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# The Market for Meat in Colonial Cuenca: A Seventeenth-Century Urban Faunal Assemblage from the Southern Highlands of Ecuador

ABSTRACT

Excavation of a midden in the city of Cuenca, Ecuador, revealed faunal remains from a 17th-century elite urban family residence. This faunal data, combined with archival research on the Peñas/Ruiz family, demonstrates that the family raised sheep, cattle, and pigs for sale to the urban market in Cuenca. The absence of camelid and guinea pig remains in this faunal assemblage demonstrates that Eurasian ungulates were favored meat animals at this urban, Andean colonial-elite site.

## Introduction

The introduction of Old World livestock into Latin America by 16th-century Spanish colonists was a process that varied immensely in different regions. The two most important introduced species were sheep and cattle. Cattle did well in the initial Caribbean colonies (Deagan and Reitz 1995), but in the Caribbean and tropical regions of Latin America environmental conditions were not ideal for sheep. In highland Mexico and the Andes the climate favored both cattle and sheep ranching, but major cultural differences existed between the two regions. In highland Mesoamerica no large domestic herbivores were present prior to Spanish contact. Andean South America was the only New World region where Spanish colonists encountered Native peoples who were already engaged in an economy of large-animal pastoralism, based on llamas and alpacas (Wing 1986). Andean cultural attitudes toward raising camelids (llamas and alpacas) had many differences from those of Spanish colonial herders at the time of contact (Haber 1999), but the Andean highlands were unique in combining ideal environmental conditions for Iberian-style stock raising with a Native population already involved in a pastoral economy prior to the arrival of the Spanish.

Since at least Lesley Simpson's (1952) *Exploitation of Land in Central Mexico in the Sixteenth Century*, historians of Latin America have been aware of the key role played by cattle and sheep in the conquest of the highland regions of Latin America, with herding and pastoralism changing both the environmental and political landscape of these regions at the time of the Spanish conquest. Environmental historians have demonstrated that herding and pastoralism were important parts of the highland Spanish colonial economy (Jacobsen 1986; Melville 1994). Sheep and cattle provided meat, hides, tallow, and wool, all key elements of colonial trade. Herds needed large areas of pasturage to survive, and thus large-scale ranching in the colonial period clashed with existing indigenous agricultural systems, whether in the Mesoamerican (Sluyter 1996; Chance 2003; Fournier García and Mondragón 2003) or Andean highlands (Powers 1995; Larson 1998; Stavig 2000). Over the course of the 16th and 17th centuries, many indigenous communities had their land wrested from their control, often at the hands of Spanish elites seeking to expand their livestock operations.

The result could be massive ecological and social disruption, as Elinor Melville has demonstrated in highland Mexico. Melville (1994:6–7) relies heavily on the biological idea of an "ungulate irruption," in which newly introduced ungulates expand population rapidly and reduce the height, density, and species diversity of local vegetation through grazing. This process can be worsened where human pastoralists are controlling the ungulates, in that humans will tend to hold the stock at higher densities than would occur naturally while simultaneously introducing other destabilizing forces such as deforestation, burning of landscapes, and road building (Melville 1994:9). In her study of the Mezquital Valley in Mexico, Melville (1994:19) sees this now largely desert landscape as a construct of the early colonial period, when grazing and other forces destroyed a densely populated prehispanic agricultural mosaic. In Mezquital

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this process occurred between 1530 and 1600, leaving a much more barren landscape by 1600 (Melville 1994:87–115).

For archaeologists who study Spanish colonialism, the analysis of faunal remains has been tied to wider debates about the nature of colonialism itself. Models based on George Foster's (1960) concept of acculturation were common among North American researchers (Deagan 1983; Smith 1991; Cusick 1998), while Fernando Ortiz's (1995) idea of transculturation was widely advocated by a generation of Latin American scholars (Domínguez 1978; Morresi 1983). This somewhat sterile debate has now given way to a healthy diversity of approaches to issues of identity formation, daily practice, and the negotiation of power relationships in the archaeology of Spanish colonialism (Schávelzon 2002; Deagan 2003; Funari and Zarankin 2004; Domínguez 2005; Jamieson 2005; Funari and Brittez 2006). The simple dichotomy of "Spanish" versus "Indian" in the colonial encounter is essentialist and incorrect, avoiding the great diversity of sociopolitical categories and relationships that existed in colonial contexts. Food remains from domestic contexts cannot simply be quantified to create an index of how European or indigenous a household was. Instead, it is necessary to understand how complex ideas about ethnicity and social class interacted with the availability of different foods at the local level, to create local practices in the production and consumption of faunal resources. The production and consumption of animals is a matter of taste, in which people embody the daily repercussions of the colonial encounter through their choices (Stahl 2002). It is clear from historical sources that cattle and sheep were an important focus of colonial production in the Andes, and that this production was related to the demand for the meat of such animals in the colonial marketplace. Highland regions were ideal for such production, and yet the question remains: were colonists attempting to "reproduce a European lifestyle" in their focus on raising Eurasian livestock (Rodríguez-Alegría 2005:551)?

