Porcine Empires: An Environmental History of Pigs in the Spanish Colonization of the New World, 1493-1800

by

KC O’Hara
Class of 2019

A thesis submitted to the
faculty of Wesleyan University
in partial fulfillment of the requirements for the
Degree of Bachelor of Arts
and with Departmental Honors in History

Middletown, Connecticut April, 2019
# TABLE OF CONTENTS

**ACKNOWLEDGEMENTS**  
2

**INTRODUCTION: FOLLOWING THE PIGS**  
3

**CHAPTER 1: IBERIAN ATLANTIC ORIGINS**  
23  
The Geopolitical Context of the Iberian Peninsula  
24  
Pigs on the Peninsula  
28  
The Iberian Pig  
32  
Life on *La Dehesa*  
36  
Creating Landscapes: The Case of Trujillo’s *Dehesa*  
42  
An Inter-Atlantic Paradigm: The Role of the Canaries  
45  
Pigs in the Canaries  
50  
The Spanish in the Atlantic  
52  
The Benefits of a Similar Socio-ecological Niche  
54  
Chapter Conclusions  
55

**CHAPTER 2: NEW BEGINNINGS FOR AN OLD WORLD SPECIES**  
57  
Part I:  
A New Arrival  
60  
The “Seeding of Swine”  
61  
Free and Feral: New World Transformations  
65  
Shifting Practices  
71  
Cultivation of Conquest  
74  
The Herds of Hernán Cortés  
75  
The Pizarros, Pigs, and Peru  
78  
Hernando de Soto’s Swine  
80  
Part II:  
Consequences of Conquest  
83  
Pigs and Pathogens  
83  
Pork in the Construction of New Colonial Identities  
88  
Pigs within the Emerging Colonial Society  
92  
Porcine Commodities  
99  
Chapter Conclusions  
102

**CHAPTER 3: FIVE LESSONS**  
108  
Indigenous Cultivation  
111  
Heartbreak on Hispaniola  
111  
The Culhuas’ Commitment  
117  
Change in the Chancay Valley  
123  
Resistance to the Cultivation of Pigs  
132  
Problems for the Puruhá  
133  
Separation in Sonora  
140  
Chapter Conclusions  
157

**EPILOGUE: PORCINE FUTURES**  
159

**BIBLIOGRAPHY**  
162
ACKNOWLEDGEMENTS

Choosing to trace the first eight pigs and their descendants across the Atlantic Ocean has been far more rewarding than I could have ever imagined. Seeing as 2019 is the year of the Pig, the timing of this thesis seems a little too perfect to be just a coincidence – but that’s what made it all the more exciting.

To Professor Erickson. This thesis would not have been possible without your help every step along the way. Thank you for helping me expand upon my ideas and arguments. You helped me become a better environmental historian.

To Professor López Fadul. Thank you for being an amazing resource during this entire process. Your “Colonial Latin America” course was crucially important in completing this thesis. Thank you for inspiring me this year. The Wesleyan community desperately needs more people like you.

To Professor Greene. You were the first history professor I had at Wesleyan. It was through your “Modern Europe” course freshmen year that I rediscovered my love of history. Thank you for always being someone I could go to.

To my wonderful friends: Sophia, Abby, Chloé, Christianne, Juanita, Linda, Delila, and Sam. The last four years have been arduous to say the least, but your humor, compassion, and friendship has made all the difference.

To Wesleyan. I never thought that I would be able to get to this point, but through writing this thesis I realized that while you may not have been what I wanted, perhaps you were what I needed.

To my wonderful sisters. Your unwavering support and belief in me day after day brings me to tears. Rachel, Kate, Dylan, Rhone, Duun, and Teagan. You are my heart and soul, my sun and sky, my confidants and my eternal protectors. You have always loved me and lifted my spirit even on days when I thought I didn’t deserve it. You are my herd through and through. And I’ll ride to the ends of the universe for my herd.

Last but certainly never least, to my parents. Mom, Dad, you are my swineherds. You have guided me through the most troublesome thickets and over the steepest mountains. Even at times when I didn’t want to or was unable to listen, you never gave up on me. My name, KC, or Keith Cocozza, proudly honors both of your legacies and ancestries and I wouldn’t have it any other way. I know I wasn’t listening four years ago, but now I understand what you told me when you said I was destined to live the life of a scholar. I am a continuation of your love. I am a continuation of your dream.

Sigue siendo.
INTRODUCTION

FOLLOWING THE PIGS

“To get a more complete story of the early American environment and the humans that lived within it, scholars could do worse than to follow the pigs.” – Peter C. Mancall

On Saturday morning, October 5, 1493, after nearly two weeks of following the trade winds along the southwestward-flowing Canary Current off the northern-most tip of the African continent, seventeen Spanish ships under the command of Christopher Columbus anchored in the cool waters off of Gomera Island (La Gomera).1 In the meantime, while anchored in the port of San Sebastián until October 7th, Columbus had purchased eight red and black pigs for only 70 maravedí-a-head from the southeastern region of the island.2 With their hooves clicking upon the wooden oak planks as they sauntered aboard the carracks, these eight swine would become the first Old World domesticated pigs (Sus scrofa domestica) to touch the soils of the New World.3 Six months prior, Columbus had returned to Spain from the New World to report to King Ferdinand of Aragon and Queen Isabel of Castile the lands he and his men had settled upon in the previous year of 1492. While surveying the foreign landscapes, Columbus remarked on the stark absence of domesticated livestock such as sheep and goats on the islands of the Caribbean.4 After Columbus returned from his first expedition, the

2 De las Casas, Historia de Indias, 366.
3 Ibid., 366.
4 Cristóbal Colón, Diario de a Bordo (Primer Viaje) (Barcelona: Centro Español de Derechos Reprográficos, 2019), 34.
monarchs of Spain sent the Genoese explorer back on a second voyage in order to establish a permanent colony. Before returning to the New World for the second time in 1493, Columbus prioritized outfitting his ships with seeds and an assortment of domesticated livestock that included pigs in the hopes of introducing familiar Old World plants and animals to the Americas.5

The story of the Spanish conquest of the New World has become one of the most familiar, and arguably most mythologized subjects in the discipline of history.6 According to historians John Lockhart and Stewart Schwartz’s historiographical and analytical summaries of the subfield, the major themes present throughout the historical scholarship of colonial Latin America has focused primarily on themes of conquest and colonization, indigenous cultures, societal caste systems, the institution of slavery, ecclesiastical structures and life, warfare, urban spaces, mercantile trade, mono-agriculture and plantations, geopolitical events, and governmental structures.7 While these themes have remained significant in the field, Latin American history has much to gain by incorporating the methodologies and objectives used within animal studies and environmental history.

The historian Peter C. Mancall argues that through focusing on the role of pigs within the early modern Atlantic world, one can get “a more complete story of the early American environment and the humans that lived within it.”8 Non-human animals were

---

5 De las Casas, Historia de Indias, 366.
a fundamental component of the Columbian Exchange, which was defined by the unprecedented hemispheric transference of flora, fauna, microbes, humans, and cultures that forever altered lives and landscapes on both sides of the Atlantic. Since the domesticated pig (*Sus scrofa domestica*) was one of the first and most significant species to be introduced to the New World, it is imperative to center the role of pigs in the Spanish conquest and throughout the evolution of Spanish colonial society. Thus, in order to dive into an environmental history of the pig in the New World, it is important to acknowledge the historiographical legacies and theoretical underpinnings that this study seeks to argue against, draw from, and contribute to.

**Ecological Imperialism**

A study of the environmental history of the pig in the New World requires building on the legacies of various historiographies that have greatly contributed to the field of environmental history and the study of the Atlantic world. The most influential include Alfred W. Crosby’s *The Columbian Exchange: Biological and Cultural Consequences of 1492*, Jared Diamond’s *Guns, Germs, and Steel: The Fates of Human Societies*, and John Robert McNeill’s *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914*. The environmental histories of Crosby, Diamond, and McNeil seek to analyze European colonization through ecological frameworks. In order to complete this task, Crosby, Diamond, and McNeil foreground the relationship

---

between biology, ecology, and technology in order to “naturalize” the history of conquest and colonization.

Reframing the conquest through a biological and ecological lens can offer a more holistic picture of European colonization. In *Mosquito Empires*, John Robert McNeill deploys an epidemiological lens in order to center diseases, such as yellow fever and malaria, as powerful forces governing the colonization of the Caribbean unfolded. For McNeil, the ecological and biological dynamics of the Caribbean altered the ways in which European colonization took place. McNeil’s framework is important in understanding the interplay between tropical diseases, human settlement, and the formation of societies. In a similar vein, Crosby’s *Columbian Exchange* and Diamond’s *Guns, Germs, and Steel* center biology, ecology, and technology in order to inform the political histories of conquest. Crosby’s concept of the “virgin soil epidemic,” or the idea that the demographic collapse of New World human populations was due to their biological isolation from Old World microbes, views the Spanish conquest through an almost purely epidemiological lens. Similarly, Diamond builds on Crosby’s analysis by arguing that the Europeans succeeded not only because of the “biological advantages” they brought to bear but also through Old World technologies as well. But when considering the socio-ecological niche of pigs in the New World, one cannot solely analyze this relationship through an epidemiological or scientific lens. As will be seen in this study, an epidemiological picture of pigs is too one-dimensional, and overlooks their variety of interactions they had with different groups of people in colonial Latin America. Pigs were not simply creatures who grew and infected the world around them.
Indeed, these environmental histories of empire and the Columbian Exchange tend to view the proliferation of pigs similarly to the spread of viruses, emphasizing the pig’s ability to procreate faster than all other large domesticated mammals and their unparalleled ability to quickly adapt. In describing pigs in the New World, Crosby writes, “this Spanish swine thrived in wet, tropical lowlands and dry mountains alike, and reproduced with rapidity that delighted the pork-hungry Iberians.”\textsuperscript{10} He continues by noting that pigs “were so self-sufficient and prolific once ashore that many of the earlier explorers took them along as deck cargo and deposited them on islands to multiply and provide food for future visitors.”\textsuperscript{11} Similarly, in Crosby’s \textit{Ecological Imperialism: The Biological Expansion of Europe, 900-1900}, he refers to pigs as “one of the ‘weediest’ of all the large domesticated animals.”\textsuperscript{12} However, while the pig’s introduction into New World environments was aided by its omnivorous diet and fertility, the construction of the pig’s socio-ecological niche within the different regions of the Americas cannot simply be equated with the proliferation of microbes or weeds.

The ecological and biological perspective found in the works of Crosby, Diamond, and McNeil are crucial in thinking about an environmental history of the pig within the Spanish conquest. However, while Crosby, Diamond, and McNeill position their environmental histories of empire as correcting older historiographies that neglect the biological and epidemiological aspects of the conquest, their work paints a narrow picture of the complexity and diversity of human-pig interactions. An examination of the intimate human-animal relationship between pigs and various peoples throughout

\textsuperscript{10} Crosby, \textit{The Columbian Exchange}, 78.
\textsuperscript{11} Ibid., 78.
colonial Spanish society demonstrates that since 1493, the negotiation, transformation, and maintenance of the Spanish empire was in part influenced by the creation of the various socio-ecological niches of the pig.

**Latin American Environmental History**

As mentioned earlier, the historiography of Latin America has only relatively recently begun to incorporate the perspective of environmental history. As an example of such work, Shawn William Miller’s *An Environmental History of Latin America* follows the historiographical traditions of Latin America that have been conventionally centered on colonialism, conservation, and capitalism. An Environmental History of Latin America moves between local, national, and global levels in order to look at the growth of commodity exports, human interactions with the environment, and the formation of environmental knowledge. Miller seeks to understand anthropogenic change on a systematic level, working to show how the New World was a heavily managed landscape before the Spanish arrived and how human knowledge and practices were important in the gradual changes that occurred over time.

However, when discussing the “biological conquest” or the introduction of livestock such as pigs to the New World, Miller uses a scientific and epidemiological lens similar to that of Crosby when he argues, “livestock and weeds experienced a history that in some ways parallels that of the invading microbes.” Miller’s choice in grouping livestock with weed and microbes negates the presence of human

---

intervention, including the active cultivation of pigs throughout the colonization of the New World. Comparing pigs to the rapid self-propagation of microbes or weeds neglects the constant cultivation and collaboration by humans in every stage of the pig’s introduction.

With Miller’s work in mind, it is prudent to heed the words of historian Mark Carey who asserts that the theoretical framework of Latin American environmental history has largely been constrained by its central focus on colonialism (such as Crosby, McNeil, and Miller), capitalism, and conservation. While the resulting narratives of environmental and social devastation, natural resource extraction, and exploitation are significant, Carey calls for a broadening of the field to both help in the reconceptualization of the natural world and the integration of environmental history into the historiography of Latin America. In proposing a more holistic understanding between humans’ interactions with Latin American environments, Carey asks a crucial question: “aren't there other ways humans interact with environments besides deforesting them, eroding them, polluting them, destroying them, or, on occasion, saving them?” In arguing against Miller’s focus on the negative changes wrought by empire on Latin American landscapes, Carey asserts that this kind of exclusive emphasis on environmental crisis depicts “landscapes as only degraded (instead of created),” overlooking the historical processes that shape human-environment interactions. By focusing on degradation, these histories implicitly conceptualize a baseline “natural” and pristine landscape in the New World that never existed. While

---

15 Ibid., 222.
16 Ibid., 222.
this thesis covers the colonial history of the pig’s introduction to the New World, the
next three chapters draw on the questions posed by Carey by investigating the
relationship between human knowledge, culture, social relations, and the environment
in the constant creation of new socio-ecological niches for the pig.

United States Environmental History

A study of the early modern human-animal relationship between people and
pigs should not exclusively draw from the frameworks of ecological imperialist studies
or Latin American environmental history. When analyzing the story of the pig in the
New World, it is similarly important to consider the frameworks within United States
environmental history as the discipline offers critical insights in understanding
agriculture, cultivation, and the relationship between humans and the land in the
Western hemisphere.

One of the foundational works in contemporary U.S. environmental history is
William Cronon’s *Changes in the Land: Indians, Colonists, and the Ecology of New
England.*17 Cronon analyses the arrival of the English to America through the lens of
ecology and human knowledge, arguing that European colonists stumbled upon a
heavily managed landscape when they arrived. Throughout *Changes in the Land,*
Cronon works to demolish the virgin soil myth argued nineteenth-century figures such
as Frederick Jackson Turner, who emphasized the importance of uninhabited land and
“the frontier” as a clear boundary between civilization and wilderness. Cronon’s work
helps to conceptualize New World landscapes not as pristine or “natural,” like that of

---

Crosby, but instead seeks to demonstrate how landscapes in New England were constantly created and managed by both indigenous and English groups. As such, *Changes in the Land* reinserts indigeneity into an examination of the development of human interactions with the land. Cronon’s pioneering work in underscoring the ecological complexity of the colonization of New England proves vital in thinking about how ecology and a multiplicity of human traditions produced very different socio-ecological niches of the pig in the New World.

Drawing further from Cronon’s theoretical legacy within U.S. environmental history is Brian Donahue’s *The Great Meadow: Farmers and the Land in Colonial Concord*. Donahue focuses on the process by which English agricultural practices were transferred to American environments. Donahue argues that the settlers of the New World began to heavily manage the New England landscape through moving their livestock to different pastures as well as rotating the fields they cultivated. Throughout *The Great Meadow*, Donahue specifically centers the importance of agriculture within the field of environmental history. Donahue's emphasis on agriculture can be used in analyzing the intensive cultivation of pigs throughout the Spanish conquest.

Cronon and Donahue respond to very different historiographical traditions inherent in U.S. environmental history than the work of Crosby, Diamond, and McNeil. Nevertheless, certain aspects of their ecological and agricultural studies of English colonization of America can be applied in the conceptualization of the interactions between humans, pigs, and the land in the Spanish colonies. Cronon’s legacy is one that both centers human practices and the ecological dynamics inherent in the colonization of the Americas. Human-led cultivation expressed through agriculture, as
demonstrated in Donahue’s work, was central to the transformation of the early modern New England landscape. Thus, the themes of cultivation and human socio-cultural traditions will be incorporated into tracing how the pig was introduced to the Western Hemisphere.

**Food, Climate, and Colonial Bodies**

When analyzing how human traditions shaped the lives of pigs and vice versa, one must also acknowledge the literature surrounding colonial consumption patterns and conceptions of the body. Put simply: in such histories, pigs are equated with pork, a culturally significant foodstuff. The Europeans who journeyed to the New World were increasingly worried about how the climate and foods of these foreign lands would alter them physically, mentally, and spiritually. Joyce E. Chaplin’s *Subject Matter Technology, the Body, and Science on the Anglo-American Frontier, 1500-1676* asks important questions concerning how English technological, scientific, and medical knowledge was used to inform colonial interactions with New World landscapes and peoples. Chaplin argues that during the early phases of exploration, the English admired indigenous technologies and native peoples’ ability to survive in the harsh American environments. Chaplin makes important strides in grappling with European fears of bodily degradation and sickness due to the climate and environment of the New World.

Rebecca Earle’s *The Body of the Conquistador: Food, Race, and the Colonial Experience in Spanish America, 1492-1700* provides an essential analysis of the

---

relationship between Old World and New World bodies, climate, food, and religion in the Spanish empire. Her study of the introduction of Spanish foodways to the New World centers specifically on the physical and spiritual construction and “maintenance” of both European and indigenous bodies.\textsuperscript{19} Earle focuses her attention on how Spanish theologians and conquistadors viewed their diets not only as critical in maintaining their Christian identities, but central in civilizing the native people they encountered. Though her focus is on the religious and cultural symbolism of pork, Earle's study does not go further in conceptualizing the presence of pigs in the New World beyond her analyses of meat.

Earle’s work, similar to Chaplin’s, highlights European settlers’ fears as they acclimated to their new environments. The theological and medical importance of Iberian food staples, such as pork, is important in understanding how pork was incorporated into Spanish ideas of civilization and Christianity. However, conceptualizations of the pigs within the New World must also encompass the stages before the consumption of pork – the cultivation of pigs. In contrast to Earle’s study of a consumption-based account of the conquest, the next three chapters of this thesis will work to prioritize the myriad of environmental and socio-cultural contexts in which pigs were cultivated.

\textit{Livestock and Empire}

In the formation of global overseas empires, the perceptions and uses of domesticated livestock changed over time. On understanding the relationship between

animals and empire, Virginia DeJohn Anderson’s *Creatures of Empire: How Domestic Animals Transformed Early America* and Rebecca J. H. Wood’s *The Herds Shot Round the World: Native Breeds and the British Empire, 1800-1900*, are substantial bodies of literature that discuss how the introduction of English livestock to various colonial holdings altered not only the local landscapes but also the breeds themselves.\(^{20}\) *Creatures of Empire* and *The Herds Shot Round the World* center the role of human knowledge and the cultivation of domesticated livestock such as cattle and sheep under the imperial system of the English. Both Anderson and Woods contribute to the understanding that human agricultural and pastoral practices aided in the expansion of Old World animals into new landscapes.

