquest: An Indigenous Archaeology of Contact*. University of California Press, Berkeley.
- Zevallos Quiñones, J. (1996). *Los Fundadores y Primeros Pobladores de Trujillo del Perú*. Fundación Alfredo Pinillos Goicochea, Trujillo.