The Spanish colonial system of animal husbandry and consumption is now fairly well understood archaeologically for the Caribbean and Florida (Reitz and Cumbaa 1983; Reitz and Scarry 1985; Reitz 1991) as well as for Argentina and the Southern Cone (Romero et al. 2002; Silveira 2003). In the Central Andes, however, the immense economic and ecological diversity of the Spanish colonies is represented by only a few archaeological studies in which faunal analysis has been undertaken (deFrance 1996, 2003; Gutiérrez Usillos and Iglesias Aliaga 1996).

## The Midden

The city of Cuenca is a UNESCO World Heritage Site at an elevation of 2,800 m in the southern Andean highlands of Ecuador. Officially founded by the Spanish in A.D. 1557, the city is built on and around the ruins of an important Inka regional center called Tomebamba (Idrovo Urigüen 2000; Jamieson 2000; Poloni Simard 2000). During the colonial period, Cuenca was part of the Audiencia de Quito, an administrative unit roughly similar to Ecuador's modern boundaries. Still a vibrant city with over a half-million inhabitants, today Cuenca is the third largest city in Ecuador. The UNESCO (1999) designation was largely based on the preservation of the colonial "townscape" in the city center, but despite these efforts, historical archaeology in the city core is still only a nascent concept for urban planners and heritage professionals in the region (Buys 1997; Carrillo 1998; Jamieson 2005). From 1990 until 2002 the Cuenca Historical Archaeology Project carried out several seasons of archaeological research focused on the colonial period in Cuenca and its environs, providing some initial forays into the potential for archaeology to contribute to knowledge of daily life in colonial Cuenca (Jamieson 2000, 2001, 2004; Castillo 2003; Nimmo 2003). One result of this project was the discovery of an intact early-colonial midden in the rear yard of what is now a pharmacy (Figure 1) immediately adjacent to the main colonial-period city plaza. Located at 9-20 Calle Bolívar (Figure 2), the midden was initially discovered through shovel tests of the rear yard of the property and confirmed with an excavation unit (1 x 1 m) in 1994 (Jamieson 2000:148–155). Ongoing archival research related to this property and the analysis of the midden materials, which revealed its 16th- or 17th-century date (Jamieson 2000:148–155), led to the excavation of another unit (2 x 2 m) in 1999 (Figure 3).

FIGURE 1. The facade of the pharmacy at 9-20 Calle Bolívar, Cuenca, Ecuador. (Photo by author, 1999.)

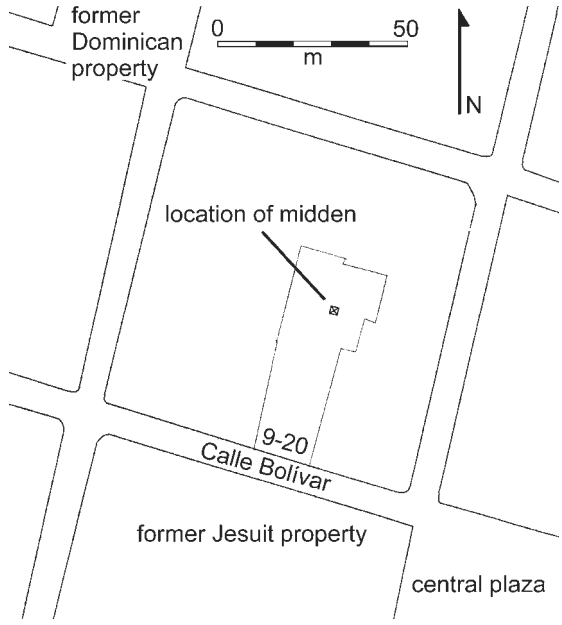


FIGURE 2. Location of the Peñas/Ruiz midden on the block northwest of the central plaza, Cuenca, Ecuador. (Drawing by author, 2006.)

FIGURE 3. Excavation of the Peñas/Ruiz midden. (Photo by author, 1999.)

Immediately adjacent to the previous unit, this excavation recovered a larger sample from the same deposit.

The context consists of dark organic soil in which distinct lenses represent repeated dumping episodes. The surrounding subsoil indicates that the location was a natural shallow arroyo, or water channel. This property was occupied from the initial founding of the city of Cuenca in 1557, and it appears that sometime over the next 100 years, the arroyo was filled with trash from the surrounding house complex. Artifacts from the midden were mostly locally made, unglazed, coarse earthenware cooking and storage vessels (Jamieson 2000:175–183); *botija* storage vessel fragments imported from Spain (Jamieson 2000:183–185); and majolica tableware, made in Panama. Majolica of the Panama Plain type from the midden has been reported on previously (Jamieson 2001:figs. 3,4) and date to the late-16th through early-17th centuries. The absence of any other chronologically diagnostic materials in the deposit, including anything postdating the 17th century, indicates that this midden was deposited between A.D. 1557 and 1650. Flotation of a 3 liter soil sample from one level of the midden resulted in the identification of a small sample of macrobotanical remains, of which the only clear species identification was for 38 fragments of wheat, either *Triticum durum* (durum wheat) or *T. aestivum* (bread wheat) (D'Andrea 2002). The most interesting aspect of the midden, however, was the dense faunal sample encountered.