While Anderson provides important insight into the introduction of livestock into the British colonies and the significance of these animals in the early English settlements, Woods demonstrates how the introduction of domesticated livestock was consciously orchestrated by European settlers. Both *Creatures of Empire* and *The Herds Shot Round the World* provide the necessary theoretical bedrock in order to conceptualize how pigs were cultivated in the New World inside and outside of Spanish colonial supervision.

**Centering Animals and the Framework of Animal Studies**

Pigs occupy multiple positions in the social and ecological worlds they move through. In their *Centering Animals in Latin American History: Writing Animals into*
Latin American History, historians Martha Few and Zeb Tortorici provide a necessary framework in writing animal histories. Few and Tortorici challenge the discipline of Latin American history by asking, “does this ‘centering’ of animals – human and nonhuman alike – allow us to write more comprehensive and less anthropocentric cultural histories?” Few and Tortorici’s questions lend an important critique about the anthropocentric nature of general historical scholarship as well as how historiography of Latin America has sidelined the role of animals more specifically. When writing about pigs in the Spanish colonization of the New World, it is thus important to consider how centering both human and nonhuman actors equally can provide different kinds of conclusions about early modern human-animal relationships.

The historian Robert Cunninghame Graham’s Horses of the Conquest: A Study of the Steeds of the Spanish Conquest along with John Grier Varner and Jeannette Johnson Varner’s Dogs of the Conquest contribute to the growing body of literature that centers animals within Latin American history. Both Horses of the Conquest and Dogs of the Conquest discuss the centrality of these two animals during the Spanish colonization of the New World. By drawing on the accounts of conquistadors and missionaries such as Bartolomé de Las Casas, Graham and the Varners outline the collaborative human-animal relationships between the Spanish and their military animals. Although Horses of the Conquest and Dogs of the Conquest don’t delve into the specific breeding or cultivation of dogs or horses, Graham and the Varners

contribute to better understanding the role of animals within the Spanish conquest. As this thesis will explore, behind the horses that carried the supplies and the dogs that aided conquistadors in battle, it was droves of pigs that provided sustenance for the Spanish – though that was not the only thing pigs did.²³

In understanding the role of animals in ecological change, Elinor G. K. Melville’s framework in *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* is especially crucial.²⁴ Melville’s account surveys the environmental consequences of the European colonization of the Valle del Mezquital in the central highlands of Mexico. *A Plague of Sheep* traces the history of the changing valley landscape from its preconquest use by the Otomí people to the introduced agro-pastoral system of the Spanish in the sixteenth century. While Melville focuses primarily on sheep, she analyses how Spanish pastoralism, colonial labor demands, and Old World epidemics forever altered the Otomí’s way of life as well as the ecology of the Valle del Mezquital. Her analysis, while centered on the devastation wrought by the cultivation of sheep, provides a platform in order to discuss the socio-ecological roles of the pig in the New World.

One of the only existing studies of the pig in the New World is Benjamin Joseph Zadik’s unpublished Master’s thesis in Latin American Studies, “The Iberian Pig in Spain and the Americas at the time of Columbus.”²⁵ Drawing on the chronicles of sixteenth-century writers such as Gonzalo Fernández de Oviedo y Valdés, Bernabé

---

Cobo, José de Acosta, and Peter Martyr d'Anghiera, Zadik’s work proves informative on the general timeline, movement, and perceptions of pigs from Spain to the Americas. However, similar to the writings of Crosby and Miller, Zadik does not consider the cultivation of the pig, attributing the pig’s success in the New World to its omnivorous diet and its high fertility rates. Zadik also characterizes the indigenous reaction to pigs with broad sweeping generalizations with rarely any geographic specificity or nuance. In his centering of pigs within the history of the Spanish conquest, Zadik largely ignores the role of human cultivation, complexity, and difference throughout the New World.

A better historiographical framework is provided by the historian Lauren Derby in her article, "Bringing the Animals Back In: Writing Quadrupeds into the Environmental History of Latin America and the Caribbean." Derby argues that “animals stand at the nexus of the relationship between man and the land, hence nature and culture.” By centering the study of animals within Latin American history, we can better understand the everyday life of rural societies, women, runaway slaves, free black people, and indigenous communities. Derby also importantly suggests that future historical research that brings quadrupeds back into the study of Latin America can offer new historical conceptions of human culture. Due to the lack of focus on swine in colonial Latin America, Derby recommends that further work is necessary in understanding the pig’s role within the Atlantic world. This thesis aims to develop these same insights. Following pigs can help illuminate the experiences of everyday people who were largely silenced throughout colonial Spanish society. Focusing on the

---

26 Lauren Derby, "Bringing the Animals Back In: Writing Quadrupeds into the Environmental History of Latin America and the Caribbean," *History Compass* 9, no. 8 (2011): 602-21, 602.
interactions between both human and nonhuman actors (in this case, the domesticated pig) allows for the possibility to create a different kind of history – one that neither writes out humans and the importance of socio-cultural practices or the biological nature of pigs that allowed them to interact with various human groups in the specific ways they did.

Similar to Few, Tortorici, and Derby, the historian Paul S. Sutter poses several important questions in conceptualizing the place of animals within the writing of history. In his survey of U.S. environmental history, Sutter asks “how is it possible to define the roles of animals – creatures that might be recognized as having a will – in producing change over time? What happens when these different kinds of environmental entities and forces connect and combine with human actions to produce complex historical phenomena?” With Sutter's words in mind, it is thus important to consider how the interspecies relationship between humans and pigs within the context of the Spanish conquest and colonization allowed for the emergence of a specific kind of European colonial society. The presence of pigs throughout the conquest and all levels of Spanish colonial society helped to produce regionally specific governmental systems, land use systems, and cultural practices that perhaps could not have emerged if not for the presence of pigs.

By stepping back and looking at the history of medieval Spanish pig husbandry and legacies of the Reconquista, one will witness how the simplified narrative surrounding the pig’s success in the New World becomes increasingly more complex. Through highlighting the sustained cultivation of the pig, with particular emphasis on

27 Sutter, “The World with Us,” 98.
different human cultural practices in sustaining pig populations, this study centers the pig within the well-known narrative of the Spanish conquest through tracing the environmental contexts and what one might call the “socio-ecological niches” in which the pig existed. Thus, the concept of the “socio-ecological niche” is not only vital in understanding how *Sus scrofa domestica* was introduced to the Western Hemisphere but is also fundamental in thinking about the cultivation behind the success of the pig within the New World. A socio-ecological niche “is created by the convergence of agro-ecological, socio-cultural, economic and ecological factors” encompassed within a specific environment.28

In analyzing the socio-ecological niche of pigs within early Spanish colonial society more specifically, it is important to be cognizant of the multidimensional environments in which humans and non-human animals existed. For example, when studies such as Zadik's "Iberian Pig in the Time of Columbus" focus solely on the cultural significance of swine during the Reconquista, they end up ignoring the environments in which the pig thrived. At the same time, focusing on solely the pig’s ecological realities ignores how pigs interacted with humans. Pigs, like humans and all animals, live in a world structured by both social and ecological elements. The new metaphor of the socio-ecological niche thus avoids reducing pigs to either their environmental or social realities. The various agro-ecological, socio-cultural, economic, and ecological factors present within Spain, La Gomera, the Caribbean, and

---

mainland Central and South America were crucial in constructing viable socio-ecological niches for pigs to survive and thrive within.

As the historian Peter C. Mancall has argued, “swine – and the rest of nonhuman nature – have historic importance.” Through illuminating and conceptualizing the long-overlooked place of pigs within the Spanish colonization of the New World, this thesis centers the historic importance of the environmental introduction of pigs to the New World. Unlike in the histories written by Crosby, Miller, Zadik, and others, pigs were not just biological reproductive systems, vectors of disease, or tools of the Spanish. Conquistadors were not the only group who had a hand in the cultivation of pigs in the New World. From free black farmers to runaway slaves, from mestizo peasant communities to indigenous armies, the various socio-ecological niches of the pig were actively constructed by all levels of society.

This examination of the pig departs from the work of Crosby, Miller, and Zadik in that it emphasizes how the arrival of pigs to the Caribbean and across Central and South America was always consciously planned and deliberately facilitated by humans – both European and indigenous. Centering the cultivation of pigs within the narrative of the Spanish conquest will provide a more holistic understanding of the colonization of the New World, the workings of all levels of Spanish colonial society, and the changing human-animal relationships that took place in the colonial period. By taking up the banner raised by historians such as Martha Few, Zeb Tortorici, Lauren Derby, Paul S. Sutter, and Peter C. Mancall, following the pigs can help retell the history of

29 Mancall, "Pigs for Historians," 375.
Latin America and help write a new history of the interaction between Iberia and the Americas.

Before returning to the story of the eight black and red Iberian pigs of La Gomera who trotted across the oaken decks of Columbus’ fleet in early October of 1493, it is crucial to first understand the socio-ecological niche of the pig within the Iberian Atlantic world. The three chapters of this thesis will chart the evolution of the interspecies relationship between people and pigs in Spain, La Gomera, the Caribbean, and Central and South America amid Spain’s emergence as a colonial super power following the conquest and settlement of the New World. The first chapter, “Iberian Atlantic Origins” looks at the development of the longstanding relationship between people and pigs on the dehesa of southwestern Spain during the Reconquista and the emergence of the Spanish empire. The first chapter explores the close connection between early Iberian farmers, pigs, and the oak forests of southwestern Spain, as well as how this connection with pigs throughout Extremadura and Andalucía laid the foundation for how the Spanish were able to colonize the Canaries and eventually the New World.

The second chapter, “New Beginnings for an Old World Species,” follows the evolution of the relationship between people and pigs by focusing on the diverse ways in which human groups premeditated and constantly aided the introduction of the pig into the New World. The second chapter will also serve as an analysis of how New World landscapes and socio-cultural systems outside the dehesa and La Gomera altered the physiological aspects and socio-cultural perceptions of swine that led to the construction of new socio-ecological niches of the pig in the Americas. The third and
final chapter, “Five Lessons” delves into five regional case studies of Hispaniola, the Yucatán Peninsula, southern coastal Peru, the central highlands of Ecuador, and northwest Mexico in an attempt to demonstrate the variety of ways in which indigenous groups adapted to and negotiated the arrival of pigs to the New World. The case studies highlight the environmental, socio-cultural, regional, and temporal differences in the perception and use of pigs throughout the various regions of the Spanish American empire. Let us now begin our journey by following the pigs.
IBERIAN ATLANTIC ORIGINS

The intimate bond between pigs and humans has largely been overlooked in the conventional narrative of the Spanish empire. The introduction of the pig to the Iberian Peninsula, the archipelagos of the Atlantic, as well as Central and South America was due in large part to the calculated human cultivation of the physiology and behavior of pigs within the particular environments they inhabited. In order to write the environmental history of the introduction of pigs to the New World, it is crucial to
begin by tracing the environments in which the Iberian pig, the first line of *Sus scrofa domestica* introduced to the New World, thrived. This chapter works to explain the environmental context of southwest Spain and the land use systems that characterized rural Spanish life and the uses of the Iberian pig. The Iberian context is important in that it informs the consequent analysis of how the relationship between people and pigs evolved as the Spanish expanded out into the Atlantic and into the New World. In order to understand the process and successes of the Spanish conquest of the Canary Islands, the Caribbean, and mainland Central and South America, this chapter begins by sketching the geopolitical, socio-cultural, and environmental context of the Iberian Peninsula where the Iberian pig originated. With this foundation in place, the chapter then moves on to explore the processes that fostered the Spanish colonization of the Canaries.

**The Geopolitical Context of the Iberian Peninsula**

The geographic differences of the Iberian Peninsula, from its high mountain ranges to its low-lying coastal regions corresponded to a diversity of local political and economic regions. The first inhabitants of the Peninsula were a mixture of Celtic, Iberian, and the semi-nomadic Celtiberian people in the present-day nations of Spain and Portugal that were later conquered by the Romans who referred to the region as “Hispania.” The long-standing trade relationship that began between the Iberian Peninsula and Rome, which included the trade of fine meats such as pork, was

---

31 Ibid., 23.
interrupted with the coming of the Visigoths in the 5th century. Even though the
Germanic kingdoms of the Visigoths accepted Christianity in 589 C.E., regional,
cultural, political, and linguistic differences drove these emerging kingdoms apart,
making them vulnerable to the Muslim armies that invaded the Iberian Peninsula
beginning in 711.

The Reconquista took place from 718 to 1492, bringing about the establishment
of powerful monarchies in Portugal and Spain. The most vigorous period of the
Reconquista began between 850 to 1250, a period in which Christian Iberian knights,
hidalgos, and settlers deliberately and gradually pushed the Christian frontier farther
south, slowly “securing additional grazing and agricultural land” for farmers. In
exchange for protection under regional crowns, these farmers supplied food, labor, and
men (infanzones) to aid in the fighting. As was necessary, physical confrontation by
vigilante groups and hidalgos who “would periodically raid Moorish regions to extract
tribute,” played a significant role in the protection of these newly settled farmers.

During the Reconquista, land usage, especially by Christian Iberians, took on
ideological importance. In his seventh century encyclopedia, Bishop Isidore of Seville
argued that meat, bread, olive oil, and wine were “foods redolent of health, of

---
32 Joseph F. O'Callaghan, *Reconquest and Crusade in Medieval Spain* (Philadelphia: University of
33 Burkholder and Johnson, *Colonial Latin America*, 23; O'Callaghan, *Reconquest and Crusade in
Medieval Spain*, 3.
34 William S. Maltby, *The Rise and Fall of the Spanish Empire*, (New York: Palgrave Macmillan,
2009), 7.
35 Burkholder and Johnson, *Colonial Latin America*, 24; Maltby, *The Rise and Fall of the Spanish
Empire*, 8-9.
36 Anthony M. Stevens-Arroyo, "The Inter-Atlantic Paradigm: The Failure of Spanish Medieval
37 Ibid., 517.
civilization, and of Christianity.” While Spaniards in the Middle Ages “could afford only a little bacon or salt pork… pork possessed a strong Catholic resonance, for neither Jews nor Muslims were permitted to eat it.” The consumption of pork, along with bread and wine, came to symbolize “a more specific Christian identity” during the Reconquista in Spain. A key factor in the Reconquista of Spain and formation of a Christian Spanish identity was thus mediated through the productive use of land through agrosilvopastoralism, which inherently included the raising of pigs and consumption of pork. Geographer James J. Parsons argues that part of the Reconquista’s success can be attributed to the interest of Christian pig farmers who sought to exploit the pannage and pasturage of the southwestern region of the Peninsula.

By 1187, the Portuguese had retaken Lisbon and by 1179, Alfonso I of the House of Burgundy became first king of a united Portugal. Nearly two hundred years later, with the reclamation of the southern Algarve region, the new dynasty of the House of Aviz appointed John I in 1384 as the new monarch of Portugal, who set out to lay the foundation of the Portuguese’s overseas empire. In Spain, Moorish control was reduced to the kingdom of Granada after 1248 when the Castilian crown reconquered Seville. It would take another 234 years until the Spanish began the Reconquista again.

38 Earle, The Body of the Conquistador, 56.
39 Quoted from Earle, The Body of the Conquistador, 60-1.
40 Ibid., 61.
42 O'Callaghan, Reconquest and Crusade in Medieval Spain, 3; Burkholder and Johnson, Colonial Latin America, 24.
43 Burkholder and Johnson, Colonial Latin America, 24.
44 O'Callaghan, Reconquest and Crusade in Medieval Spain, 2.
Over the next 200 years, five kingdoms dominated the Iberian Peninsula: Portugal to the west, the Kingdom of Navarre in the Pyrenees to the north, Granada in the south controlled by the last Muslim rulers, the crown of Aragon to the east, and Castile at the center of the Peninsula – the largest of all kingdoms with around 4.5 million people and three times the size of Aragon and Portugal. On October 19, 1469, Ferdinand of Aragon and Isabel of Castile married, effectively joining the two most powerful kingdoms in Spain under the same house. In 1479, after a bitter civil war over the Castilian crown, Isabel proved victorious, while Ferdinand ascended the throne of Aragon after the death of his father. Isabel was quick to curb the power of potentially rebelling powerful Castilian noble families who lived on estates, mayorzagos, and hidalgos, who slowly gained land and prestige throughout the Reconquista. Beginning in 1482, Isabel and Ferdinand relaunched the Reconquista in the final attack on the kingdom of Granada that ended with Spanish victory in 1492. Where there was once a religiously diverse society where Muslims, Jews, and Christians had lived in close proximity for almost eight hundred years, the crowns of Castile and Aragon in 1492 and the Portuguese crown in 1497, mandated that the large populations of Jews and Muslims living on the Peninsula had to convert to Christianity or face expulsion. As will be seen in the conquest of the Americas, the Spanish instituted a policy of conversion whose main goal was integrating New Christians into Spanish society.

45 Burkholder and Johnson, Colonial Latin America, 25.
46 Ibid., 25.
48 Stevens-Arroyo, "The Inter-Atlantic Paradigm, 517-521.
Within this Spanish society, clergy, nobility, and commoners constituted the main social groups, with commoners making up the vast majority of the peninsula’s population. These largely agrarian populations under the crowns of Aragon and Castile were mainly “engaged in agricultural and pastoral activities” that created “the foundation of the Iberian economies.” The agricultural products that fed the burgeoning Spanish cities of Toledo, Seville, and Granada mainly consisted of wheat, olives, olive oil, wine, fruit, cork, wool, lamb, beef, and pork. The agriculture and foodways of Spain were formed over a millennium as various groups attempted to spread their influence and control over the Peninsula. Iberian foodways were thus formed over centuries by a succession of dominating invasive forces. Whether it was the Romans subduing the Celtic-Iberian peoples, the Visigoths driving out the Romans, the Moors superseding Germanic control of the Peninsula and ruling into the 14th century, or the Reconquista of Spain by Christian kingdoms, one of the major staples of Spanish diet that remained consistent since the Neolithic Revolution was pork. It is here in this story, with the overarching geopolitical context of the Iberian Peninsula in mind, that the ecological niche of the Iberian pig and the land that the Christian Iberians sought to reclaim during the Reconquista will be introduced.

**Pigs on the Peninsula**

Between 54-37 million years ago during the early Eocene Epoch, the order of Artiodactyla, the first even-toed ungulates that preceded hooved mammals such as deer,

---

50 Ibid., 33.
51 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 5-8.
camelids, goats, and pigs, first emerged. Subsequent climate change during the Miocene Epoch 23-5 million years ago brought about global climate change that expanded the growth of grassy plains which lead to the development of differentiated ungulates such as pigs, deer, and camelids. While the first recorded fossil remains of the pig date back to the Miocene, swine preserved similar characteristics of their Eocene artiodactyl ancestors such as their omnivorous diet, their lack of horns and antlers, and their “carnivore-like habits of using dens, making nests and bearing litters.” Geneticists such as Martien A.M. Groenen and Alan L. Archibald have found that the pig, as it is known today, emerged between 5.3-3.5 million years ago during the Pliocene from the tropics of Southeast Asia and slowly migrated up into Europe and Asia.

Nearly five million years after migrating out of Southeast Asia, the story of the domesticated pig (Sus scrofa domestica) in Europe begins around the transition between the Pleistocene and Holocene epochs. Genetic evidence suggests that early human groups began intensively managing wild boar (Sus scrofa scrofa) populations that lived around their settlements. Archaeozoologists have found that during the

---

54 Ibid., 14.
Neolithic Revolution around 11,400 years ago, pigs in eastern Turkey were gradually incorporated into the daily lives of the human groups of Hallan Çemi and Çayönü Tepesi. Successive generations of wild boars in Turkey and the Near East began coevolving with the semi-sedentary humans of the region as the herds consumed waste generated by the human settlements. Outside of Turkey, beginning between 10,000-9,000 years ago, Neolithic human groups independently domesticated the omnivorous, highly intelligent wild boars of continental Europe. While successive generations of pigs during this phase of domestication throughout Europe were trained to follow human auditory cues such as horns and whistles, these pigs continued to roam relatively freely through the forested expanses that surrounded human settlements just as their wild relatives had done for thousands of years.

The Iberian pig is one of the last surviving Mediterranean breeds that emerged from this early European phase of pig domestication. While more comprehensive geographic sampling of mitochondrial DNA is necessary for finding the exact origin of Iberian pigs, geneticists have found that after the Neolithic Revolution beginning 11,000 years ago, Turkish pig herds of the Tigris River Valley migrated out of the Near East alongside Neolithic human groups only to be replaced by the emergence of a

---

58 Vigne et. al., “Pre-Neolithic wild boar management and introduction,” 16138.
European strain of pigs. Iberian pigs are thought to have emerged from populations of European wild boars on the Iberian Peninsula as late as 7,000-8,000 years ago in response to the emergence of domesticated swine from the Near East. As Neolithic Celtic-Iberian groups migrated onto the Peninsula and began to intensively cultivate swine, the Iberian pig became “deeply bound to the Mediterranean ecosystem.”

Beginning in 400 BCE (Before Common Era), large stone sculptures of animals, or “verracos,” depicting bears, bulls, and pigs, were created by the early Celtic-Iberian peoples across the Peninsula.

The Iberian pig played a vital role in the social and cultural life of southwestern Spain. The importance of the pig within Spanish culture and life was thus carried across the Atlantic into the landscapes of the Americas as well. The conquistadors and Spanish immigrants that came to the New World had centuries of experience living side-by-side with pigs. Throughout the southwest of Spain, rural farmers had constructed a specifically Iberian socio-ecological niche for the pig to occupy. As will be demonstrated, the coffers of local rural and urban economies of Spain were tied to the cultivation of the Iberian pig. By the end of the fifteenth century, however, as the Spanish imperial apparatus adapted and expanded outside of the Peninsula, so too did the socio-ecological niche of the pig.

---

65 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 5.
The Iberian Pig

The most abundant breeds of Iberian pigs were, and still are, the black (entrepelado, lampiño, mamellado, silvela, and negro de los pedroches) and red (retinto, colorado, oliventina, and torbiscal) varieties; and to a much lesser extent, herds of blond (dorado gaditano) and spotted (manchado de jabugo) breeds of Iberian pigs also exist. The Iberian pig is characterized by its perked ears, plump neck, “medium length trunk...arched ribs,” supple powerful legs, and pigmented hooves (Figure 1.2). Contrary to the arguments of Crosby, Miller, and Zadik, Iberian pigs are notorious for their relatively low prolificacy rates, with sows only producing two litters of 5-8 piglets a year (compared to other breeds that birth litters of around 8-12 piglets twice a year). Each year, beginning in the wet, cool winters and extending through the end of the warm, bright springs, sows would give birth to their litters. The first piglets of the season that were born in November and December were referred to as navideños or verbizos, the next batch of piglets born between February and March were referred to as agostones, and the final litters born between May and June were referred to as marceños.

After weaning off their mothers, the growing pigs’ most important stage of life was la montanera, the stage in which swineherds brought their herds through the dehesa to feed on the mature fallen acorns, or bellotas, from late October to late

---

67 Ibid., 19.
68 Ibid., 19.
69 Benito, Albarrán, and García Casco, “Extensive Iberian pig production grazing systems,” 640. Note: Hog raising on the dehesa continues into the present.
February. As demonstrated in Figure 1.3, the life cycle of the pig was closely synchronized with the maturation of the oak trees of the *dehesa*. Biologist Clemente Jose Lopez-Bote argues that “the whole productive cycle of the animals is planned to get them [the pigs] physiologically capable of taking advantage of *La Dehesa* during the late fattening stage,” at around 8-10 months of age. The factors that limited the success of *la montanera* included the relative abundance and maturity of the acorns, availability of water, shelter, fresh grass, and access to flat stretches of land that wouldn’t distort the pigs’ muscle-to-fat ratios.

Humans played a central role in every stage of the pig’s life. During *la montanera*, after the pigs were released from their village pens in the early morning,

---

72 Benito, Albarrán, and García Casco, “Extensive Iberian pig production grazing systems,” 639.
they would follow the specific whistles of their swineherd across the *dehesa* until nightfall when they returned back to their pens or bedding spots. As the swineherds and their hogs traversed the expanses of the *dehesa* together, over thousands of years, both pigs and people learned to communicate with one another. This collaboration and cultivation enabled the growth of enormous herds of pigs throughout southwestern Spain. Even when visiting Spain in 1846, the English traveler Richard Ford remarked that when the pigs returned to the village at the end of each day, “all set off at a full gallop, like a legion possessed by devils, in a handicap for home, into which each single pig turns, never making a mistake. We have more than once been caught in one of these pig-deluges, and nearly carried away horse and all.”

**Figure 1.3.** Schematic representation of the production system of Iberian pigs. (From C.J. Lopez-Bote. “Sustained utilization of the Iberian pig breed.” *Meat Science* vol. 49, no. 1 (1998): 17-27, 20)

---

74 Ibid., 127.
Every year around the beginning of *la montanera*, swineherds divided their herds in order to delineate which groups of pigs would be allowed to feed on the fallen acorns first. Pigs chosen for slaughter later in the winter, after they reached 300-350 pounds each, were granted priority access to the acorn harvest. Herds that were driven across the *dehesa* after the first contingent consisted of younger hogs and pregnant sows who ate the remaining acorns. In 1554, near the border of Portugal, in the town of Jerez de los Caballeros, anywhere between 80,000-100,000 pigs were fattened annually on the acorns of the region.

Throughout the fifteenth century, upwards of 80,000 hogs were sold within five days during the San Miguel fair at Zafra every year in October. Other important markets for pigs and pork included those held in Mérida, Fregenal de la Sierra, Ronda, and Trujillo. Iberian pigs became renowned for their meat which produced around 60% fat-content-per-carcass. The unparalleled taste and fat-to-meat ratio of Iberian pigs made them a staple of Spanish and European cuisine.

The Iberian pig was a thus central component to the foodways of Spain. Even the Englishman Richard Ford wrote,

> bacon throughout the length and breadth of the Peninsula is more honoured... than any one or all the fathers of the church of Rome; the hunger after the flesh of the pig is equaled only by the thirst for the contents of what is put afterwards into his skin; and with reason, for the pork of Spain has always been, and is, unequalled in flavor; the bacon is fat and flavoured, the sausages delicious, and the hams transcendentally superlative.

---

76 Ibid., 215.
77 Ibid., 217.
78 Ibid., 218.
80 Ford, *Gatherings From Spain*, 126.
The first documentation of Iberian pork comes from Roman travel and military accounts that praised the meat that was produced on the Peninsula.\textsuperscript{81} From *chorizo* to *jamones serranos, olla podria* to *lechón*, the quality of Spanish ham differentiated Iberian cuisine from that of any other European region. Iberian pigs not only played a primary role in the sustenance of the Spanish population, pigs also became part of family life as well. Among peasant farming family groups, pigs were “brought up with their children, and partake… in the domestic discomforts of their cabins; they are universally respected.”\textsuperscript{82} Outsiders to the rhythms of the dehesa noted how the people of Extremadura were “created to tend herds of these swine, who lead the happy life of former Toledan dignitaries, with the additional advantage of becoming more valuable when dead.”\textsuperscript{83} This intimate human-animal relationship that permeated every stage of the pigs’ lives was constructed within the heavily managed landscape of the *dehesa*.

**Life on La Dehesa**

The majority of the Iberian pigs throughout Spain spent their lives in the southwestern region of the Iberian Peninsula, thriving in the agrosilvopastoral ecosystem of the *dehesa* (or *montado* in Portuguese).\textsuperscript{84} An agrosilvopastoral system is the combined pasturage of animals such as pigs, cattle, and sheep coupled with the

\textsuperscript{82} Ford, *Gatherings From Spain*, 128.
\textsuperscript{83} Ibid., 128.
production of forest products such as timber and fuel. Agrosilvoforestry systems were not only limited to the Iberian Peninsula – this agricultural system shaped landscapes across the Mediterranean Basin for centuries. The term “dehesa” comes from the Latin world, defensa – or protected property that was defended against outsiders. Town councils throughout Extremadura often referred to their original land grants in the thirteenth century as adehesamientos.

Historian David E. Vassberg argues that unlike ejidos that always served as commons, dehesas were enclosed cultivated pasturelands that could serve as both common or private property. Dehesas were also shared between provinces, constituting an "intermunicipal commons" for landowners and stockmen to utilize equally. The dehesas of particular provinces were only for the use of the vecinos, or citizens, of that particular town. However, the presence of montes, or forest woodlands, automatically made the dehesa common property of the vecinos of the region. Luckily for the vecinos of southwestern Spain, the montes constituted entire regions of the dehesa, making these lands communal for the shepherds and herdsmen of the province. Natural resources such as water, forest products, and pasture within the montes (inherently including the dehesa of southwest Spain), were free for all vecinos to use.

---

86 Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 57.
88 Ibid., 213.
90 Ibid., 60-61.
91 Ibid., 30.
92 Ibid., 36.
93 Ibid., 54.
One of the main characteristics of the dehesa was and still is, the dominance of its Mediterranean evergreen oaks. Species such as the holm oak (*Quercus ilex*), cork oak (*Quercus suber*), Pyrenean oak (*Quercus pyrenaica*), and Valencian oak (*Quercus faginea*) span over a million acres of the dehesa. The oak forests within this agrosilvopastoral system of the dehesa were cultivated to provide cork, firewood, and charcoal for the surrounding Spanish towns, acorns for the foraging pig herds, and food and shelter for the people and animals of the region. During the Moorish rule of Iberian Peninsula, Arab chroniclers referred to the district of Los Pedroches as "the plain of acorns," or Fahs al-Ballūt. One of these writers in particular, al-Himyarī, described the superb qualities of the acorns, and how the farmers of the region carefully tended to the oak forests. Oak trees within medieval Spanish conceptions of land use were considered a central component of the agrosilvopastoral system, so much so that each oak tree across the dehesa was pruned several times throughout its life.

In Spain, the dehesa encompassed the towns of Cáceres, Badajoz, and Trujillo in the province of Extremadura; the towns of Sevilla, Córdoba, Huelva, Cádiz, and Málaga in the western part of Andalucía; Salamanca, Zamora, and Valladolid in the southwest regions of Castilla and León; and the towns of Toledo and Ciudad Real in Castilla–La Mancha (Figure 1.4). The southwest provinces of Spain, namely Extremadura and Andalucía, became important not only in the production of pork but

---

94 Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 57.
95 Benito and Casco, “Extensive Iberian pig production grazing systems,” 638.
97 Ibid., 214.
99 Benito, Albarrán, and García Casco, “Extensive Iberian pig production grazing systems,” 635.
also in supplying the New World with conquistadors, whose backgrounds on the *dehesa* and in the *montes* was crucial to the introduction of pigs to the New World. The men of these regions grew up in a culture that prided itself on its intensive and integrated use of the land. Pigs were an everyday part of life for the medieval *vecinos* of southwestern Spain.

The *dehesa* is characterized by its arid summers and wet winters with average temperatures ranging between 57°F and 77°F. The *dehesa*’s acidic substrates of granite, slate, and silica produced notoriously shallow soils in the region. The low levels of nutrients such as phosphorus, nitrogen, and potassium allowed few species of legumes, shrubs (*Cistus ladaniferus*, *Cistus salviifolius*, and *Cistus monspeliensis*), and arboreal tree species to grow on the *dehesa*. The stretches of flat open fields interspersed with oak trees also supported the farming of cereal grains such as oats, barley, and wheat.

Oak trees were selectively pruned every year in order to allow more sunlight on the forest floor where grain crops would be planted. The growth of shrub species, like matorral of the *Cistus* family onto agricultural plots, prompted manual uprooting, clearing, and plowing by landless peasants. In return for plowing and clearing the land for powerful families, peasants were allowed to cultivate their cereal crops.

---

100 Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 57.
101 Benito and Casco, “Extensive Iberian pig production grazing systems, 638.
102 Ibid., 638.
103 Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 57.
105 Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 59.
106 Ibid., 59.
The pigs and the humans of the region were not alone as they moved through the rolling expanses of the dehesa. Herds of pigs shared the manicured oak forests and meadowlands with wildlife such as deer, Roebuck, fox, wolves, rodents, eagles, owls, amphibians, reptiles, and their close ancestors, the wild boar (*Sus scrofa mediterraneus*).\(^{107}\) Herding pigs through these regions sometimes meant that individuals intermixed with wild hogs or were attacked by the larger land predators like wolves.\(^{108}\) Iberian pigs were also not the only domesticated animal in the region. Spanish livestock that shared the same pastures as the Iberian pig included native cattle breeds such as the retinto, avileño, and morucho, native sheep breeds like the merino, and the native goat breed, the retinta.\(^{109}\) The dehesa thus supported a high level of biodiversity and agricultural productivity.

Palynological studies, using radiocarbon-dated pollen cores, have found that the first indication of human intervention in the dehesa of southwestern Spain began around 6,500 years ago with the clearing of the initial oak and pine forests by the early Celtic-Iberian peoples.\(^{110}\) Deforestation slowed over the next millennia during the consecutive Roman, Visigoth, Arab periods of rule wherein the development of the dehesa as it existed during the medieval period first emerged.\(^{111}\) Between 500 BCE to 1200 CE (Common Era), the dehesa of southwestern Spain emerged over a 1,700-year period due to the growth of sedentary agriculture.\(^{112}\)

\(^{107}\) Benito, Albarrán, and García Casco, “Extensive Iberian pig production grazing systems,” 638.

\(^{108}\) David Vassberg, "Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru," *Latin American Research Review* 13, no. 3 (1978), 52.

\(^{109}\) Benito, Albarrán, and García Casco, “Extensive Iberian pig production grazing systems,” 638.

\(^{110}\) Joffre, Rambal, and Ratte, “The dehesa system of southern Spain and Portugal as a natural ecosystem mimic,” 60.

\(^{111}\) Ibid., 60.

\(^{112}\) Ibid., 60.
Over nearly two thousand years, the rural inhabitants of the dehesa were able to carve out a socio-ecological niche for their domesticated pigs. In order to ensure against over-harvesting and mismanagement, medieval municipal bureaucrats highly monitored and governed the dehesa of southwestern Spain. Vassberg’s work on the town of Trujillo in Extremadura demonstrates the construction of a regionally-specific socio-ecological niche on the dehesa as municipal bureaucrats prioritized the upkeep of the oak trees, the acorn harvest, and the health of the pig herds above individual claims to private or leased property.

Creating Landscapes: The Case of Trujillo’ Dehesa

Within what is now the province of Extremadura, near the city of Cáceres, the town of Trujillo was largely neglected by both Romans and the Visigoth armies that moved through the region. Similarly ignored by the invading Muslim armies during the eighth century, Trujillo finally fell under Moorish control beginning in the twelfth century. By the thirteenth century, the Reconquista had reached Trujillo, and by 1233 Christian forces had finally established control over the city. Due to the slow reoccupation of the region, the various Spanish kingdoms worked to promote resettlement by granting privileges to peasants and hidalgos alike, leading Trujillo to become a Crown town, or realenga, in 1234. Even after Trujillo grew to nearly 8,000

---

114 Ibid., 17.
116 Vassberg, "Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru," 48.
people by the fifteenth century after it was designated as a city in 1430, the people of the region remained closely bound to the land.\footnote{Altman, \textit{Emigrants and Society: Extremadura and America in the Sixteenth Century}, 25.}

Across all social classes, from the peasants to the priests, and even the privileged elite, stock raising, and in particular hog farming, was one of the most popular economic occupations.\footnote{Ibid., 27.} The cultivation of pigs in Trujillo was tied to the acquisition of wealth, the payment of taxes, and the establishment of social status.\footnote{Vassberg, "Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru," 51.} Under the land ordinances of Trujillo, pigs were granted privileged access to water and pasturage compared to all other livestock.\footnote{Ibid., 51.} On the \textit{dehesa}, the pigs were herded in droves (\textit{piaras, manadas,} or \textit{hatos}) numbering between 25 to 50 animals, feeding on the roots, seeds, grasses, and weeds that were left over from the previous harvest, adding necessary fertilizer to the agricultural plots.\footnote{Ibid., 51.} Hog raising was so central to the socio-cultural and economic fabric of Trujillo that even the enormous wealth generated by the conquest of the New World made its way back to Extremadura. The conquest of Peru, under the command of Francisco Pizarro, was not only nourished by imported Iberian pigs; the wealth Pizarro sent back to his family in Trujillo allowed the Pizarro clan to accumulate a massive fortune that they used to purchase larger herds of pigs.\footnote{Ibid., 51.} Thus, the wealth of the conquest was, in part, reinvested in hog raising back in Trujillo.

Since all oak trees in Trujillo, whether on public or private property, were owned by the city, the \textit{cabildo} (town council) was able to mandate against the...
unsupervised harvesting of oak trees for firewood or lumber, or the clearing of trees to open up pasture or farmland. Among Trujillo’s numerous land ordinances, the cabildo required the vecinos under its authority to maintain the forests by pruning dead or rotting tree limbs and planting new trees. Every year from late October to January, the cabildo’s main concern was monitoring the acorn harvest in order for the thousands of pigs in the region to be able to equally take advantage of la montanera. In order to police the oak trees on both public and private lands, the city assigned two mayordomos (land stewards), supervised the acorn harvest prosecuted farmers who illegally pruned and burned the oak trees. In order to assist the mayordomos, the city allocated funds and rewards in order to pay for mounted patrols to guard the dehesa during the acorn harvest. Often times in order to skirt the monetary fines that were charged against violators, local farmers blamed neighboring townsmen for damaging the oak trees.