## Excavated Fauna

The midden at 9-20 Calle Bolívar provides a small faunal sample from the first century of the Spanish occupation in the southern highlands of Ecuador. The feature was associated with an urban house at the time it was deposited, in a location very near the central plaza of this colonial city. It is thus not an example in any way "typical" of life in the colonial Andes but is, instead, a window on the consumption patterns of elite urban households. The context was processed through 1/4 in. mesh screen during excavation. A total of 3,235 bone fragments were recovered from the colonial midden levels, of which 744 were identifiable elements. This is not a large faunal assemblage, representing only part of a single midden from a single house, but it gives a glimpse into the foodways of urban colonial Cuenca. Analysis of the faunal sample was undertaken by Carmen Tarcan (2005), using comparative collections at Simon Fraser University. The measure of relative abundance employed was the number of identified specimens (NISP), with specimens refitted prior to identification to avoid over-counting.

The resulting distribution of identified faunal remains by taxon (Table 1) reveals that only bird and mammal remains were present in the feature. Mammal remains account for an overwhelming 98% of the assemblage. Domestic artiodactyls dominate the assemblage, with caprines (sheep and goats) by far the most abundant, followed by cattle and pigs. When identifiable, sheep were more common than goats. Deer were also found, but in smaller numbers. The presence of deer is interesting, in that it is proposed that this wild indigenous species was common in Ecuador at the time of the conquest but that overhunting and habitat destruction reduced its numbers greatly in the

TABLE 1
PEÑAS/RUIZ MIDDEN:
IDENTIFIABLE FAUNAL REMAINS

| Taxon | Common Name | NISP |
|---|---|---|
| *Anser* spp. | goose | 4 |
| *Gallus gallus domesticus* | chicken | 2 |
| Medium birds | | 8 |
| Lagomorphs | hare/rabbit | 1 |
| Small rodents | | 1 |
| *Canis* spp. | dog/wolf | 2 |
| Small carnivores | | 1 |
| Medium carnivores | | 4 |
| *Odocoileus* spp. | deer | 9 |
| *Ovis aries* | sheep | 21 |
| *Capra hircus* | goat | 3 |
| *Ovis aries/Capra hircus* | | 150 |
| *Sus scrofa* | pig | 56 |
| *Bos taurus* | cow | 98 |
| Medium artiodactyls | | 226 |
| Large artiodactyls | | 30 |
| Small mammals | | 3 |
| Medium mammals | | 58 |
| Large mammals | | 11 |
| Large ungulates | | 56 |
| Total | | 744 |

later colonial period (Gutiérrez Usillos and Iglesias Aliaga 1996:96). Hares or rabbits were recovered in small numbers. Unfortunately, these could not be distinguished as to whether they were Andean or Eurasian species. Identified birds in the midden sample were restricted to duck and chicken (Tarcan 2005).

The vast majority of recovered remains were from artiodactyls. Body-part profiles of the medium and large artiodactyl groups were undertaken, based on standardized body-part profiles. For this purpose, skeletal elements were grouped into head, neck, axial, upper and lower front limbs, upper and lower hind limbs, and feet (Stiner 1994:240,244). The distribution of body parts for the artiodactyls in the sample (Table 2) indicates that complete animals were being slaughtered in this yard and processed there. The body-part representations correlate with those found in living animals. The overall good representation of all portions suggests that the assemblage is the result of primary and secondary butchering of the artiodactyls (Tarcan 2005:13–14).

## Owners of the House

This archaeological midden can be tied to particular landowners through urban property transaction records, giving unique insight into the social context that produced the faunal sample (Figure 4). At the founding of the city of Cuenca in 1557, the property was assigned to Gonzalo de las Peñas, one of the most powerful men among Cuenca's founding citizens (González 1991:15). Rather than selling the land, as frequently happened with initial urban property grants in Spanish colonial cities, Peñas resided on the property. He died in 1579 or 1580. In 1583, Ines de Valderrama, his widow, is listed as the owner (Archivo Nacional de Historia [ANH] 1583). This prestigious location on the corner of the main plaza was within easy walking distance of all the main colonial urban institutions, including the city council building across the plaza. Sometime between this date and 1603, the property was passed down through inheritance to Gonzalo and Ines's son, Gil Ruiz de Tapia (ANH 1603). Ruiz's estate sold the property in 1651, several years after his death (ANH 1651). This prestigious corner lot in the core of Cuenca was owned by the same family from the city's founding in 1557 until 1651, a period covering the dates when the archaeological evidence indicates the midden was deposited in the rear yard of the property.

Peñas's powerful position in early Cuenca society is because of his role as a conquistador, not in the region of southern Ecuador but, rather, in New Granada or what was to become southern Colombia. Born in 1499, he came to the New World around 1529. He participated in the conquest of the Cauca River Valley, in what is now southwestern Colombia. This expedition was under the command of Sebastián de Benalcázar, who had conquered the region

TABLE 2
PEÑAS/RUIZ MIDDEN: ARTIODACTYL BODY-PART DISTRIBUTIONS

| Body Part | Medium Artiodactyls | | Standard | | Large Artiodactyls | | Standard | |
|---|---|---|---|---|---|---|---|---|
| | MNE[a] | %MNE | MNE | %MNE | MNE | %MNE | MNE | %MNE |
| Head | 27 | 18.49 | 4 | 3.38 | 8 | 9.63 | 4 | 3.17 |
| Neck | 3 | 2.05 | 2 | 1.69 | 1 | 1.20 | 2 | 1.58 |
| Axial | 20 | 13.69 | 48 | 40.67 | 23 | 27.70 | 56 | 44.44 |
| Upper front | 11 | 7.53 | 4 | 3.38 | 8 | 9.63 | 4 | 3.17 |
| Lower front | 31 | 21.23 | 18 | 15.25 | 13 | 15.66 | 18 | 14.28 |
| Upper hind | 11 | 7.53 | 2 | 1.69 | 5 | 6.02 | 2 | 1.58 |
| Lower hind | 27 | 18.49 | 16 | 13.55 | 17 | 20.48 | 16 | 12.69 |
| Foot | 16 | 10.95 | 24 | 20.33 | 8 | 9.63 | 24 | 19.04 |
| Total MNE | 146 | | 118 | | 83 | | 126 | |

[a] MNE = minimum number of elements


FIGURE 4. Property owners surrounding the excavated property in the 17th century. (Drawing by author, 2006.)

of Quito in 1534 and had then moved on to conquer what is now southwestern Colombia in 1537 and 1538, apparently looking toward a land route from Quito to the Caribbean (Avellaneda Navas 1995:196). Years later, Peñas testified to his participation in this conquest of the Cauca Valley, and witnesses confirmed his story, including the grant of a *repartimiento de indios* (rights to Native Andean labor) in Cali, Colombia. He testified that the area around the city of Cali was very hot, and he became sick there. Peñas eventually decided to give up his grant of *repartimiento* and returned to the city of Quito. It was here that in 1557 Gil Ramírez Dávalos, asked Peñas to participate with him in the task of founding the city of Cuenca in the southern highlands of the Audiencia de Quito (Archivo General de Indias 1569).

In 1557 Peñas was one of 19 founding citizens of the city of Cuenca and apparently one of the most prominent individuals involved in the enterprise. He was immediately named *alcalde ordinario* (chief councilor) by the municipal council, a post he held again in 1560, 1562, and 1564. This was the highest governmental post in the city, making him chief councilor on the city council as well as the municipal judge, able to arrest and prosecute people on matters related to municipal governance. In 1559 he was named royal treasurer of the city, and he also held various other municipal administrative positions until his death in 1579 or 1580 (Archivo Histórico Municipal, [AHM] 1557–1580). He was survived by his wife, Ines, who lived as a widow in the house from 1580 until her death around 1605 (ANH 1605).

Immediately after the death of Peñas his adult son Gil Ruiz de Tapia attained a similar level of power within the city's economy and politics. Following his father's example, Ruiz served in various municipal administrative posts, including royal treasurer of Cuenca (1588), *alcalde ordi-*

*nario* (1591), and *alguacil mayor* (chief constable of the city) from 1593 to 1597, in 1606, and from 1610 to 1613 (AHM 1588–1613). Ruiz married Eugenia Bravo, the daughter of Pedro Bravo, another city council member. Bravo and Peñas voted for each other for different offices, and Bravo served as *alcalde ordinario* in 1561 and 1566 (AHM 1561–1566), so the wedding of Ruiz to Eugenia solidified the alliance of two elite Cuenca families in their second generation in the new city. The intertwining of marriage and inheritance patterns with municipal offices and favors gives an idea of the ways in which governmental power and land-based stock-raising operations were intertwined in this time and place. Eugenia died before 1639 (ANH 1639), and Ruiz remained in the house on the corner of the plaza until his own death in 1644, when the house was sold outside the family (ANH 1644).

From its founding in 1557, Cuenca was an important agricultural hub, with meat, hides, tallow, cheese, and preserved hams all being important products. Live animals were sold to Quito, Riobamba, and south into the Viceroyalty of Peru (Chacón Zhapán 1990:127). From the 16th century onward in Cuenca, artisans were active in manufacturing items from hides, including hide workers, saddle makers, furniture makers, and shoemakers (Paniagua Pérez and Truhan 2003:425–460).

Peñas's and Ruiz's ongoing roles in municipal government in Cuenca were an advantage to their ranching interests. The *cabildo* controlled many aspects of the trade in livestock and animal products. A municipal butcher shop was set up in the city center, with prices and weights controlled by a city inspector (Chacón Zhapán 1990:128). Within the first few years of its founding, the city created a municipal slaughterhouse on the road to Quito, one musket-shot length outside the city (Chacón Zhapán 1990:124). By the 1590s, a number of the hide workers had located their shops in the lower part of the Tomebamba River, adjacent to the slaughterhouse (Paniagua Pérez and Truhan 2003:428). With such production came problems in urban regulation of animal nuisances. In the same year that the city was founded, there were complaints to the city council that pigs were wandering freely in the city streets (Chacón Zhapán 1990:123). In 1559 there were complaints that the number of cattle crossing the city's bridges was doing damage to them (Chacón Zhapán 1990:123).

In the New World colonies, unlike Spain, the municipal city councils took direct governance of issues surrounding livestock without the creation of municipal *mestas* (livestock associations) in most cities (Bishko 1952:505). This was the case in Cuenca, where the city council began recording official brand marks for branding animals in 1559 (Chacón Zhapán 1990:124). In 1560 Peñas was one of the first citizens of the city to be awarded such a brand (AHM 1650).