It is thus no coincidence that the hundreds of other Extremadurans who came to the New World, such as Hernando De Soto, Francisco Vázquez de Coronado, Hernán Cortés, and Diego de Almagro, readily embraced pigs on their voyages of exploration and colonization in the New World. The men raised in this region were aware of the economic and social value of pigs. Over thousands of years, among the oak, beech, chestnut, and pine forests, humans had actively cultivated and constructed a socio-

---

123 Ibid., 52.
124 Ibid., 52.
125 Ibid., 53.
126 Ibid., 53.
127 Ibid., 53.
128 Ibid., 53.
129 Ibid., 48.
ecological niche for the Iberian pig on the *dehesa* of southwestern Spain. This introduction to the Iberian pig and the cultural and environmental significance of the *dehesa* is crucial to understanding the continued cultivation of the pig as the Spanish expanded out onto the Canaries.

**An Inter-Atlantic Paradigm: The Role of the Canaries**

In conceptualizing how the Spanish evolved from their medieval mission of the Reconquista on the Iberian Peninsula into the Atlantic imperial structure, it is important to consult the historian Anthony Stevens-Arroyo’s concept of the “inter-Atlantic paradigm.” Stevens-Arroyo argues that the Crown’s experiences on the Canaries and in the Antilles “provided a powerful stimulus to modify and change policies which had characterized the medieval Reconquista encounter with Muslims and Jews, thus boosting the development of a new imperial mode for later subjugating Mexico, Peru, and much of the American continents.” The experiences on the Canary Islands forever altered the Spanish model of colonization, the foundations of indigenous societies and cultures, and the movement of pigs in the Spanish conquest. These islands, specifically La Gomera, sustained European colonization, and later, the eight pigs that were bought by Christopher Columbus as he headed back to the New World in 1493.

---

130 Stevens-Arroyo, “The Inter-Atlantic Paradigm,” 515.
131 Ibid., 516.
The archipelagos of Macaronesia in the Atlantic Ocean include Madeira, Cape Verde, the Azores, the Salvage Islands, and the Canary Islands (Figure 1.5). Located southwest of the Iberian Peninsula just off the coast of Morocco, the Canary Islands of Fuerteventura, Lanzarote, Gran Canaria, La Gomera, La Palma, and El Hierro arose out of the sea around 20 million years ago due to oceanic volcanic activity. Ecologists describe the highly variable climate of the Canaries as maritime subtropical, or similar to the Mediterranean in its composition. The vegetation of the Canaries is

![Figure 1.5. Map of the Mid-Atlantic Islands (From Stefan Halikowski Smith. “The Mid-Atlantic Islands: A Theatre of Early Modern Ecocide?” *International Review of Social History* vol. 55, no. 18 (2010): 51-77, 53).](image)

---

133 Ibid., 7.
134 Ibid., 11.
considerably varied due to its climatic variability and wide array of ecosystems such as its brackish waters, coastal salt marshes, rocky shores, sandy substrates, deep ravines, warm midlands, and cool forested highlands. While the climatic zones on each island vary in temperature due the trade-winds and the Canary Current, on average, the coasts range between 69°F–64°F, the midlands between 64°F–51°F, and the highest elevations between 51°F–37°F.

The ecology of La Gomera is of particular importance as it was this island that the first eight pigs joined Columbus’ fleet in October of 1493. Formed some twelve million years ago, La Gomera was and is known for its endemic arboreal laurel forests, *Pruno hixae-Lauretea novocanariensis* (Figure 1.6). The Northeast trade-winds that blow off the ocean create cloud-cover that provides the necessary moisture for La Gomera's laurel forests. As demonstrated below in Figure 1.6, the southern coastal region of La Gomera is dominated by sweet spurge shrubland (in red), with its northern region defined by the presence of juniper woodlands (in yellow).

---

135 Ibid., 83-87.
136 Ibid., 16.
139 del Arco Aguilar and Rodríguez, "Vegetation of the Canary Islands," 87.
140 Ibid., 317.

Cardón spurge shrubland (in orange) and sweet spurge shrubland blankets the landscape near the center of the island.¹⁴¹ Near La Gomera’s summit lies its pine forest (in green), summer-dry laurel forest (in lavender), hydrophilous laurel forest (in

¹⁴¹ Ibid., 317.
cobalt), dry laurel forest (in light teal), humid laurel forest (in aqua), and finally its cloud laurel forests (in grey).142

The diverse climatic zones present on the island allowed the first peoples of the island, and later the Spanish, to exploit the various fertile zones available. Through paleoecological research, ecologists have been able to identify human activity on La Gomera beginning between 3,000 and 1,800 years ago.143 Beginning in around 1000 BCE, the Imazighen people, a nomadic ethnic group from North Africa, first colonized the Canaries.144 These groups that migrated from the African continent were small bands of pastoralists whose main form of subsistence came from animal husbandry and pastoralism, not entirely different from Iberians on the dehesa.145 The people of La Gomera, the Gomeros, responded to the island’s variable climate by creating “a regime of seasonal altitudinal droving.146 This meant that the herds, comprising mainly of goats, sheep, and pigs, were taken to different climatic zones on the islands by small family groups throughout the year.147 The Gomeros are thought to have led to the disappearance of large mammals, reptiles, and endemic plants that “lacked adaptive

142 Ibid., 317.
143 Nogué et al., ”The Ancient Forests of La Gomera, Canary Islands, and Their Sensitivity to Environmental Change,” 368.
146 del Arco Aguilar and Rodríguez, “Vegetation of the Canary Islands,” 9; Emily Berquist Soule, "From Africa to the Ocean Sea: Atlantic Slavery in the Origins of the Spanish Empire," Atlantic Studies 15, no. 1 (2018): 16-39, 22; Note: The Spanish began to generalize the inhabitants of the Canaries and began to referring to all peoples of the archipelago as the “Guanches” people.
defense systems” as they began removing large tracts of vegetation in order to create more arable land for pasture.\textsuperscript{148}

**Pigs in the Canaries**

As the only endemic pig in the archipelago, the Black Canary pig is thought to have been brought over from the North African coast 2,500 years ago as the first waves of Imazighen people began moving out into the Atlantic.\textsuperscript{149} The Black Canary pig, much like the Iberian pig in Spain, played a crucial cultural role in the lives of the Gomeros. While generally smaller and less agile than the Iberian pig, with droopier ears and more elongated snouts, the Black Canary pig was still considered an important food staple in the Canaries (Figure 1.7).\textsuperscript{150}

On the Canaries, Black Canary pigs were herded throughout the different elevations of the islands where they fed on the local shrubland species.\textsuperscript{151} As the pigs traversed islands like La Gomera, they fed on figs, prickly pears (*Opuntia ficus indica*), and fern roots (*Woodwardia radicans*).\textsuperscript{152} Archaeological work done on the Guanches, the indigenous people of the Canaries, has found that while the pigs were used as a source of meat, after they were slaughtered, their skins “were used to make clothing


\textsuperscript{151} Ibid., 7.

\textsuperscript{152} Ibid., 11.
and wrap corpses.” On islands such as Tenerife, the pig skins were used to prepare and dress mummies that were buried in coastal ancestral caves.154

![Image of the Black Canary Pig](image)

**Figure 1.7.** The Black Canary Pig. (From M. García Martín, and J.F. Capote Alvarez, “El Cerdo Negro Canario (descrito en la isla de La Palma).” Excmo. Cabildo Insular de La Palma, (1982): 1-17, 7).

Since the Spanish reached the Canary Islands in the late fourteenth century and began to incorporate the archipelago into its expanding empire, the settlers acknowledged the importance of the Black Canary pig on the islands. Missionaries and European travelers of the fifteenth century wrote of the importance of pigs in Guanches culture in their accounts, describing how pig fat was used like butter and preserves, while their bones were used as tools and ornaments.155 “The life cycles of people and

---

154 Ibid., 293.
155 Ibid., 293.
pigs on the Canaries were thus remarkably linked through ecological conditions and socio-cultural practices. The close relationship with the pig on the Canaries was also important for the Spanish colonization of the archipelago.

**The Spanish in the Atlantic**

The islands of the mid-Atlantic, specifically the Canaries, had long existed in European medieval imagination as sites of Edenic abundance and projections of perfect societies and valuable land.\(^{156}\) With the advent of improved maritime technology, Europeans pursued their desires of these seemingly mythical islands. European exploration of the Canaries began in 1312 with the arrival of a Genoese sailor, Lancelotto Malocello, who opened the floodgates to exploratory voyages by the Florentines, Genoese, Portuguese, and Spanish from the 1320s to the 1340s.\(^{157}\) By 1403 the conquest of the Canaries began in earnest with the repopulation of the Canaries with Europeans led by the Norman knight Jean de Bethencourt and Gadfir de la Salle who swore loyalty to King Enrique III of Castile.\(^{158}\) The religious fervor of the Reconquista throughout the kingdoms of Portugal and Spain at the end of the fourteenth and fifteenth centuries, along with the invention of better maritime technology, allowed the Iberians to propel out into the Atlantic.\(^{159}\)

Over the course of a century, the emerging Spanish crown watched as the Portuguese expanded into a seaborne empire, opening up trade in gold, ivory, and slaves on the west coast of Africa while simultaneously searching for access to the

---


\(^{159}\) Burkholder and Johnson, *Colonial Latin America*, 24.
spice trade.\textsuperscript{160} It was not until 1479, in response to the Portuguese annexing Madeira and the Azores, that the newly crowned Isabel of Castile signed a treaty with Portugal stipulating that the Portuguese had to abandon all attempts to annex the Canaries.\textsuperscript{161} While the Portuguese gave up claim to the Canaries, the Spanish were forbidden from sailing south of Cape Bojador.\textsuperscript{162} Envious of the riches of the West African coast newly exploited by the Portuguese, the Spanish turned their efforts in the Atlantic towards the Canaries in earnest.

While the conquest of islands such as La Gomera in 1450 followed the same pattern of medieval Spanish policy molded during the Reconquista through Spanish repopulation and the redistribution of land, the final subjugation of the Canary Islands of Gran Canaria and Tenerife, beginning in 1478 and ending in 1496, took on a more militaristic tenor.\textsuperscript{163} Stevens-Arroyo argues that it was the Spanish colonial efforts over 3,500 miles across the Atlantic in the Caribbean that changed the patterns of the final conquest of the Canaries.\textsuperscript{164} Since the discovery and settlement of the Indies under Columbus was sandwiched between the two key dates of colonization in the Canaries, the two archipelagos were drawn into the inter-Atlantic paradigm.\textsuperscript{165}

The settlement of the Canaries saw the rise of sugar mills, vineyards, the slave trade of the Guanches people, and the arrival of growing numbers of Spaniards hoping to make their fortunes. Catholicism, Iberian cultural customs, and European political systems were transplanted onto the islands soon after the Spanish arrived. The

\textsuperscript{160} Ibid., 23-25.
\textsuperscript{161} Maltby, \textit{The Rise and Fall of the Spanish Empire}, 19.
\textsuperscript{162} Ibid., 19.
\textsuperscript{163} Stevens-Arroyo, "The Inter-Atlantic Paradigm," 523.
\textsuperscript{164} Ibid., 523.
\textsuperscript{165} Ibid., 524.
relatively rapid construction of and indoctrination within this entirely new Ibero-
Atlantic colonial society on the Canaries was aided in part by the similarities between
the agricultural practices of the Iberians and the Guanches that included the cultivation
of the pig.

*The Benefits of a Similar Socio-ecological Niche*

The presence of pigs, along with goats and sheep, meant that Spanish colonists
immediately found value in the Guanches as potential agricultural laborers.¹⁶⁶ The
Guanches, including the Gomeros, were thus “able to exercise an important role for the
nascent colonial society,” since their traditional economy and socio-cultural practices
were already centered around the herding of livestock such as pigs and the cultivation
of cereal crops that were “compatible with Spanish needs for food.”¹⁶⁷ However, pigs
were not only an unambiguous benefit to the arriving European colonizers. The
commonalities between the indigenous agricultural practices of the Canaries with
southwestern Spanish agrosilvopastoralism also created room for indigenous resistance
through the continuation of traditional indigenous socio-cultural practices and their
regional economies within the bounds of Spanish colonial rule.¹⁶⁸

The cultivation of pigs was not the only similarity between the Spanish and the
Guanches. Over the course of a few decades, the Spanish settlers, coming from the
highly variable Mediterranean climate of the Iberian Peninsula, were able to adapt their
forms of agropastoralism to the climate and topography of the Canaries. As more

¹⁶⁶ Ibid., 538.
¹⁶⁷ Stevens-Arroyo, “The Inter-Atlantic Paradigm,” 538; J.V. Delgado, Evangelina Rodero Serrano, and
Adolfo Rodero Franganillo, "Primitive Andalusian livestock and their implications in the discovery of
¹⁶⁸ Stevens-Arroyo, “The Inter-Atlantic Paradigm,” 538.
Europeans came to the Canaries, the economy of the archipelago became increasingly centered on agricultural exports such as wine and sugar to countries like Spain and Portugal.\textsuperscript{169} At the same time, this increased intensification in farming by the Spanish through the creation of pastures, vineyards, and sugar mills likewise altered the ecology of the archipelago’s fertile midlands where pigs were raised.\textsuperscript{170}

Since the climate of the Canaries resembled the climate of Spain, and because the pigs had thrived in the Canaries before the arrival of the Spanish, the Spanish were able to use the similar socio-ecological niche of the pig on islands such as La Gomera to their benefit in their later colonization of the New World. Before La Gomera became one of the main supply points for subsequent voyages to the New World, the island acted as the last port of call for Columbus as he sailed to the New World in 1492, and again when he loaded the eight pigs on his ship in 1493.\textsuperscript{171}

\textbf{Chapter Conclusions}

If one looks carefully through the anthropocentric histories of the Reconquista and the emergence of the Spanish empire, the obscured history of the pig’s place in this common-held narrative reveals a history of decisive human intervention and a thousand-year-old human-animal relationship that was consciously cultivated. Focusing on the pig within the Iberian Atlantic context illuminates patterns and intersections between the physical environment and key sociopolitical institutions in

\textsuperscript{170} del Arco Aguilar and Rodríguez, “Vegetation of the Canary Islands,” 9; Farrujia de la Rosa, “Written in stones,” 121.
\textsuperscript{171} Bartolomé de las Casas, \textit{Historia de Indias}, 366; Cristóbal Colón, \textit{Diario de a Bordo (Primer Viaje)}, 33; Delgado, Serrano, and Franganillo, "Primitive Andalusian livestock and their implications in the discovery of America," 388.
medieval Spain that fostered the creation of a specific socio-ecological niche for the pig to inhabit throughout southwestern Spain.

The Spanish actively created the landscape through the agrosilvopastoral system of the *dehesa* that encompassed the physiological and social characteristics of the pig. The dynamism of the *dehesa* can be seen through its continuous adaption from the Neolithic Revolution, Roman rule, Visigoth control, Moorish oversight, through the Reconquista, and into the Spanish era of Atlantic expansion. From their early interactions on the Peninsula, Celtic-Iberian groups slowly domesticated the pig through continually managing wild boar populations and maintaining the growth of the oak trees, shrub species, and cereals on the *dehesa*. The presence of the *mayordomos* and the municipal laws that superseded public and private property also signifies the importance of the carefully synchronized life cycle of Iberian pigs with *la montanera*.

As the Spanish negotiated their claim to the islands of the Atlantic, the Canaries demonstrate the slow, intentional human-led cultivation of the pig in tandem with the growth of Spanish imperial goals. Just as pigs helped Spanish settlers to survive on the Canaries, the socio-ecological niche of pigs on islands like La Gomera also represented, to a certain extent, the survival of indigenous agro-ecological, socio-cultural practices, and economic functions. The geopolitical, socio-cultural, and environmental context of the early modern Iberian Atlantic origins of the pig’s socio-ecological niche now allows for an in-depth look into the conscious negotiation and cultivation of pigs throughout the multitudinous cultural, economic, and environmental landscapes of the New World.
NEW BEGINNINGS FOR AN OLD WORLD SPECIES

One of the first descriptions of the New World that Columbus recorded in his journals in 1492 was the lack of large domesticated animals such as “sheep or goats or any other beasts.”¹⁷² Even though dried pork and bacon, tocino, was used to sustain his first voyage of exploration across the Atlantic, Columbus needed to provide his convoy with a self-propagating and stable supply of food on his second journey of colonization.

¹⁷² Translated from Cristóbal Colón, Diario de a Bordo (Primer Viaje), 34.
A year later, Columbus made sure to purchase this self-propagating food source on the island of La Gomera between October 5-7, 1493 before he left for Hispaniola.\textsuperscript{173} Seeing as there were no large domesticated animals when he arrived the previous year, in 1493 Columbus made sure to take advantage of the cheap agricultural prices in the port of San Sebastián by stocking his convoy with horses, cattle, sheep, goats, seeds, and eight pigs.\textsuperscript{174}

While more research is required in order to determine the exact breed(s) of the first eight pigs introduced to the New World, these pigs were described respectively as “red and black,” meaning that Columbus quite possibly purchased a mixed herd of both red Iberian and Black Canary pigs from La Gomera.\textsuperscript{175} It is plausible that Spanish farmers, craftsmen, and nobles settling on La Gomera transported their own Iberian pigs to the island and or bought herds of Black Canary pigs after they arrived. At the same time, one can also question Columbus’ logic behind his purchase of a mixed herd of pigs during his stop in the port of San Sebastián in 1493. It would have been more sensible for Columbus to purchase the eight pigs from a single herd in the southeastern region of La Gomera near the port of San Sebastián. Since the fat-content-per-carcass of the pigs were crucial for the colonists, the herd may have consisted of the famous black and red Iberian pigs that had gained a glowing reputation throughout the Mediterranean world.

What can be deduced from these first accounts is that the only red breeds the Spanish came into contact with were the retinto, colorado, oliventina, and torbiscal

\textsuperscript{173} Translated from Bartolomé de las Casas, Historia de Indias, 366; Crosby, The Columbian Exchange, 75; Bennett, "Aspects of the Pig," 230.
\textsuperscript{174} Crosby, The Columbian Exchange, 75.
\textsuperscript{175} Bartolomé de las Casas, Historia de Indias, 366.
Iberian pigs.\textsuperscript{176} This means that a portion of the group that Columbus purchased were, in fact, Iberian pigs. Genetic analyses of New World pigs have identified both Iberian pigs and Black Canary pigs as core descendants of the feral and domesticated pigs born throughout the Caribbean as well as across Central and South America.\textsuperscript{177} Thus, while Columbus may have transported a mixed or homogenous herd of pigs across the Atlantic, the cultivation of both Iberian and Black Canary pigs on the Canaries remained crucial sources for supplying pigs to New World settlements.

Reintroducing pigs to the classical narrative of the Spanish conquest provides a crucial entry point into an analysis of colonial human interactions with the non-human world as well as a way to explore how the pig was invited into the New World by various groups throughout colonial Latin American society. Part I of “New Beginnings for an Old World Species” will investigate the process behind the introduction of pigs to the New World, the presence of pigs within the Spanish conquest and exploration of the Americas, the physiological transformation of pigs, pigs’ agency through the process of feralization, and the adaptation of hog raising in the New World. Part II will examine the intimate relationship between people and pigs that included the transfer of pathogens between humans and swine, the abrupt alteration of Spanish and indigenous foodways, and the ways in which pigs were incorporated into the daily lives of people across colonial Latin America.