Urban elites in the Spanish colonies, such as the Peñas/Ruiz family, often invested heavily in livestock and urged municipalities to give them *mercedes* (land grants) for grazing their herds. The first generation of Spanish colonists was eager to solidify their power base in the colony. The acquisition of land and the running of livestock on that land were traditionally very Iberian ways of demonstrating power within the wider society. These families had to make decisions about investing in particular species of livestock. It seems that these choices had surprisingly little to do with the regional livestock traditions of the places that elite colonists came from in Spain. Instead, these choices appear to have had much more to do with a quick, and flexible, adaptation to stock that did better in particular ecological zones surrounding the colonial cities of the New World (Butzer 1988:45). There was also an important, and complex, relationship between local rural indigenous peoples, their landholding in the early colonial period, and the focus of urban elites on particular types of livestock. Peñas and Ruiz were good examples of this, demonstrating the ways in which wealthy urban families in the colonial Andes were heavily tied to the rural economy, particularly in stock raising.

Peñas created an integrated rural and urban set of properties in his first decade in Cuenca (Figure 4). He was awarded 30 *hanegadas* (a surface measurement equivalent to 831 sq. m.) of land in the region of Hatun Cañar in 1561 and a piece of land on the riverside in Cuenca to build a grist mill in 1563 (AHM 1561, 1563; Chacón Zhapán 1990:124). He formed a company with Hernando Marques, a *curtidor* (hide tanner), to cut and tan hides. Peñas put up a

piece of land and an enslaved African named Dominguilla as his contributions to the operation, while Marques appears to have been the one actually in charge of the tanning operation, which was located outside of the city center in a neighborhood called the *depósitos* (ANH 1563, 1636). His stock-raising operation must have been fairly large, as shown in a 1565 document for the sale of 1,234 sheep to a market retailer (ANH 1565).

The rural prominence of this elite family continued after Peñas's death. His son Ruiz began to successfully petition for agricultural *mercedes* from the Cuenca city council in the same year that his father died. in 1580, Ruiz received 58 *cuadras* (about 58 hectares) east of Cuenca, between Santa Ana Pichacay and San Juan Paiguara, but this grant proved untenable because "the land belonged to Indians," and so the council granted him an equal amount of land in Ludo, on the Bolo River, in 1586. He was granted another 58-*cuadra* property in 1584 in an unknown location (AHM 1580–1586). When he died in 1644, Ruiz left behind the Cañar ranch with 600 or 700 head of cattle, as well as a mule breeding property with more than 200 head of mules, presumably on the Ludo property (ANH 1644, 1645, 1653).

The scale of the family livestock operations is evident from a 1650 lawsuit (ANH 1650a), brought by Geronimo Muñoz who demanded compensation from the estate of the deceased Ruiz for six years of service to him. Muñoz claimed that around the year 1610 he had served for two years in the slaughterhouse of Ruiz and that he had extensive herding duties, moving livestock for the family between properties. His testimony greatly expands knowledge of the size of the family's rural property holdings. Muñoz claimed to have made two trips to the Ruiz property in Yaguachi to bring back 550 head of cattle, one trip to the Ruiz pig farm in Quingeo, and one to Bolo to the mule breeding area. At the Ruiz Cañaribamba property, Muñoz counted and branded 2,000 head of cattle, which took three or four months. He then transported 30 mules from Cañaribamba to the town of Alausi for sale. Two old letters are included in the court documents for the case. The first is a 1610 sale document in which Alonso Benito of Cuenca sold Ruiz 300 cattle, all between two and four years old, located on a property near Guayaquil (ANH 1650b). The second was a 1610 letter from Martin de Ocampo, a *corregidor* (city councilor) in Cuenca, demanding that the mayor of the village of Yocón provide three Native Andean laborers to guard some cattle for Ruiz (ANH 1650c). Ruiz's nephew, Lucas de Ortega, responded to Muñoz's claims in court, stating that Muñoz was a poor man who came to Ruiz's house and was given food and lodging. He later worked for the family and married one of the servants in the household. Muñoz was given property and livestock by the family at the time of the marriage, and Ortega claimed that the estate owed Muñoz nothing further. The judge rejected Muñoz's claim, stating that without solid written evidence of any unpaid obligations, Muñoz had no rights to further compensation. This is the end of the file, and, presumably, the suit was dropped.

## Environmental Degradation

Livestock operations such as those of Peñas were part of a profound change in the environment of the Ecuadorian Andes in the century following the Spanish conquest. The presence of camelids in Ecuador appears to have steeply declined during the colonial period, to the point of almost disappearing, as was the case in many parts of the Andes (Wheeler et al. 1995; Stahl 2003:471). The end of Inka herd management at the conquest and the very quick adoption of Eurasian ungulates by local populations may be causal factors in this swift transition. By the 1570s, 40 years after the conquest, it would seem that camelids were still common herd animals in some indigenous communities in the region but were absent in many communities (Borchart de Moreno 1995:157). Today in Ecuador there may be fewer than 2,000 llamas, and alpacas have only recently been reintroduced (Stahl 2003:471). This situation is very different from that of the guinea pig, a prehispanic domestic meat animal that is still common in Ecuadorian indigenous households, having apparently been an important staple throughout the colonial period (Stahl 2003:471).