\textsuperscript{177} Burgos-Paz et. al, “Porcine colonization of the Americas: a 60k SNP story,” 321.
Part I

A New Arrival

In Columbus’ second journey across the Atlantic in 1493, due to the waste and smell generated by the pigs on board the ship coupled with the likelihood of them dying during transit, the Spanish reduced the eight pigs’ time onboard by loading them from La Gomera rather than in the port of Cádiz.\(^{178}\) On the flotilla that carried the Spanish across the open ocean, pigs were held in corrals on the ship decks and fed on the food scraps and the waste of the crew.\(^{179}\) Compared to the size of horses and cattle, pigs took up less space onboard either the lightweight caravels or the larger carracks.\(^{180}\) In subsequent journeys, if the supply of salted pork, *tocino*, ran out, pigs were reluctantly killed when the ships hit the “Horse Latitudes.”\(^{181}\) The Horse Latitudes or belts of light, variable airstreams, between the trade winds and the westerlies, greatly slowed the movement of ships, leaving the Spanish no choice but to throw livestock, even their horses, overboard in order to conserve water and resources.\(^{182}\)

After nearly a month on the open ocean, the eight swine on board touched the sandy beaches of the island of Hispaniola on November 3, 1493.\(^{183}\) Due to the lack of large predators like the red fox or Iberian wolf of Spain, and with “no equivalents of rinderpest or hoof-and-mouth disease” that plagued populations of pigs throughout the

\(^{178}\) Delgado, Serrano, and Franganillo, "Primitive Andalusian livestock and their implications in the discovery of America," 393.
\(^{180}\) Bennett, "Aspects of the Pig," 232.
\(^{181}\) Ibid., 232.
\(^{182}\) Ibid., 232.
\(^{183}\) Ibid., 230.
Iberian Peninsula, the pigs found a hospitable environment on Hispaniola. Along with the lack of large predators and diseases, pigs also took advantage of the vegetation of the Caribbean. In his journals, Columbus mentions the “superlative manner” in which the pigs were able to reproduce.

The “Seeding” of Swine

The Spanish Jesuit missionary Bernabé Cobo, who wrote a history of the conquest in the latter half of the sixteenth century, described that beginning in 1493, after witnessing a lack of domesticated animals as available food sources, Columbus and his men set out on a mission similar to the Reconquista and the colonization of the Canaries to “populate” the Caribbean with Spaniards and breeds of Spanish livestock so that they may “multiply and perpetuate.” Seeking to “Europeanize” the new landscapes, the Spaniards systematically and deliberately instituted a policy of “seeding.” As they journeyed throughout the Antilles, the Spanish began cultivating herds of pigs that were purposely released “on uninhabited islands and stretches of inhospitable coast” in order to provide sustenance for potentially lost or shipwrecked crews. Hispaniola became not only the geographic jumping-off point for later expeditions, much as the Canaries were for larger Atlantic exploration, but also became

---

185 Delgado, Serrano, and Franganillo, "Primitive Andalusian livestock and their implications in the discovery of America,” 387.
186 Christopher Columbus, Journals and Other Documents on the Life of Christopher Columbus, trans. Samuel Eliot Morison, (New York: Heritage Press, 1963), 217; Vassberg, "Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru," 52.
187 Translated from Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 21, 23.
the center of pig production in the early stages of American exploration (Figure 2.2). Agricultural historian Merrill Bennet describes Hispaniola as “the pig-supply depot for Spanish exploration and settlement of the mainland.”

As the Spanish explored the Circum-Caribbean region, they brought herds of pigs along with them. Beginning in 1505, the Spanish brought pigs to Puerto Rico, then to Jamaica in 1509, and to Cuba in 1511. By 1516, the Spanish introduced pigs to the northern coasts of Colombia. In 1519, populations of pigs were reportedly introduced to Darién in the Isthmus of Panama and as far south as Coro and Cumaná in what is now Venezuela. As explorations expanded over time and geographic range throughout the New World, populations of pigs, taken from each of the islands on which they reproduced on, became essential components of colonization.

It should thus come as no surprise that the physical ranges of pigs increased in tandem with the growth of the nascent Spanish empire. Both conquistadors and the Crown actively pursued and enacted policies of repopulation and introduction of pigs across the New World. In 1521, a royal grant that focused on supporting the needs of the conquistadors traveling to that region sent one thousand pigs from Jamaica into the Isthmus of Panama.

---

190 Bennett, "Aspects of the Pig," 230.
191 Ibid., 230.
193 Ibid., 41.
194 Ibid., 42.
195 Ibid., 42.
In order to sustain the colonization of Panama, the Crown offered married Spanish men who settled in the region a pig and a cow.\textsuperscript{196} However, throughout each of the Spanish expeditions through Central and South America, pigs slipped the confines of their indigenous swine herders, escaping into the jungles of Central America.

\textsuperscript{196} Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 63.
America. As the only omnivorous domesticated livestock species, pigs within the Circum-Caribbean region adapted to the tropical environment by utilizing the cartilaginous disc on the end of their powerful snouts to effectively forage for manioc (Manihot esculenta) tubers, pineapples, guava plants, and animals such as small lizards, amphibians, rodents, and birds.

While more in-depth research is necessary, environmental historians and ecologists argue that the primary environmental impact of pigs can be attributed to the increased spread of seeds through their manure. As feral and domesticated pig herds quickly grew in size, they tended to gather near streams where they “compacted the soil,” and contributed to the erosion of the land as they either trampled new seedlings or devoured the surrounding saplings, roots, and shrubs. Pig populations across the Antilles reoriented the ecologies of the indigenous plants and animals of the Caribbean and reduced the ecological capacity of the islands to sustain their feeding patterns. Alongside other large European livestock species such as cows, sheep, and horses, pigs altered their new habitats through the redistribution and dispersal of seeds into new geographical ranges. Ecologists such as Ambroise G. Baker argue that large herbivores like pigs help to reconstitute plant communities through consuming vegetation and depositing the seeds in different regions.

197 Bennett, "Aspects of the Pig," 231.  
199 Miller, An Environmental History of Latin America, 59.  
200 Anderson, Creatures of Empire, 116.  
201 Ibid., 116.  
202 Ibid., 59.  
As crops from Europe such as wheat competed for space alongside maize, as sweet potatoes from Africa were planted alongside manioc and tomatoes, and as crops from Asia like bananas grew in the same soil as papayas and pineapples, pigs became fully integrated into the ecosystems of the Americas in which they were introduced. Historian Stephen Miller argues that while the islands of the Caribbean experienced “substantial species’ loss,” the tropical forests of Central and South America did not experience the same extent of extinction due to the sheer geographic expanse of Central and South America. One could argue that swine in fact contributed to the net-biodiversity of the New World – a process that was augmented by the Spanish.

**Free and Feral: New World Transformations**

While this story of people and pigs in the Atlantic world has thus far focused on the role of human cultivation, it is also worth considering the agency of the pigs themselves. Pigs did not exist solely at the behest of their human owners. The sustained fecundity and adaptability of the Iberian and Canary pigs, possibly due to both the tropical climate and vast new foods available year-round, allowed pig populations to thrive outside of the realm of Spanish colonial supervision. Unlike the herds on the dehesa that had followed the whistles of their porquero, the pigs in the New World began to break from the control of the Spanish, and soon indigenous, swineherds, slowly leading to the feralization of these herds (Figure 2.3).

---

204 Miller, *An Environmental History of Latin America*, 61.
205 Ibid., 61.
206 Vassberg, "Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru," 47.
Three factors led to the creation of the burgeoning feral pig populations that still exist throughout the New World to the present day.\(^{207}\) The first factor in the feralization process was the escape of domesticated pigs from the Spanish settlements and from the control of the *porqueros*.\(^{208}\) The second factor was the intentional release of domesticated pigs through the Spanish protocol of seeding.\(^{209}\) The third and final factor that led to the creation of feral hog populations was the continued free-range herding of domesticated pigs, whose contact with their *porqueros* becomes increasingly more detached as more generations of pigs were born in the New World.\(^{210}\) The same herding practices on the *dehesa* led to very different outcomes in the Caribbean. These *criollo* populations of pigs began adapting to their environments, slowly expanding their ranges farther from the constant oversight of *porqueros*.\(^{211}\)

Present day, the feral herds of pigs that roam the forests of the Big Cypress National Preserve in southern Florida are descended from the first Spanish pigs brought with De Soto beginning in 1539 along with subsequent introductions during the seventeenth century.\(^{212}\)

As populations of pigs became feral in the New World, their physiology and behavior began to change. Due to the fact that sows could reproduce twice in a yearly cycle, generational changes in the physiology and demeanor of pigs occurred in the span of as little as two or three years.\(^{213}\) One of the characteristics that set feral pigs


\(^{208}\) Ibid., 7.

\(^{209}\) Ibid., 7.

\(^{210}\) Ibid., 7.

\(^{211}\) Mayer and Brisbin, *Wild Pigs in the United States*, 7; *Criollo* is a colonial Spanish term that was used to describe people, and eventually animals, that were born in the New World.


\(^{213}\) Anderson, *Creatures of Empire*, 122.
apart from their domesticated relatives was and is the shape and size of their skulls.\textsuperscript{214} The skull morphology of American feral hogs is a significant departure from the appearance of both domesticated pigs and European wild boars.\textsuperscript{215}

While the shapes of the feral hogs’ skulls varied by region, on the whole, the cranial and jaw formations of feral populations were markedly smaller compared to that of domesticated pigs and wild boars.\textsuperscript{216} While new physical variations appeared in feral populations as they interbred with runaway domesticated pigs and each other, by in large, the physiology of New World feral pigs – from the length of their tails, ears, legs, feet, and respective body weight – were found to be smaller than both their domesticated counterparts and their wild ancestors in Europe.\textsuperscript{217} As these feral populations moved through the rivers, mountains, and jungles of the New World, their physical attributes adapted to these new landscapes. Once outside of the care of their porqueros, generations of feral pigs became “smaller, thinner,” and at times grew thick coats of curly “woollike underfur.”\textsuperscript{218} In a matter of years, these feral criollo populations soon matured faster, grew tusks, and became “narrow-backed, fast and vicious.”\textsuperscript{219}

\textsuperscript{214} Mayer and Brisbin, \textit{Wild Pigs in the United States}, 22.
\textsuperscript{216} Mayer and Brisbin, \textit{Wild Pigs in the United States}, 133.
\textsuperscript{217} Ibid., 134.
\textsuperscript{218} Mayer and Brisbin, \textit{Wild Pigs in the United States}, 226.
\textsuperscript{219} Crosby, \textit{Ecological Imperialism}, 176.
Geneticists analyzing the lineages of feral pigs across Latin America found that the random village pigs sampled from the Yucatán to the Andean regions of Colombia and Peru represented a combination of Iberian, Black Canary, Landrace, Large White, and Chinese breeds.²²⁰ This preliminary genetic history of feral pigs in the Americas

means that as more Europeans came to the colonies, they brought other pig breeds such as the Landrace, Large White, and Chinese along with them. Future research into the potential introduction of Chinese pigs to Acapulco through the Manila Galleons would be an important contribution to this study.

The progressive feralization of pigs and the transformation of their physiology also meant that their meat became increasingly inedible. This lack of useable meat and lard posed a serious problem for the Spanish as they attempted to establish lasting settlements. Colonial correspondence from across the Caribbean describes the meat from the feral pigs as “so lean that you cannot eat them,” which caused settlers to abandon certain regions.221 The rapidly growing feral populations soon became a problem for both Spanish and indigenous peoples whose land these herds traversed. Feral droves of pigs “ravaged cultivated crops” like maize, manioc, potatoes, and even sugar cane.222 The problems of colonization through the Iberians’ inability to control or utilize the feral herds of pigs demonstrates just how important pigs were in the establishment of the early Spanish settlements.

After only a decade in the New World, the Spanish had already become aware of the persistence and abundance of feral pig populations on the Caribbean islands. From the early accounts of the conquest, the Spanish were well aware of how rapidly the pigs were procreating on the islands of the Caribbean. The Italian historian Peter Martyr d'Anghiera wrote that “the multitude of pigs has grown, and those who escaped from the swineherds have become wild.”223 Father Bernabé Cobo wrote, “the pigs have

221 Donkin, "The Peccary," 45.
222 Ibid., 42.
223 Ibid., 26.
multiplied with so much excess in many parts that they have made maroons and walk
in large herds across the fields and deserts, without an owner."224 The Spanish historian
of the conquest, Gonzalo Fernández de Oviedo y Valdés observed "many of the swine
carried from Spain” became wild on the islands of “Santo Domingo, Cuba, San Juan
[Puerto Rico] and Jamaica.”225 Meanwhile the Spanish missionary José de Acosta wrote
that on Hispaniola, where the pigs had become “wild and cruel,” Spaniards began
hunting them like the wild boars of Spain.226

At the same time that herds of feral pigs were growing, so too were feral packs
of dogs. These feral dogs caused many grievances with Spanish farmers who
complained that these dogs “ate the entire herds of sheep and pigs.”227 Feral populations
of pigs became so large that in 1503, Governor of the Indies Nicolas de Ovando
reported that the Crown granted royal hunting licenses to colonists in order to hunt feral
pigs on Hispaniola.228 In 1514, the new governor of Cuba, Diego Velázquez de Cuéllar,
claimed that the population of pigs that he introduced to the island numbered at
upwards of 30,000 individuals.229 While this inflated number should not be taken at
face value, Velázquez’s estimation highlights how the presence and proliferation of
both domesticated and feral pigs into the islands of the Caribbean occupied Spanish
conscience. Indigenous groups were not the only ones who had a mixed reception to
the pig.

224 Translated from Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 26.
225 Donkin, "The Peccary," 44.
226 Translated from Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 26.
227 Ibid., 28.
228 Translated from Justo L. del Río Moreno and Lorenzo E. López y Sebastián, “Hombres y ganados
en la tierra del oro: Comienzos de la ganadería en Indias,” in Revista Complutense de Historia de
229 Donkin, "The Peccary," 44.
Unlike the heralded Iberian pigs of the dehesa, the Spanish saw feral swine in the New World as both potential food sources and destructive pests. Feral hogs and runaway slaves were both referred to as cimarrón, or wild and untamed. While settlers did hunt and eat feral pigs, or cimarrónes, the Spanish were concerned about the casta (lineage) of their livestock as much as they were concerned about the casta of other human beings. In order to prevent the escape of pigs and aid in the cultivation of “proper” lineages of livestock, Spanish colonists moved towards enclosing their animals in concentrated, protected areas.

**Shifting Practices**

Unlike the agropastoral system of the dehesa, when it came to raising pigs in the New World, the immense ecological variability and unknown territory altered southwestern Iberian traditions of animal husbandry accordingly. As previously mentioned, pigs began disappearing into the highlands of the Caribbean such as Cuba, Hispaniola, and Puerto Rico. In order to combat this problem, settlers concentrated their pigs on their estancias or in corrales de puercos. Estancias were large private ranches that were used to raise livestock such as cattle, sheep, and pigs, while corrales de puercos were pig pens that were built by local farmers or stockmen. For example, one of the wealthiest men on Hispaniola in the early sixteenth century, the conquistador Francisco de Garay, made his fortune raising pigs. In Central America, thousands of pigs were able to survive on the Panamanian estancias, providing the “initial breeding

---

231 Ibid., 87-88.
stock” for Francisco Pizarro’s expedition into Peru. While the Spanish continued to herd their droves of pigs through the forests within or surrounding their estancias, like on the Iberian Peninsula, the Spanish had to also constantly negotiate the spaces in which they could raise their pigs.

On the island of Cuba, for example, records from the cabildo (town council) show that beginning in the 1550s, due to the high demand for pork, large tracts of land were set aside to build corrales de puercos. However, the construction of these pig pens ran into difficulties as members of the cabildo began to allocate land without establishing demarcated limits in the mid-1560s that created problems with the local cattle ranches or hatos de vacas. In the grab that ensued, cattle farmers had amassed enormous estancias. In order to ensure the continued cultivation of pigs, Governor Juan Maldonado argued that since the hog ranches “had become quite profitable because of the demand for meat created by the fleets,” it was imperative that the cabildo fine cattle farmers and landowners who failed to demarcate their property lines. In the continued reaction against the cattle ranchers that had accumulated single ranches large enough to encompass “ten estancias,” a universal land measurement system was established in 1596.

234 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 46; Donkin, “The Peccary,” 42.
235 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 31.
237 Ibid., 121.
238 Ibid., 123.
239 Ibid., 123.
240 Ibid., 123.
Iberian settlers began to feed their pigs maize, manioc, and fruit like cherry plums, pineapples, and papayas within their small corrales or expansive estancias.\textsuperscript{241} Very early on in the settlement of the Caribbean, the settlers began to notice the positive effects of allowing their pigs to eat the vegetation and fruit of the New World.\textsuperscript{242} In 1511, the Italian historian, Peter Martyr d’Anghiera in his account of the New World, \textit{De Orbe Novo}, paints a picture of how pigs’ diet changed the taste and quality of their meat as they gorged themselves on the vegetation of the New World.\textsuperscript{243} In a letter addressed to the viceroy of Granada, the conquistador describes how the pork from the pigs of the New World was “of an agreeable flavor,” attributing it to “the island’s fruits they greedily devour.”\textsuperscript{244} The letter goes on to say,

pork is about the only kind of meat bought in the markets. The pigs have rapidly increased, but they have become wild since they are no longer kept by swineherds. There is no need to acclimatise any other species of animal or birds in Hispaniola.\textsuperscript{245}

For d’Anghiera, pigs were so useful that there was no need to introduce any other Old World animals to the island. The letter not only demonstrates that pigs were a vital food staple for the Spanish but that swineherds had actively raised them just as on the Iberian Peninsula and La Gomera. The Spanish had attempted, to the best of their abilities, to cultivate the herds of pigs that they had brought to the New World. Another letter compiled by d’Anghiera describes how the pigs would feast on the fruit of the cherry

\begin{footnotes}
\footnote{Crosby, \textit{The Columbian Exchange}, 79.}
\footnote{Río Moreno and López y Sebastián, “Hombres y ganados en la tierra del oro,” 35.}
\footnote{Peter Matyr d’Anghiera, \textit{De orbe novo: The Eight Decades of Peter Maryt d’Anghiera}, trans. Francis Augustus MacNutt, (New York: G.P. Putnam’s Sons, 1912); Earle, \textit{The Body of the Conquistador}, 77-78.}
\footnote{Ibid., Book X.}
\footnote{Ibid., Book X.}
\end{footnotes}
plum or “mirobolan” (*Prunus cerasifera*). Tellingly, d’Anghiera recounts the prominence of cherry plums in the pigs’ new diet on Hispaniola by stating,

> When it is ripe it is in vain the swineherd seeks to keep his pigs, for they evade him and rush to the forest where these trees grow; and it is for this reason that wild swine are so numerous in Hispaniola.

The account continues to argue that the pork from Hispaniola was “more wholesome” and of “superior taste” than that of Spain due to the “diversity of foodstuffs” on the island that “produces firmer and more savory meat.” Another conquistador-turned-writer, Gonzalo Fernández de Oviedo y Valdés writes that the “very great grass” of the Caribbean was “good for the pigs” as the grass “fattens them a lot.” The supply of fruits, shrubs, and roots extended the range of pigs within the New World and substituted the traditional diets of the Iberian pigs in Spain and the Black Canary pigs on La Gomera. The pig’s successful dietary adaptation did not go unnoticed by the conquistadors, either. Understanding the emergence of *corrales* and the change in pigs’ diets in the New World provide the foundation for understanding how the various conquistadors utilized pigs in their military expeditions.

**Cultivation of Conquest**

The Spanish expeditions into the New World did not only consist of humans. Domesticated animals accompanied the conquistadors as they sought to conquer and colonize the New World. Old World species such as dogs and horses aided in
colonization of Central and South America. However, while pigs were not used in combat or as beasts of burden, swine helped provide the nourishment for the conquistadors throughout the conquest of Mexico, Peru, and the exploration of North America. As the military horses and dogs led the expeditions through forests and over mountains, herds of pigs stayed close behind. Since swine were able to thrive in environments that were altogether unsuitable for cattle and sheep, pigs provided one of the only consistent sources of meat available for the conquistadors on their expeditions. In order to center the presence of pigs in the story of conquest, the following sections will follow the three expeditions of Hernán Cortes, Francisco Pizarro, and Hernando de Soto.

The Herds of Hernán Cortés

On February 18, 1519, after disobeying the orders of Governor Diego Velázquez, the young Extremaduran Hernán Cortés departed the island of Cuba with his eyes set on the riches that lay in the rumored city of Tenochtitlán. With a cohort of pigs in tow he had bought in Cuba, Cortés and his men disembarked in Veracruz (Figure 2.4). The conquistador Bernal Díaz del Castillo, who joined Cortés' expedition, described in A True History of the Conquest of New Spain that in order to conserve their supply of meat as they pushed towards Tenochtitlán, Cortés instituted a policy that systematically staggered porqueros behind the moving armies.

250 Graham, Horses of the Conquest, 5; Varner and Varner, Dogs of the Conquest, 10.
251 Bennett, "Aspects of the Pig," 230.
252 Crosby, The Columbian Exchange, 77.
254 Burkholder, and Johnson, Colonial Latin America, 51.
256 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 42.
Conquistadors such as Diego de Ordás were ordered to oversee the cultivation of pigs in the corrales in order to feed the Spanish army while they awaited more shipments of pigs from Hispaniola and Jamaica.²⁵⁷


During the siege of Tenochtitlán, as the Spanish starved the ailing Mexica people by cutting off the city’s causeways, the Spanish and their indigenous allies were no doubt fed by the growing droves of pigs that Cortés had been so keen on procuring.²⁵⁸ Aided by the spread of a smallpox epidemic that hit the city at the height of the siege, the Spanish and their indigenous allies likely fed on the pigs and the maize

²⁵⁸ Burkholder, and Johnson, Colonial Latin America, 57.
of the countryside in order to defeat the Mexica.\textsuperscript{259} On August 21, 1521, the execution of the last Mexica ruler Cuauhtemoc signified the fall of Tenochtitlán.\textsuperscript{260}

In the following days, Cortés ordered a victory feast in Coyoacán to celebrate the Spanish victory and to honor their indigenous allies like the Tlaxcallans.\textsuperscript{261} Pigs were brought from Cuba to the port of Veracruz and slaughtered for the celebration.\textsuperscript{262} From the beginning to the end of the Spanish conquest of the Aztec empire, pigs were essentially integrated into the movement of Spanish forces. Similar to the mobilization of farmers during the Reconquista in Spain, Cortés had purposefully instituted the cultivation of pigs in \textit{corrales} overseen by \textit{porqueros} throughout the valley of Mexico.

After the conquest of Mexico, a drove of pigs were herded by enslaved indigenous peoples in Cortés’ 1524 expedition into what is now Honduras.\textsuperscript{263} Some of the pigs on this expedition into the Central American region were also sailed to the Bay Islands in order to potentially save the lives of future stranded conquistadors.\textsuperscript{264} The subsequent herds of pigs that were introduced to Central America soon became the breeding stock that was taken to Peru.

\begin{itemize}
\item \textsuperscript{259} Ibid., 57.
\item \textsuperscript{260} Ibid., 58.
\item \textsuperscript{261} Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 42.
\item \textsuperscript{262} Ibid., 42.
\item \textsuperscript{263} Matthew Restall, \textit{Seven Myths of the Spanish Conquest} (New York: Oxford University Press, 2004), 51; Crosby, \textit{The Columbian Exchange}, 75.
\item \textsuperscript{264} Restall, \textit{Seven Myths of the Spanish Conquest}, 51; Essig, \textit{Lesser Beasts}, 126; Donkin, “The Peccary,” 42.
\end{itemize}
The Pizarros, Pigs, and Peru

Another Extremaduran who sought to advance his place in life by pursuing riches and glory in the New World was none other than Francisco Pizarro. Born in the city of Trujillo, Spain, Pizarro was well-versed in the importance and uses of pigs. In 1531, after assembling a regiment of fellow Extremadurans in Spain and Panama, including the young Hernando de Soto, Pizarro set sail for the Incan kingdom in South America. While sailing to Peru, Pizarro established a Spanish presence on Flores Island off the coast of Peru. Similar to the methods of Cortés and other travelers that “seeded” the islands of the Caribbean and the mainland, Pizarro introduced a healthy stock of pigs that he purchased in Panama on Flores and the coastal regions of what later became Lima in 1531.

Soon after landing in Peru, as Pizarro and his troops, along with their native Nicaraguan and African slaves, made their way into the mountains to find the Incan crown prince Atahualpa, Pizarro established breeding herds near Tumbés. Like Cortés’ march to the city of Tenochtitlán, as Pizarro and his men marched to the city of Cuzco, Pizarro was prudent enough to acknowledge pork as a “key military food supply.” Similar to Bernal Díaz, the conquistador Diego de Trujillo writes that while the Spanish accumulated indigenous allies as the civil war between the royal brothers,

---

265 Vassberg, “Concerning Pigs, the Pizarros, and the Agro-Pastoral Background of the Conquerors of Peru,” 52.
266 Burkholder and Johnson, Colonial Latin America, 70-89; Essig, Lesser Beasts, 126; Donkin, “The Peccary,” 126.
Atahualpa and Huascar, raged on, Pizarro and his army were sustained by the meat from large numbers of pigs that followed closely behind the advancing Spanish. Similar to the foresight of Cortés within the Valley of Mexico, Pizarro was able to sustain his troops in the conquest of Peru in the highlands of the Andes in part through the consumption of pork. After murdering Atahualpa soon after they kidnapped him and extracted nearly 26,000 pounds in silver for his ransom, Pizarro proclaimed himself the ruler of Peru.

Pigs were also important in Gonzalo Pizarro’s expedition of the Amazon. Beginning in 1541, Gonzalo took between two and six thousand pigs with him from Quito down into the Amazon in search for cinnamon. The renowned sixteenth century Spanish historian of the conquest, Francisco López de Gómara, wrote that after a year and a half, Gonzalo Pizarro’s expedition failed, leaving alive less than half of the two hundred Spaniards who journeyed into the Amazon.

Back in Peru, internal divisions over the amount of tribute distributed between Pizarro and his partner Diego de Almagro led to a civil war. Just as in the wars with the Inca, pigs played a vital role in sustaining the civil war between the Spanish in Peru. During this civil war, conquistadors such as Hernando Bachicao wrote letters specifically in support of the Pizarros wherein he proclaimed, “in this town I leave five hundred pigs for your lordship to eat.” From the conquest of the Incan empire to the

---

273 Ibid., 47.
274 Ibid., 48.
275 Ibid., 48.
276 Ibid., 65.
277 Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 47.
278 Ibid., 47.
civil war between the competing Spanish conquistadors, Extremadurans in the Andes had relied on the cultivation of pigs in order to help sustain their military and political efforts. As will soon be described, as the Spanish moved farther north into North America, pigs were introduced to the expanses of what is now Florida and the Southeast United States.

**Hernando de Soto’s Swine**

Around the same time that Hernán Cortés and his indigenous allies and slaves were herding pigs through the jungles of the Yucatan, and after pigs had flourished in the Andes after Pizarro conquered the Incan empire in Peru, another Extremaduran conquistador left for the coast of Florida from Cuba in 1539. The general of Cuba, Hernando de Soto is credited as leading the first successful Spanish exploration into the interior of North America from 1539-1543. Governor de Soto is also known for introducing pigs to North America. Traversing through what is now Florida, Georgia, Alabama, North and South Carolina, Tennessee, Mississippi, Louisiana, Arkansas, and Texas, De Soto and his band of conquistadors began their journey with only thirteen pigs and ended their expedition with over seven hundred. De Soto was wary of repeating the failed 1526 mission of conquistador Pánfilo de Narvaez who perished from starvation after underestimating the sheer size of the Florida peninsula and the wide distributions between cultivated indigenous farmland. De Soto was sure to

---

283 Ibid., 7.
follow the same formula he must have witnessed as a conquistador under the command of Francisco Pizarro in the conquest of Peru.\textsuperscript{284}

The account written by a conquistador among the De Soto expedition titled, “How War Began to Kindle and Was Cruelly Fought, and How the Lieutenant General Returned to the Island of Cuba, and How the Governor Departed From That Port of \textit{Spiritu Sancto} For the Interior, and of What Happened to Him and His People Until the Tenth of August of the Same Year of Fifteen Thirty-Nine,” details the central role that pigs played in allowing the Spanish to move deeper into the North American interior.\textsuperscript{285} The account shows that following close behind De Soto and his men were “many pigs that had been brought over in the armada for food in an emergency.”\textsuperscript{286}

The account “by a Gentleman from Elvas” highlights both how valuable the thirteen Cuban sows were to De Soto’s expedition and the exponential growth in the number of pigs that the Spanish were herding through the swamps of Florida.\textsuperscript{287} Without the droves of pigs that were able to find their own food, along with maize supplied by the \textit{porqueros}, it would have been even more difficult for the De Soto expedition to feed themselves as they traveled from the swamps of Florida, up the panhandle into North Carolina, and down into the broiling expanses of Georgia and Alabama. The writings of the conquistador and poet Garcilaso de la Vega, who had interviewed soldiers that had traveled with De Soto such as Alonso de Carmona, demonstrate the level of care De Soto took in rationing their herds of swine. The account thus describes,

\begin{itemize}
\item \textsuperscript{284} Ibid., 7.
\item \textsuperscript{285} Ibid., 259.
\item \textsuperscript{286} Ibid., 259.
\item \textsuperscript{287} Ibid., 81.
\end{itemize}
The governor had taken thirteen sows to Florida and was now driving three hundred pigs. He ordered half a pound of flesh to be given to each man daily, it having been three or four days since maize was lacking. With that small amount of meat and with some herbs boiled with considerable trouble, the men were sustained.\textsuperscript{288}

The Spanish rationed how many pigs they killed on their journey throughout the southeast United States by first depleting their store of maize before slaughtering the swine. De Soto made it a priority to move his troops only as fast as the pigs that followed closely behind could travel through the new terrain.\textsuperscript{289} If the pigs were held up, the Spanish could not advance. In order to prevent any delays, the conquistadors took up measures to protect their stock of pigs by building rafts and bridges for them in order to cross the rivers that the Spanish encountered.\textsuperscript{290}

With the death of De Soto in 1543, the exploration for riches in the North American interior by the remaining Spanish had lost steam, leading them to abandon their journey and slaughter the remaining pigs in their possession, as they could not fit them on the outbound ships.\textsuperscript{291} However, the legacy of pigs within the life of Hernando de Soto along with the centrality of pigs within the Spanish expansion into the New World is further demonstrated through the “Inventory of the Assets Left By the Adelantado Hernando De Soto Following His Death, 1543.” His inventory in the old province of Batabanó in Cuba included “two hundred head of pigs, one hundred large ones in the corral and one hundred branded pigs from his litter.”\textsuperscript{292} In the province of Mayabeque, De Soto left behind “four hundred fifty head of pigs, two hundred older

\begin{itemize}
\item \textsuperscript{288} Ibid., 81.
\item \textsuperscript{289} Ibid., 259.
\item \textsuperscript{290} Ibid., 259.
\item \textsuperscript{291} Ibid., 418.
\item \textsuperscript{292} Ibid., 491.
\end{itemize}
ones and two hundred fifty from this year’s litter, all branded.” The inventories of the De Soto estate illuminate the knowledge the Governor possessed about the cultivation of pigs. His inventories contextualize the precautions he took throughout his journey through the southeast United States as well as the centrality that pigs had in the lives of the Spanish in the New World.

Part II

Consequences of Conquest

Part I provided the necessary introduction of the pig to the New World as well as an understanding of how the cultivation of conquest and pigs went hand-in-hand. However, defining the pig's presence in the New World as merely the military food supply for the conquistadors would neglect the other important socio-cultural, economic, and environmental aspects of this human-animal relationship. Part II will focus on life after the initial phase of conquest and the dynamics of the interconnected biological, socio-cultural, and economic aspects of the pig’s various socio-ecological niches within the emergence of colonial Spanish society.

Pigs and Pathogens

Interactions between people and pigs were not just limited to New World diets or environments. Interactions between swine and humans also took place on a microscopic level as well. While this thesis argues against analyzing pigs solely through an epidemiological lens, one cannot discuss the reshuffling of indigenous diets

293 Ibid., 491.
and human-animal relationships through the introduction of pigs without also acknowledging the role that pig-borne pathogens and bacteria played as well.

Zoonotic diseases are pathogens that can be shared between humans and animals. Zoonotic diseases have the capacity to spread remarkably fast between the bodies of animals to those of humans through the close contact between living or deceased animals, animal waste, contaminated water supplies, or through bites or scratches. Over thousands of years since the domestication of the pig, Old World humans’ close proximity to Sus scrofa domestica inevitably led to the spread and evolution of various pathogens and bacteria between the two species. Rinderpest, a disease that impacts ungulate species such as cows and pigs evolved over thousands of years into the measles virus that was able to spread to humans. Pigs were also thought to be responsible for spreading the influenza virus to humans in the northern parts of China.

Parasites such as tuberculosis, anthrax, pertussis, leptospirosis, brucellosis, trichinosis, and taeniasis/cysticercosis also live within pigs. On top of these parasites, pigs are also known to spread infections such as erysipelas, streptococcosis (leads to streptococcus), salmonellosis (salmonella), campylobacteriosis, cryptosporidiosis,

---

295 Ibid., 11.
297 Ibid., 206.
298 Ibid., 330.
giardiasis, balantidiasis, and pathogenic E. coli. For thousands of years, humans such as the porqueros on the dehesa had slowly adapted to the diseases that had passed between their swine and themselves. The daily handling of sows and their piglets, removing carcasses from the pens, or butchering a freshly slaughtered pig put the Spanish in daily contact with the pigs they raised and the pathogens and bacteria they possessed. This was not the case for the inhabitants of the New World.

A common theme in the narrative of the demographic collapse of the Americas is the rapid decimation of the indigenous population from the bacteria and pathogens transferred from the bodies of the unknowing Spanish. Just as important in this narrative of collapse and reconfiguration of indigenous bodies is considering the ways in which indigenous bodies interacted with pigs, particularly through the spread of bacteria and infection. The Spanish were not the only ones who had spread viruses into the regions they explored. As the arrival of pigs and other large livestock coincided with the demographic collapse of the indigenous population across the Americas, the Spanish attempted to conceptualize this annihilation with rumors and stories that the natives were transformed into agents of the devil that took the shape of swine and cattle.

Anthropologist Ann Ramenofsky and historian Patricia Galloway offer theoretical arguments that consider the ways in which infections such as leptospirosis, brucellosis, trichinosis, and taeniasis/cysticercosis likely spread from the pigs taken by the conquistadors on their expeditions to Florida. Accounts from Hernando De Soto’s

---

301 Derby, "Bringing the Animals Back In," 605.
expedition, such as the writings of Garcilaso de la Vega, chronicle how the Spanish “agreed to give them [an indigenous cacique] … two pigs male and female, so they would breed.” However, the number of pigs given by the Spanish did not satisfy the cacique’s demands. The desire for pork culminated in the raid of Spanish camps. The account “El Adelantado Don Hernando De Soto” describes that while the Spanish slept in their camp, “each night the Indians came to some houses… where the pigs slept and they killed and took all the pigs they could.”

Romenofsky and Galloway posit that in the case of the Hernando de Soto expeditions to the southeast United States, taeniasis/cysticercosis, anthrax, leptospirosis, brucellosis, and trichinosis first spread throughout the highly concentrated corrales of Cuba to the Spaniards that tended them. Since pigs are scavengers, the swine of Cuba ate their own waste as well as that of humans. This process, as described by Ramenofsky and Galloway, ignited an almost unending transference of pathogens and bacteria between pigs and humans. These parasites were carried on board De Soto’s ships to the southeast United States inside the bodies of both swine and men.

Ramenofsky also points out that the majority of the diseases carried by pigs could have also be transmitted to deer and turkeys. Deer and turkey, the two major sources of meat in the Americas, soon contracted the same life-threatening parasites from pigs. On top of this, as feral hog populations grew as pigs escaped from their

---

302 Ibid., 50.
303 Quoted in Hoffman, The De Soto Chronicles, 413.
305 Ibid., 271.
306 Ibid., 273.
307 Ibid., 273.
masters, or as domesticated pigs foraged in the same environments as deer and turkeys, indigenous communities could not escape potentially infected water sources or available sources of meat that may have carried prodigious amounts of bacteria and pathogens.  

For Ramenofsky and Galloway, it is quite plausible that this same pattern was repeated as the Spanish, and their pigs moved throughout the New World to places other than the southeastern United States. Whether carried by a pig that was trailing Cortés or Pizarro into the forests of Central and South America or by a feral or runaway pig that fed on the infected waste of their brethren, both instances could result in the transportation of pathogens and viruses into the ecosystems of the Americas. Handling an infected carcass, drinking contaminated water, eating infected meat, or being bitten by an angry sow could easily pass the parasites from pigs to people. The parasites, bacteria, and viruses, therefore, became forever entwined in the microbial makeup of the New World.  

However, in looking at the Ramenofsky and Galloway’s argument about the various pathogens that could have spread from pigs to humans, it is important to note that the introduction of pigs into the landscapes of the New World cannot be conceptualized in the same way. Firstly, the deployment of similar apocalyptic images within Ramenofsky and Galloway’s piece draws from Alfred W. Crosby’s legacy in depicting Old World animals, in this case, pigs, as mere vectors of disease and agents of destruction in the New World. Secondly, these illustrations of destruction conceal the collaborative co-construction of pig’s socio-ecological niches with humans and

---

308 Ibid., 273.
nature alike in their new surroundings in the Western Hemisphere. Lastly, the human-animal relationship between the Spanish, native groups and pigs loses much of its complexity surrounding its cultivation when it is portrayed as simply parasite and host, or vector and victim. Humans were not the unknowing hosts and pigs were not the advantageous parasites. The Spanish, as well as indigenous groups, as will soon be described, actively cultivated herds of swine for consumption, companionship, and survival, slowly co-constructing socio-ecological niches for the pig.