Camelids were quickly replaced with Eurasian sheep on much of the Ecuadorian colonial landscape. Sheep were introduced with the initial conquest of the region and soon became

a huge industry, both in woolen textiles and meat, in the northern and central highlands of the country (Tyrer 1988; Soasti 1994; Borchart de Moreno 1995, 1998). This, of course, mirrors the early modern economy in Spain, where Mesta, the livestock owners association, dominated an agricultural economy in which sheep and, to a lesser extent, cattle were lynchpins (Klein 1920; Phillips and Phillips 1997). Wool production did not, however, dominate the landscape of 16th- and 17th-century Cuenca, where regional herding was based on a mixed economy of cattle, sheep, and pigs (Chacón Zhapán 1990). Although dating to the 18th century and much later than the Peñas/Ruiz operation, the records of the Jesuit order in the Audiencia de Quito are one indication of this. The large Jesuit ranching facilities surrounding Cuenca in the 1760s reported herds consisting of 2,257 cattle, 1,318 sheep, and 292 mules. These numbers contrast sharply with other Jesuit operations in the central and northern parts of the Audiencia de Quito, where sheep massively dominated the Jesuit ranching operations and were reported in numbers far higher than cattle or other animals (Cushner 1982:190).

What effect did Spanish colonization have in the 16th-century Andes, when families such as the Peñas family introduced large-scale stock raising throughout many rural zones? The introduction of large numbers of herd animals probably had severe environmental consequences, while at the same time causing a massive 16th- and 17th-century change in colonial Andean land tenure, in which Native Andean communities remained essential parts of the colonial economy but fought long and bitter battles, both legal and social, over the loss of rights to many of their traditionally held lands (Powers 1995; Stavig 2000). The decline in rural indigenous populations would also change the landscape, as irrigation systems and other agricultural maintenance fell into disuse. In the Cuenca area, Native Andean populations declined massively due to disease (Newson 1995:226–236) and out-migration to avoid heavy labor taxes and intimidation (Powers 1995:37–38). This dynamic combined with elite urban Spaniards' expansion of stock raising throughout the zone to create both environmental and social devastation.

Spanish colonial law was an important part of this process. In general, colonial regulations gave rights to pastoralists to graze on any uncultivated lands, including on the stubble of other people's crops. The laws divided land into cultivated plots, held either by traditional cultivation of the plot or by legal right to it, and rangeland, which defined any land not being used for cultivation. The strong legal basis for moving grazing animals into uncultivated land came from the long medieval Christian Reconquista of the Iberian Peninsula from the Moors (Butzer 1988:43–45). In Spain, all parties were generally local agriculturalists, but in the New World these laws tended to favor Spanish ranchers' incursions into indigenous agricultural smallholdings (Melville 1994:116–120). This battle was fought through the basis of *mercedes,* or municipally controlled land grants to pastoralists (Melville 1994:124). It is just these types of land grants that Peñas and Ruiz were adept at getting through their privileged positions on the Cuenca city council from the 1550s to 1640s. The *mercedes* were only one way in which elite urban people maintained control over Native Andean participation in stock raising. Early Cuenca *cabildo* books record an ongoing dispute over the use of branding by Native Andeans. The *cabildo* made ongoing attempts in the 1560s to 1610s to control the use of brands by Native peoples, demanding that local indigenous leaders give up brands they had created and that they, instead, be held either by the Cuenca city council or, for more distant villages, by a local Spaniard or the town priest (Chacón Zhapán 1990:125–126).

The removal of land from Native Andean control and its distribution to large-scale private ranching interests created environmental devastation. There was little contemporary recognition that such practices might be destroying the landscape surrounding the city, although in the 1690s the Cuenca city council did pass a regulation that *ganado menor* (sheep, goats and pigs) could not be pastured in the same field as *ganado mayor* (cattle) because of the damage to the pasture land that this practice caused (Chacón Zhapán 1990:130). In the highlands of the 16th-century Audiencia de Quito (now Ecuador), it would seem that a difficult environmental situation took hold. Spanish elite *encomenderos* took up large land grants, reducing land available to Native Andean rural inhabitants. The movement of Native Andeans in search of agricultural land led to deforestation, slash-and-burn agricultural

practices, and large-scale herding of animals in areas not previously exposed to these practices. The erosion of highland areas and reduction in pasture, agricultural land, and forests were recognized by colonial administrations, but there seem to have been few effective attempts to manage land use in the colony (Powers 2000). The *cangahua* or hardened volcanic subsoils of the Ecuadorian Andes are a particularly susceptible geology for degradation by ungulates. Experimental work has shown that once topsoils have eroded, no reasonable amount of manure or crop waste tillage can reconstitute the soils for good agricultural production. These denuded subsoil zones have become permanent scars on the highland Ecuadorian landscape, many of them dating to the early colonial period (Podwojewski and Germain 2005).

## Spanish Colonial Faunal Samples

The faunal sample from the Cuenca midden is the end product of an elite private livestock operation and is thus very different from many other Spanish colonial faunal samples in the published literature. The introduction of Old World fauna to Latin America by Spanish colonists was heavily dependent on a series of environmental variables. Sheep were a key resource in stock raising in Spain but do not thrive in tropical climates (Reitz 1992:85), creating a strong contrast between the Caribbean and Florida where Spanish colonial assemblages tend to show almost a complete absence of sheep, as compared to highland Mexico and the Andes where sheep were a key colonial resource (Dusenberry 1963; Jacobsen 1986; Salvucci 1987; Escobari de Querejazu 1995; Miño Grijalva 1998).