**Pork in the Construction of New Colonial Identities**

As Cortés, Pizarro, and De Soto moved through the American mainland, pigs came into contact with New World groups for the first time. When the Spanish began to establish permanent settlements in these regions, European interpretations of food and the natural world played a central role in the construction of Spanish colonial society. Thus, when analyzing the introduction of the pig into the New World, examining the symbolism of pork within Old World and New World foodways is crucially important. Coined in the 1970s, the term “foodways” incorporates the cultural, behavioral, social, and historical aspects of the preparation and consumption of staple cuisines and dishes within specific societies. As the first pigs trotted into the new Iberian settlements of the Americas, the Spanish used their meat and triglycerides in order to reproduce Iberian society. As the anthropologist of colonial Mexico, Enrique Rodríguez-Algería has claimed, “food and eating were important

---

aspects of the negotiation of social relationships and power in the Spanish colonies in the Americas.”

One of the major aspects in the Spanish’s civilizing mission was the introduction of staple Iberian foods such as wheat, wine, olive oil, and meat such as pork into native diets. Historian Rebecca Earle has argued that for the Spanish because the consumption of Iberian foodstuffs was tied to the preservation of health and identity, particular foods such as pork became central in protecting conquistadors from the “bestial” foodways of the Americas and henceforth, what the Spanish saw as physical and spiritual degradation.

In 1552, the chronicler López de Gómara described how the natives ate “porcupines, weasels, moths, locusts, spiders, worms, caterpillars, bees and ticks – raw, cooked and fried. There is not a single thing that they will not guzzle, and it is all the more astonishing that they eat such dirty animals and bugs given that they now have good bread and wine, fruits, fish and meat.” Conquistadors and missionaries saw the consumption of these “dirty animals,” which were routinely incorporated into indigenous sacrificial and divination practices, as signs of the end of days or the summoning of the devil. Coupled with the fear garnered from the descriptions and rumors of the natives as cannibals, missionaries worked tirelessly to “civilize” the people of the New World through the regular consumption of “clean,” Christian food.

311 Earle, The Body of the Conquistador, 63.
312 Ibid., 64.
313 Quoted in Earle, The Body of the Conquistador, 119.
314 Earle, The Body of the Conquistador, 120.
Drawing on their medieval understandings of the bodily humors, the Spanish felt that the consumption of pork was considered not only crucial in civilizing the natives but also vital in protecting the Spanish body against the new climate of the New World.\textsuperscript{315} The Jesuit missionary Bernabé Cobo wrote “in some hot lands the meat of fresh pork is considered as healthy, which is given to the sick… and so, the pigs that are needed are killed every day in hospitals.”\textsuperscript{316} The Italian traveler Galeotto Cey described how pork was “good and healthy… more than that of the lamb, and also recommended by doctors.”\textsuperscript{317}

Concerned with the foodways of the indigenous peoples, Spanish missionaries soon took it upon themselves to alter the dietary traditions of the inhabitants of the New World by asserting the nutritional and religious value of pork. Missionaries and conquistadors alike placed the position of pork within the Spanish hierarchy of food and culture in direct contrast to indigenous consumption habits and traditions. Unfolding in the minds of the Spanish was a battle of moral versus immoral; Christianity versus paganism; or civilization versus barbarity. Due to the religious and “medical” significance of food for the Spanish, religious orders worked tirelessly in the hopes to coerce or discourage their native congregations from their preconquest cultural foodways.

The Franciscan Friar Bernardino de Sahagún, who wrote an encyclopedia of life in pre-conquest Mexico, argued alongside other figures such as the Dominican Diego Durán that by adopting the foodways of the Spanish by consuming “good, clean

\textsuperscript{315} Ibid., 166.
\textsuperscript{316} Quoted in Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus;” 32.
\textsuperscript{317} Ibid., 32-33.
foods,” the natives would be imbued with the “civilized values” of Christianity.\textsuperscript{318} In one of his sermons in the mid-sixteenth century, Sahagún explained in Nahuatl to his indigenous audience that they must begin to raise Spanish livestock such as “sheep, pigs, and cattle, for their flesh is good. May you not eat the flesh of dogs, mice, skunks, etc. For it is not edible.”\textsuperscript{319} Sahagún closed his sermon by stating, “you will become like them [the Spanish] if you eat their food, and if you are careful with your bodies as they are.”\textsuperscript{320} Earle argues that Sahagún saw Spanish food, such as pork, as central to the construction of new colonial identities for the natives as they became like the Spanish in physically, mentally, and spiritually.\textsuperscript{321}

Physical transformation and spiritual salvation through the consumption of food, as preached by Sahagún above was further argued by another sixteenth century writer who argued that the people of Citlaltepec’s “complexion has almost been converted into ours, because they have been given beef and pork and lamb to eat, and wine to drink, and they now live under roofs.”\textsuperscript{322} The Spanish were convinced that regularly eating pork, wheat, and olive oil not only aided in the salvation of the natives’ souls, but also in the adaptation to European habits and physical appearance.

While the fears expressed by the Spanish over the foodways of the indigenous groups they came into contact with, archaeologists of colonial Mexico City have found that the Mexica and the Spanish were equally aware of the implications that came with the ingestion of each other’s foods.\textsuperscript{323}

\textsuperscript{318} Earle, \textit{The Body of the Conquistador}, 123.
\textsuperscript{319} Quoted in Earle, \textit{The Body of the Conquistador}, 165.
\textsuperscript{320} Quoted in Earle, \textit{The Body of the Conquistador}, 165.
\textsuperscript{321} Earle, \textit{The Body of the Conquistador}, 165.
\textsuperscript{322} Ibid., 166.
\textsuperscript{323} Rodríguez-Alegría, “Eating Like an Indian,” 551.
While conquered groups were instructed to eat pork, which often caused them to sicken and die, the Spanish also partook in strategically consuming indigenous foods that led to an “imperfect reproduction” Iberian foodways and society.\textsuperscript{324} For example, one of the spheres in which the integration of indigenous and Spanish foodways took place was through the marriages between conquistadors and native women and their \textit{mestizo} children who lived together under the same roof.\textsuperscript{325} Even after the conquest of Mexico, the Spanish soon began to consciously consume native foodstuffs such as white-tailed deer, maize, beans, turkey, mollusks, pigweed, squash, chilis, and tomatoes into their diets.\textsuperscript{326} Through looking at these examples, it is clear that the integration of indigenous and Spanish foodways, like the introduction of pork, was not only a one-way interaction.

\textbf{Pigs within the Emerging Colonial Society}

Following the conquests led by Cortés and Pizarro, the Spanish were able to establish the first two viceroyalties in the New World based out of Peru and Mexico by grafting onto the nucleated, sedentary civilizations of the Incan and Aztec empires.\textsuperscript{327} Within these core areas, the Spanish replaced both the Incas and the Aztec at the top of the social hierarchy, erecting the expansive, newly Europeanized urban centers of Mexico City and Lima (Figure 2.5). The construction of these New World cities with their grandiose city centers, avenues, and monuments, were important to the Spanish

\textsuperscript{324} Ibid., 557.
\textsuperscript{325} Ibid., 558.
\textsuperscript{326} Ibid., 557.
\textsuperscript{327} Burkholder and Johnson, \textit{Colonial Latin America}, 93.
mission of Christianization and “civilizing” the natives. Within these emerging core areas, pigs were important in sustaining the emerging colonial society.

For example, before the silver mines of Potosí gained global fame in the 1550s, agriculture and raising livestock constituted one of the most profitable and stable economic activities in the viceroyalty of Peru. Widespread carnicerías, or slaughterhouses, were opened in Mexico City beginning in 1524 and in Lima in 1536. Each year, more than 12,000 pigs were butchered for their meat and lard and sold in the Plaza Mayor for the people of Lima. In Mexico City alone, over 30,000 pigs were consumed annually by 1700.

Figure 2.5. The Plaza Mayor of Lima, Peru, 1680. (From Gabriel Ramón, "Bourbon Manoeuvres in the Plaza: Shifting Urban Models in Late Colonial Lima." Urban History vol. 44, no. 4 (2017): 622-46, 631).

329 Miller, An Environmental History of Latin America, 60.
331 Gade, ”The Iberian Pig in the Central Andes,” 38.
Throughout Spanish American cities, pork and other meat were not butchered in privately owned butcher shops but instead processed in large slaughterhouses controlled by the *cabildos* in order to closely regulate the quality and weight of the meat.\(^{333}\) For example, the *cabildo* of Lima regularly appointed the *fiel mayordomo* (inspector-manager) and the *cobrador de la carne* (meat collector) to run these slaughterhouses.\(^{334}\) In Peru, for example, landowners and farmers who lived in the countryside dedicated much of their economic output in raising pigs for the markets of Tarija, Cuzco, and especially Lima.\(^{335}\) In order to raise enough pigs to keep up with the demand of the growing city, the indigenous laborers on the *haciendas* of the central Peruvian Jauja Valley or in the Chancay Valley raised thousands of pigs.\(^{336}\)

Ordinances from the *cabildos* of Mexico City and Lima demonstrate the complications that arose with pigs in these colonial cities. The presence of pigs, along with the odors and excrement they produced within the Zócalo of Mexico City and the Plaza Mayor in Lima, angered city officials. The *cabildo* of Mexico City ordered that pigs had to be kept on the outer limits of the city, and were only allowed to be brought in for sale during specific hours of the day.\(^{337}\) However, complaints around contaminated water, odors, and dirty city streets were only exacerbated as city residents kept pigs in pens attached to their homes, allowing their swine to search the streets for scraps.\(^{338}\) From 1525 to 1534, the *Actas de Cabildo* in Mexico City fruitlessly issued

\(^{334}\) Ibid., 59.
\(^{335}\) Gade, "The Iberian Pig in the Central Andes," 38.
\(^{336}\) Ibid., 38.
\(^{337}\) Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 65.
\(^{338}\) Ibid., 65-66.
nearly fourteen proclamations that attempted to restrict the number of pigs in the city. A ruling from the cabildo in 1525 states,

This day they ordered that it be publicly preached that all the people who have pigs in this region and in their terms take them out of it within fifteen days so that they do not walk around the city under pain of the loss of the fifth of said pigs.

Another decree in 1527 proclaimed that pigs were not allowed to roam through the city due to the “great damage” they cause. Throughout the sixteenth and seventeenth century, similar decrees were issued by the cabildos of Lima, Quito, and Panama. It was only by the beginning of the eighteenth century that heavily enforced large-scale penalties discouraged city residents from “keeping pigpens in the city centers.”

Focusing on the use and presence of pigs in the everyday lives of various people throughout colonial Latin America offers an entry point into how different individuals lived. Unlike in Spain, the popularity of pigs made pork the cheapest and most abundant meat in the New World. Before the middle of the 1600s, since pigs became so ubiquitous in daily life, prices for their meat dipped so low that it created disincentives to maintain specially created pig farms or hatos de puercos. This made pork, and the various dishes that could be made from frying, boiling, drying, smoking, or grilling every part of the pig widely accessible throughout Spanish America.

---

339 Ibid., 66.
340 Translated from Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 66.
341 Ibid., 66.
342 Ibid., 66.
343 Ibid., 66.
344 Derby, "Bringing the Animals Back In," 602.
346 Ibid., 43.
cultivation of pigs and consumption of pork thus acted as a common thread woven through the strata of colonial Spanish society. The wealthy merchants of Mexico City and Lima that dined on lechón as the mestiza (indigenous and Spanish descent), casta (nonwhite, multiracial), and black women cooked chicharrón for their families, all while members of the palenques (runaway slave settlements) hunted feral and domesticated livestock.347

Throughout the Caribbean, populations of feral hogs that lived in the forests of Hispaniola provided a stable food source for runaway slaves.348 If they did not possess pigs of their own, members of these maroon settlements would regularly hunt feral hogs and raid estancias for domesticated pigs in order to survive (Figure 2.6).349 In the Dominican Republic, pigs provided the foundation of the runaway slave and freedmen economy well into the nineteenth century.350 Slaves within the emerging Atlantic world also labored on the corrales or hatos. While enslaved Africans were concentrated in urban areas, households, and on plantations, it was not uncommon for African slaves to help raise pigs. For example, in Cuba, Francisco Angola took care of over 200 pigs while Sebastián Criollo oversaw some 3,000 pigs.351 For slaves on islands such as Cuba such as Francisco and Sebastián, their labor was geared toward producing hides and meat that they transported to market during the fleet season.352

347 Derby, “Bringing the Animals Back In,” 602; De la Fuente, Del Pino, and Delgado, Havana and the Atlantic in the Sixteenth Century, 158; Burkholder and Johnson, Colonial Latin America, 148. Note: In Brazil, runaway slave settlements were called “quilombos.”
348 Derby, “Bringing the Animals Back In,” 605.
350 Derby, “Bringing the Animals Back In,” 605.
351 De la Fuente, Del Pino, and Delgado, Havana and the Atlantic in the Sixteenth Century, 158.
352 Ibid., 158.
Figure 2.6. A bridge guarded by a runaway slave and a *combé* or settlement. (From Pierre Jacques Benoit. *Voyage a Surinam: Description des possessions Néerlandaises dans la Guyane.* Paper and ink. 46.5 cm x 33.3 cm. Brussels: Société des Beaux-Arts, 1839. John Carter Brown Library).
Like the farmers of Trujillo, Spain, pigs provided free black women and men of the Spanish colonial world a source of income and status. In 1577, the cabildo of Havana granted Diego de Rojas the right to establish a pig farm after he had petitioned the town council.\textsuperscript{353} Two years later, his wife Beatriz Nizardo was able to hire an indigenous laborer, Diego de Toribio, to oversee the cultivation of their herds of swine.\textsuperscript{354} In 1588, Rojas also petitioned the cabildo to acquire more land in order to accommodate his expanding herds.\textsuperscript{355} In early fifteenth century Havana, free black women such as Cecilia Velázquez, Isabel Rodríguez, Catalina Bran, and Isabel Nuñez also had ties to hog raising that afforded them a source of income. It was also not uncommon for free black women to own slaves and farms, as records from 1603-1609 show that Isabel Rodríguez, Catalina Bran, and Isabel Nuñez each owned slaves and an estancia where they raised livestock such as pigs.\textsuperscript{356} Cecilia Velázquez owned a pig farm, a house, and six slaves. After Cecilia’s death, her daughter, Mariana de Avalos, was bequeathed her mother’s slaves, assets, and pig farm.\textsuperscript{357}

Outside the burgeoning Atlantic economy of the sixteenth and seventeenth centuries, the feral pigs that roamed the Caribbean forests provided an ecological base for the peasant economies of the Antilles. Mountain peasants, monteros (hunters) or jíbaros (mountain riders) supplemented their economy of shifting cultivation by hunting feral pigs.\textsuperscript{358} These peasants relied heavily on the hogs in order to sell “contraband meat products” such as “salted jerk and hides” to pirates in the Caribbean

\textsuperscript{353} Ibid., 176.
\textsuperscript{354} Ibid., 176.
\textsuperscript{355} Ibid., 176.
\textsuperscript{356} Ibid., 177.
\textsuperscript{357} Ibid., 177.
\textsuperscript{358} Derby, "Bringing the Animals Back In,” 605.
until the seventeenth century. Pigs were thus not only used for conquest by the Spanish. Swine were equally utilized in sustaining the survival of oppressed groups throughout the Atlantic world.

Pigs were also incorporated into Caribbean divination practices such as Afro-Haitian vodou ceremonies. Within the Palo Monte of Cuba, free Afro-Cubans and escaped slaves of Congolese decent would communicate with their African ancestors through eating different soups that were made from hunting and gathering forest products such as pumpkins, yucca, and pigs. Pigs were also bound up in investigations into idolatry and sacrilege in the Yucatán Peninsula. On August 11, 1562, a Mayan man named Francisco Chuc admitted to Franciscans priests that he and four other community members sacrificed a pig inside the village church before they plunged a small burning cross into the pig’s stomach.

Porcine Commodities

While pigs were important in the conquests of Mexico and Peru as well as in the accumulation of capital for free black people and Iberian stock raisers, the importance of pigs did not stop at their meat. Since the descendants of the Iberian pigs produced high levels of both meat and fat, the byproducts of pigs could be used for more than providing metabolic energy for humans. Lard was equally indispensable for the colonies of the New World. The main uses of lard were sebo, unto, and manteca.

359 Ibid., 605.
360 Derby, “Bringing the Animals Back In,” 609.
361 Ibid., 609.
363 Ibid., 204.
One of the major uses of pig lard came in the form of, *sebo*, or tallow.\textsuperscript{364} Solid at room temperature and resistant to decomposition, tallow was a multi-purpose product in colonial Latin America. *Sebo* provided the fuel for lamps, the wax for candles.\textsuperscript{365} From the candles in city cathedrals or rural churches to streetlamps that lined the avenues as they joined at the Plaza Mayor in Lima and the Zócalo in Mexico City, pig lard was crucial in illuminating colonial Latin America. Secondly, *sebo* provided the raw material for making soap in colonial soap works (*almonas*), which relied on the excess lard provided by the *carnicerías* after the pigs were slaughtered.\textsuperscript{366} Where soap was available across the Spanish colonies, mothers washed their infants using the triglycerides of pigs. Thirdly, tallow was used in the tanneries of the emerging colonial cities, allowing leather smiths and saddle makers to waterproof their hides that they sold in the central markets or to the passing fleets.\textsuperscript{367}

The second use of pig lard was the creation of *unto*. *Unto*, or ointment, allowed for other agricultural and medical sectors to benefit off the bodies of the pigs. Mange, a skin disease transmitted by mites, leads to ringworm, fever, infected hair follicles, and even death for llamas.\textsuperscript{368} The Spanish soldier Garcilaso de la Vega wrote that pig lard when mixed with sulfur produced *unto* that saved camelid flocks (alpacas and llamas) from dying of mange in the Andes.\textsuperscript{369} Before *unto* was used, Vega described

\begin{footnotes}
\item[365] Gade, "The Iberian Pig in the Central Andes," 39; Coe, *America’s First Cuisines*, 234.
\item[366] Gade, "The Iberian Pig in the Central Andes," 38.
\item[367] Phillips, “Europe and the Atlantic,” 259; Gade, "The Iberian Pig in the Central Andes," 38.
\item[369] Zadik, “The Iberian Pig in Spain and the Americas at the time of Columbus,” 65.
\end{footnotes}
that nearly two-thirds of flocks infected with mange died. The ointment made from an Old World species was thus able to save the lives of a New World species.