In 16th-century St. Augustine, Florida, the faunal samples show colonists consuming a diet dominated by estuarine fish and small game available locally, only supplemented by Old World domesticates. Attributed to the local environment, which was swampy, tropical, and had poor grassland, this situation was not ideal for Spanish stock raising (Reitz and Scarry 1985; Reitz 1992). This pattern is repeated in 17th-century faunal samples from Spanish missions in La Florida that showed extensive use of local wild resources and only limited consumption of livestock at most of the missions (Reitz 1991).

In the Caribbean, research on Hispaniola has revealed a much heavier reliance on pigs and cattle by Spanish colonists than in Florida. These domesticates did well in this hot but dry climate. Fish and turtles were also significant dietary components in 16th-century Hispaniola, which is logical given the easy access to marine resources (Reitz 1992).

The Caribbean archaeological context that is perhaps most comparable to the Cuenca midden is a household from 16th-century Puerto Real, Hispaniola, known as Locus 39. This location had a faunal sample overwhelmingly made up of small fragments of cattle bone and is thought to have been a location where commercial processing of cattle for hides, meat, and tallow took place (Reitz 1986). Both Locus 39 and the Cuenca midden are examples of Spanish colonial domestic contexts in which a commercial level of meat and animal byproduct processing was taking place. In the case of Cuenca, this assemblage was dominated by primary processing of caprines, cattle and pigs, with all body elements represented; while in Locus 39, the economy was much more focused on beef and cattle byproducts, particularly hides for export. The distribution of cattle elements at Locus 39 also showed a below-average distribution of cranial and phalange elements, in contrast to the Cuenca sample, indicating that primary killing and processing of the cattle took place in another location (Deagan and Reitz 1995:278).

In Mexico City, elite households in the colonial urban core have revealed a diet that included mollusks, armadillo, and deer as well as Eurasian ungulates (Montúfar López and Valentín Maldonado 1998; Rodríguez-Alegría 2005:557).

In the foothills of the Argentinean Andes, the city of Mendoza has provided a sample of colonial-period domestic faunal remains in which cattle and sheep are well represented, but fish are also common, and camelids are present (Romero et al. 2002). At the Jesuit Guaraní mission of Itapúa, on the Parana River, a 17th-century shallow midden was dominated by cattle remains with a small sample of caprines. The lack of fish, in particular, was noted from this site that was directly on a good fishing river (Silveira 2002).

The Rio de la Plata region of Argentina and Uruguay is environmentally very different from the Andes, but it is a temperate climate where Eurasian ungulates do well. At the Colonia del Sacramento in Uruguay, an urban colonial household sample was dominated by cattle and sheep but showed a large number of fish and bird remains as well as small samples of deer, pig, and guinea pig (*Cavia aperea)* (Pintos Blanco 1996).

The city of Buenos Aires has had the most extensive analysis of faunal remains from colonial sites in urban South America. Seventeenth-century domestic trash from both the Museo Etnográfico and Coni Press sites show an overwhelming dominance of cattle and sheep remains (Silveira 1995:48; Schávelzon 2000:135). Trash dumped in the second half of the 18th century in a latrine at the Santa Catalina Convent revealed that these cloistered nuns had a diet heavily emphasizing chicken, duck, and turkey, which may have been bred within the convent walls, although beef and mutton were well represented. There were also wild birds (tinamou and dove) and a considerable number of fish bones (Silveira 2003). A similar range of species were consumed by Dominican monks, evident from analysis of a 1790–1823 trash midden from their Buenos Aires monastery. Sheep and cattle are present, but a very large number of fish, along with a lot of chicken, several species of wild tinamous, armadillos, and domestic ducks, geese, and turkeys suggest that religious communities in late colonial Buenos Aires had much less emphasis on red meat in their diet than seen in elite houses and more emphasis on birds and fish (Silveira and Lanza 1998). The question is whether this diverse diet is due to religious adherence to a large number of days when red meat was prohibited or whether it was an economic decision based on the high cost of red meat in feeding the members of religious orders (Silveira and Lanza 1998:543–544).

The excavation of 19th-century elite houses in Buenos Aires shows that in the 1830s to 1870s, beef and mutton dominated the elite urban diet, with chicken, goose, and turkey as supplementary items (Silveira 1996; Silveira and Lanza 1999; Schávelzon 2000:136). This contrasted with late-19th-century remains from the Peña House, after it had been divided into lower-class tenements, which showed much more emphasis on turkey, guinea pig, duck, geese, vizcacha, and pig (Silveira 1996; Schávelzon 2000:136).

The colonial wine production facilities of the Moquegua Valley, Peru, provide another important comparative data set (Rice 1996; Smith 1997). These facilitites are 1,800 km southeast of Cuenca in a rural coastal valley of Peru. Here camelids formed the most important food source in the 16th century (by MNI), with much of the remaining animal protein coming from (in order): caprines, then cattle, and then pigs. For the period from 1600 to 1775, this ratio shifted, with caprines becoming the largest contributor (by MNI) to the animal protein consumed at the wineries, then cattle, camelids, pigs, and guinea pigs, in that order (deFrance 1996:table 7). Contrary to an image of camelids having been largely extinguished from the colonial landscape, faunal data from the Moquegua wineries show an ongoing, although declining, presence of camelids from the 16th through the 19th centuries, apparently indicating their continued use as beasts of burden for the wineries, integrated with their use as a source of meat (deFrance 1996:44).

At Tarapaya, an elite rural residence and inn outside Potosí, Bolivia, all food was imported from lower elevations during the Spanish colonial mining boom. Excavations at Tarapaya have revealed that caprines (sheep/goat) were the most important food source, followed by cattle, Andean camelids, and pigs. Chickens and a wide variety of fish also contributed to the diet (deFrance 2003). The presence of camelids at Tarapaya, although not overwhelming, provides a contrast to the Cuenca midden. This may be because camelids were still commonly raised in Bolivia and southern Peru and had become very rare in Ecuador during the colonial period. It may also be due to the nature of the Cuenca deposit as an urban butchering site.

In highland Peru, the colonial village of Torata Alta (Van Buren 1993) provides an excellent contrast to the faunal profile in the city of Cuenca. Occupied from the mid-16th to mid-17th centuries, Torata Alta was a small *reducción* village, inhabited by Native Andean peoples. It is, thus far, the only excavation of rural Andean colonial households in which the recovered faunal sample has been analyzed. This analysis has revealed that camelids were the most common domestic mammal in the diet

(by MNI), with caprines, guinea pigs, and pigs also present (deFrance 1996:40). A variety of wild resources, including imported marine fish and shellfish, demonstrate the diversity of this Andean Native village diet in the 16th and 17th centuries (deFrance 1996:38–39). In the Puna de Atacama high-desert region of northeast Argentina, the site of Tebenquiche Chico provides an interesting comparative sample. This camelid pastoral village at 3,500 m was occupied from A.D. 350 until the mid-18th century, demonstrating continuity in camelid herding in the region well into the colonial period (Haber 1999). The dominance of camelids in the diet at these rural sites and the absence of cattle is a strong difference from the urban Cuenca materials.

The closest comparable samples to Cuenca, both geographically and culturally, are those of the San Francisco and Santo Domingo monasteries in Quito, Ecuador, 300 km north of Cuenca. In these colonial urban monasteries, located in the capital of the colonial Audiencia de Quito, the three most common species (by NISP) recovered during excavations were caprine, cattle, and pig, in that order. The fourth most common was chicken, which was more prevalent in Quito monasteries (6% and 9% of NISP), than in the Cuenca midden (Gutiérrez Usillos and Iglesias Aliaga 1996:84). The larger proportion of chicken and the presence of turkey (1.2% of Santo Domingo Monastery NISP) are likely due to the nature of these deposits, which represent the end result of food consumption by the monasteries' inhabitants, rather than a commercial butchering operation as seen in the Cuenca midden. Llama is present in the San Francisco sample (1.8% of NISP) but is associated with Native Andean burial offerings rather than with food consumption in the monastery (Gutiérrez Usillos and Iglesias Aliaga 1996:87). Deer are present in very small numbers (1.1% and 0.2% of NISP) in the monasteries and are thought by the excavators to be largely from early colonial contexts (Gutiérrez Usillos and Iglesias Aliaga 1996:96).

## Conclusions

Susan deFrance (1996:45) has called for further data on Andean colonial faunal remains, particularly from elite urban contexts, to compare with an emerging range of data from rural sites. The Cuenca materials provide a small window on the diet of elite urban Andeans, showing a complete rejection of camelids and guinea pig and a dominance of caprines and cattle. This seems in no way surprising, given the 16th- and 17th-century dietary and cultural ideals of Andean urban elite people like Ruiz. Far from demonstrating the end of consumption of Native Andean domesticates in the region during the 16th century, however, this sample confirms the diversity of dietary choices and cultural norms present in the colonial Andean faunal record. Dietary choices are about the availability of particular foods in particular environments but are also about the symbolism of these foods in the daily practices of a variety of colonial individuals. A comparison to other Spanish colonial faunal samples raises a series of intriguing questions. Deer appear to form a minor but steady component of elite urban colonial domestic assemblages in Mesoamerica and South America, to the exclusion of other wild species that could have been hunted. Is this because of the association of hunting these animals with the nobility in Europe? The absence of camelids and guinea pig, on the other hand, appears to be a rejection of Native Andean domesticates by the colonial elite in urban settings. This seems different, somehow, from the absence of particular Eurasian domesticates, like pigs, chickens, other fowl, fish, and goats. These are present at sites like the Santa Catalina Convent in Buenos Aires, suggesting that such items may have had associations with poverty and lack of access to high-status beef and mutton in the minds of urban elites.

As members of the early colonial Andean urban elite, the Peñas/Ruiz family participated actively in urban life and urban government, but the family's economic base came from rural livestock operations. A Spanish colonial city like Cuenca was supplied from its local hinterland, and the control and acquisition of the land and labor of Native Andean peoples in the region were key factors in maintaining such urban elite families. This is a fact that Gonzalo de las Peñas and his descendants understood very well and demonstrated through their dietary choices.

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