The other type of lard, *manteca*, was used for cooking and baking. During the rise of colonial urban centers, the Spanish had relied heavily on olive oil for cooking. Because olives could not grow in the Andes and as supply ships from Spain and Panama came on a yearly basis, women widely used *manteca*, or pig lard as “butter” to prepare meals. Using lard to cook instead of olive oil “revolutionized Andean culinary methods” and led to the formation of new culinary traditions throughout Latin America.

The widespread use of *manteca* altered the foodways of the New World and women’s domestic labor within Spanish colonial society. Pre-Columbian culinary traditions did not include the process of frying. Since the Andean cities of Peru were so high in elevation, not only was the boiling point relatively low compared to that of Mexico City, the air was also thinner, and available cooking fuels were in short supply. Pan-frying food in pig lard solved these problems by decreasing the time and fuel necessary to prepare food. The particular physiology of pigs allowed virtually every part of their bodies to be used for consumption. Women throughout Latin America saved resources and time by using *manteca* to cook for their families.

---

370 Ibid., 65.
371 Ibid., 31.
373 Ibid., 39.
374 Ibid., 39.
375 Ibid., 39.
376 Ibid., 39.
Throughout the New World, while pork provided a source of protein and calories, lard was used as a crucial byproduct for the expanding colonial economies. Lard was bound with the laborers in soap works, *carnicerías*, and tanneries. This byproduct also fueled candles and streetlamps, altered the way women prepared food, cured mange, and cleaned off the dirt from everyday life. Pigs, in life and in death, proved indispensable in the colonial Spanish world.

**Chapter Conclusions**

Pigs quickly rose to prominence as a major food source for the Spanish in their expansion into Central and South America because they were highly mobile and able to survive in environments that were unsuitable for cattle, sheep, and goats. At the same time, the Spanish had continually drawn on their knowledge of pigs, such as their rates of reproduction, the way they could forage for both plants and small animals, and how well they could be herded through difficult terrain. The Spanish were thus cognizant of how the pigs they had brought over from the Canaries had responded to the environments of the New World. This meant that the survival of Spanish conquistadors in the expeditions of Hernán Cortés, Francisco Pizarro, and Hernando de Soto were bound up with the intensive cultivation of swine throughout the Western Hemisphere.

Like the city of Trujillo in Spain, pigs constituted a large component of wealth for the people that dedicated the time to care for them. However, part of this New World cultivation of pigs departed from the agropastoral traditions of southwestern Spain. In response to pigs escaping into the vast expanses of the New World, pigs were kept on either *corrales* or *estancias* and were fed new fruits and vegetation throughout the Spanish American colonies. At the same time as humans attempted to control the
movements of their pigs, it is also important to remember that throughout this story, pigs possessed agency of their own. Pigs were not just objects that were acted upon or cultivated by humans. Pigs never stopped escaping the supervision and control of their *porqueros* or owners. The escape of these pigs led to the proliferation of feral hog populations that were transformed both the physiologically and behaviorally as more generations were born outside the control of humans.

Another important theme is the diversity of ways in which the cultivation of pigs provides an entry point into the everyday experiences of subjugated people. For example, pigs were important in supporting economies and livelihoods outside of Spanish imperial control as evidenced by the *palenques* and peasant contraband economies of the Caribbean. Increasingly, oppressed members of colonial Spanish society such as free black women were able to survive and even thrive by cultivating pigs. The nourishment that pork provided and the many uses of lard promoted many sectors of colonial Latin American life. *Sebo* lit the candles in homes and cathedrals and provided the materials to waterproof leather and make soap. *Unto* acted as an ointment that saved the lives of countless domesticated animals such as llamas and alpacas. *Manteca* changed the way that women throughout colonial Latin America cooked and prepared food for their families.

The introduction of pigs to the New World contributed to the transformation of the social and ecological makeup of the Americas. From the wind-swept highlands of the Andes that extended from Chile to Colombia, to the humid expanses of the tropical rainforests of Central America and the Caribbean, to the shaded cover of the deciduous forests of Mexico and the southeast United States, pigs took their place among the
diverse social-ecological systems of the Americas. While this chapter looked at why and how humans helped introduce and cultivate pigs within the formation of colonial Spanish society, in order to understand the scope of socio-ecological niches in which the pig inhabited in the New World, it is crucial to look at examples of how the pig’s arrival was negotiated by various indigenous peoples.
Essential to the analysis of the pig within the New World is the conceptualization of the geographical scope of inquiry. Since 1492, the Spanish monarchy claimed dominion over lands they had never seen and people they had never met or were unable to conquer.\(^{377}\) Even by the mid-eighteenth century, with the rise of

the Bourbon monarchs, there were native groups that had remained autonomous outside of Spanish colonial authority.\textsuperscript{378} In addition, therefore, the wide cultural and ecological variation would be both ecologically unsound and historically inaccurate to attempt to make broad generalizations about the over 8.7 million square miles (mi\textsuperscript{2}) of the Spanish Empire from the fifteenth to the eighteenth century and the many different peoples who lived within these spaces. With the fluid and unfinished nature of conquest in mind, this thesis avoids making broad sweeping conclusions with the limited regionally and personally specific examples provided by archives and past historiographies.

Another crucial aspect of tracing the pig within the New World is to acknowledge that a cohesive experience of indigeneity or conquest does not exist.\textsuperscript{379} “Indigenous people” are not a single entity in the same way that “the Spanish” are not. It is also important to keep in mind that the coming of the Spanish did not have the same implications for all indigenous groups. Social anthropologists, such as Olivia Harris, argue that by placing the arrival of the Spanish – or in this case, their pigs – as foundationally central to the lives of the millions of indigenous peoples that inhabited the New World (1) lays into the lasting Western historical trope of bestowing a god-like status onto the Spanish and (2) centers the Spanish arrival as fundamental to the American cultures that existed for thousands of years prior.\textsuperscript{380} Just as the indigenous experience to colonization was heterogeneous, the proceeding chapter will work to

\textsuperscript{378} Ib., 6.
\textsuperscript{380} Ib., 13.
demonstrate that so too was the response of indigenous populations to the introduction of pigs.

Each square mile that made up the nearly 9 million mi² domain of the Spanish New World holdings was substantially diverse in terms of the respective ecology, peoples, cultures, farming practices, and foodways that existed there. The integration and reception of pigs varied across the expanses of the New World. By carefully drawing on a series of examples, this chapter works to illuminate how pigs both did and did not fit into the socio-cultural sphere of particular indigenous groups and individuals of the New World. Looking at these cases allows for a bird’s-eye view of the socio-ecological niche construction of pigs in terms of their interactions with indigenous species such as the peccary and with indigenous peoples such as the Taíno.

Another important objective of “Five Lessons” is to investigate the socio-ecological niche construction of pigs within specific examples of indigenous cultures. With these overarching themes in mind, the following case studies within this third and final chapter are implemented to develop an understanding of how the human-animal relationship between people and pigs was negotiated and cultivated throughout the dehesa of Spain, the mid-lands of La Gomera, and in regions of the New World. Looking at case studies of regions such as Hispaniola, northern and central Mexico, inland Ecuador, and coastal Peru will highlight the environmental, socio-cultural, regional, and temporal differences in the perception and use of pigs throughout the various regions of the Spanish colonies.
Indigenous Cultivation

It was not uncommon that the first encounters between Europe and the Americas occurred long before indigenous groups ever caught sight of a Spaniard. Often times, livestock of the eastern hemisphere and the people of the western hemisphere met on the muddy banks of coastal rivers, or in the entangled underbrush of tropical rainforests as stray pigs wandered through indigenous hunting grounds and villages. As sows bore generations of piglets in the Americas, both feral and domesticated pigs entered into indigenous socio-ecological niches. The sections that follow will provide different examples of the cultivation of socio-ecological niches that pigs inhabited in the Cordillera Central of Hispaniola, the town of Calkini on the Yucatán Peninsula, and the Chancay Valley of coastal Peru.

Heartbreak on Hispaniola

The first case study explores the socio-ecological niche of three pigs in 1543 who had lived alongside a Taíno man in the Cordillera Central of Hispaniola for twelve years. The Taíno of Hispaniola were the first people of the Caribbean archipelago to witness the permanent establishment and cultivation of pigs in the Americas in 1493 (Figure 3.2). The Taíno, an Arawak-speaking people of the Caribbean, migrated from the Orinoco Delta to the Lucavo Islands, eastern Cuba, Puerto Rico, Jamaica, and Hispaniola. As they fanned out into the Caribbean, the Taíno were in constant contact with other peoples. The Taíno not only warred with the Carib people of the Lesser

---

381 Miller, An Environmental History of Latin America, 65.
Antilles but also drove out the Siboney people from the Greater Antilles except for the western part of Cuba.383 Because they possessed no domesticated livestock, the Taíno collectively responded to the ecology of the Caribbean through the development of a “harvesting economy” based on the cultivation of pineapples, beans, squash, peanuts, guava, fish, manioc, yucca, sweet potatoes, and other tuber crops.384

Gonzalo Fernández de Oviedo, in his *Historia general y natural de las Indias*, recounts the story of stumbling upon a Taíno man in 1543 who had escaped the encomienda system twelve years prior.385 In an attempt to feed themselves, convert the

---

383 Stevens-Arroyo, "The Inter-Atlantic Paradigm," 525.
indigenous people, and exact tribute, the Spanish slowly developed the *encomienda* system on Hispaniola, then transplanted the institution throughout their Caribbean settlements.\(^{386}\) The *encomienda* allotted individual conquistadors with grants of mandated native labor and tribute in exchange for the Christianization of the indigenous people that were placed under the Spaniards’ “moral guidance.”\(^{387}\) The *encomenderos* soon drew criticism from figures such as Bartolomé de Las Casas and intervention of the Spanish crown for their debasement and virtual enslavement of native peoples.\(^{388}\)

Oviedo admonished the Taíno man for having escaped the *encomienda* and being “content living with beasts and being bestial.”\(^{389}\) While the coastal regions where the Spanish were granted *encomiendas* range between 70-85 °F, above 6,800 feet in the highlands of the Cordillera Central, the northeastern trade winds bring increased precipitation during the rainy season and freezing temperatures during the winter months.\(^{390}\) Similar to the highlands of La Gomera, the midlands of the Cordillera Central were home to cloud forests while endemic pine species such as *Pinus occidentalis* grew at the higher altitudes.\(^{391}\)

It was outside of the orbit of Spanish colonial life that the Taíno man was able to cultivate an existence in the mountains of Hispaniola alongside three feral pigs he had “converted into being hunters… [killing] others they came across.”\(^{392}\) He and his

\(^{386}\) Miller, *An Environmental History of Latin America*, 56
\(^{388}\) Burkholder and Johnson, *Colonial Latin America*, 44.
\(^{389}\) Ibid., 29.
\(^{391}\) Ibid., 296.
\(^{392}\) Quoted in Norton, "The Chicken or the Iegue," 28.
pigs, two males and a female, hunted other feral pigs that lived in the tropical forests.\textsuperscript{393} Located in the center of Hispaniola, the Cordillera Central was likely where the Taíno man (and the slaves that Oviedo was hunting) lived with his three pigs. As the major mountain range of the island, the Cordillera Central rises between 1,000-10,000 feet above sea level and spreads all the way to the southern tip near Santo Domingo.\textsuperscript{394} As Hispaniolan parrots and vervain hummingbirds fluttered overhead, and as rhinoceros iguanas scuttled underfoot, the montane broadleaf forests, West Indian Locust trees \textit{(Hymenaea courbaril)}, and West Indian pine \textit{(Pinus occidentalis)} shaded the trio of pigs and their Taíno companion as they traveled through the expanses of the Cordillera Central.\textsuperscript{395}

Oviedo was fascinated by how the Taíno man taught “those beasts in hunting, bringing a trainable friendship to that occupation.”\textsuperscript{396} The Taíno man trained each pig to fulfill a designated role in the hunt for other feral hogs. One pig was trained to track down other hogs, the second pig was trained to subdue their victim, and the third pig was used to assist in taking down their prey before the man arrived to deliver the final blow with his spear.\textsuperscript{397} As a reward after the hunt, the Taíno huntsmen would divide the carcass with his pigs, “giving the interior parts to his companions,” while leaving himself several days' worth of cooked pork.\textsuperscript{398} The hunter was able to supplement his

\begin{itemize}
\item \textsuperscript{393} Ibid., 28.
\item \textsuperscript{396} Quoted in Norton, “The Chicken or the Iegue,” 29.
\item \textsuperscript{397} Ibid., 28.
\item \textsuperscript{398} Ibid., 28.
\end{itemize}
diet and that of his pigs by sharing the roots and plants they found while they foraged through the mountains.\textsuperscript{399} The Taíno man and his pigs likely enjoyed the fruit of the soursop (\textit{Annona muricata}), guava plants (\textit{Psidium guajava}), calabash tree fruits (\textit{Crescentia cujete}), and cassava plants.\textsuperscript{400} Oviedo recounted “at night, the said Indian went to bed among that bestial company, petting for hours one and then the other, devoted to the swine.”\textsuperscript{401}

Heartbreak soon struck when Oviedo and his men arrived in the southern slopes of the Cordillera Central. Mistaking the three newly trained pigs for feral hogs, the conquistadors killed the trio and ate them.\textsuperscript{402} Through tears, the grief-stricken Taíno man expressed to Oviedo that “those pigs gave me life and maintained me as I maintained them; they were my friends and good company; one I gave this name, and the other was called so-and-so, and the female pig was called so-and-so.”\textsuperscript{403} Later, Oviedo admitted, “the deaths of these three animals brought much pain and suffering to the Indian, and that the soldiers reported feeling very bad for having slaughtered the companionable pigs.”\textsuperscript{404}

Not only is this tragic story one of survival but also one of agency and conscious cultivation between the Taíno man and his pigs outside the bounds of Spanish imperial supervision. This example illuminates three key points. Firstly, the survival of the man was equally bound to the survival of his three pigs. Over his twelve years in the Cordillera Central of Hispaniola, the Taíno man was able to both escape the evils of

\textsuperscript{399} Ibid., 28.
\textsuperscript{400} Raffaele and Wiley, \textit{Wildlife of the Caribbean}, 47, 75-76.
\textsuperscript{401} Quoted in Norton, “The Chicken or the Iegue,” 28.
\textsuperscript{402} Ibid., 28.
\textsuperscript{403} Ibid., 28.
\textsuperscript{404} Ibid., 29.
the *encomienda* system and find companionship amongst these three feral pigs he encountered in the mountains. Climbing up and down the slopes amongst the tropical broadleaf forests, the huntsman interacted with the three feral pigs long enough to train them to assist him. Interconnected with this companionship lies the second key point: the process of feralization in pigs was never complete or final. Even as generations of feral pigs gradually became leaner and fiercer, growing sharp tusks and thick coats of hair as they bred in the mountains of the Cordillera Central, it was through repeated encounters and cohabitation with the Taíno man that they could be trained to hunt by his side as his companions.

Finally, this story illustrates a stark contrast between Spanish perceptions of pigs and the way that the Taíno man had conceptualized his relationship with them. The three hogs were not a mobile military food source, a source of tallow or soap, but instead hunting companions. The Taíno man not only consciously created a new socio-ecological niche for these three formerly feral pigs – he also differentiated these pigs from the other feral hogs he was hunting. Sharing a common cause, the Taíno man and his swine were able to work together to hunt for food and root for tubers outside the bounds of Spanish colonial society. The Taíno man effectively complicated Western conceptions of pigs by removing his feral trio from their designated position within Old World hierarchical conceptions of livestock by uncharacteristically, for the Spanish, utilizing the pigs in the same way as the Iberians hunted with their dogs.405

---

405 Norton, "The Chicken or the *legen*," 29.
The Culhuas’ Commitment

The second example in the socio-ecological niche construction of the pig within indigenous practices of the New World emerges in the Mayan account of The Title of Calkini. The inland town of Calkini, located on the northern tip of the Yucatán Peninsula within the coastal Mexican province of Campeche, is home to tropical dry forests that produce a variety of vegetation such as the breadnut (Brosimum alicastrum), gumbo limbo plants (Bursera simaruba), mahogany (Swietenia macrophylla), sapote (Achras sapota), and the yellow fruit of the k’aniste (Pouteria campechianum). The management of these forests through the creation of the milpas (cultivated agricultural fields of primarily squash and maize) and controlled burning practices encouraged the flourishing of species such as white-tailed deer, white-lipped peccaries, raccoons, turkeys, and rodents such as the paca (tepescuintles, Agouti paca) that the Maya hunted.

Written in Yucatec Maya, the first three segments of The Title of Calkini were transcribed between 1579 and 1595 and detail the Mayan social history of Calkini. Building on the rich cultural traditions of the Olmec civilization (1200-400 BCE), Mayan civilization emerged around 200 CE in southern Mexico, Guatemala, Honduras, Belize, and the Yucatán Peninsula. Various Mayan city-states were able to support large populations and erect massive public monuments due to their highly adapted adaptations.

---

408 Matthew Restall, Maya Conquistador (Boston: Beacon Press, 1998), 83-86.
409 Burkholder and Johnson, Colonial Latin America, 4-7.
agricultural technologies such as raised fields, river canals, raised seedbeds, crop irrigation, agricultural terraces, and forest and root system management all without draft animals or the wheel.\(^{410}\)

![Map of the Bay of Campeche](image)

**Fig. 3.4.** Map of the Bay of Campeche. (From William Dampier. “Map of the Bay of Campeche.” Engraving. 14.9 cm x 27.9 cm. London: James Knapton, 1699. John Carter Brown Library).

In the first segment of *The Title of Calkini*, the Maya chronicle the arrival of the Spanish or “the foreigners,” and the consequences of the conquest. Within the retrospective narrative, the Maya recount a story about the arrival of indigenous Spanish allies to the town of Calkini in 1541.\(^{411}\) The chronicle describes the coming of “Culhua” forces from Culhuacan, that preceded the arrival of the Spanish army.\(^{412}\) In the Valley of Mexico, below the peaks of the Trans-Mexican Volcanic Belt, the town of Culhuacan bordered the freshwater Lake Chalco-Xochimilco on the southern end of


\(^{411}\) Restall, *Maya Conquistador*, 89.

\(^{412}\) Ibid., 90.
the Mexican Plateau (as seen in Figure 3.3).\textsuperscript{413} Seen by the Mexica and other groups as the legitimate heir to the Toltec’s legacy, Culhuacan sat at the base of the Cerro de la Estrella, a holy mountain that rose over 8,000 feet above the town.\textsuperscript{414}

The Culhuas fed on the cranes, ducks, geese, herons, and fish that lived around the lake, as well as off the produce grown on the \textit{chinampas} (floating raft gardens) because Cerro de la Estrella separated the fresh water of Lake Chalco-Xochimilco from the saline water of Lake Texcoco.\textsuperscript{415} By the fourteenth century, the Mexica conquered Culhuacan wherein the Culhuas submitted to the establishment of Tenochtitlán as a center of power in the Valley of Mexico.\textsuperscript{416} The corresponding separation of the lake systems by Cerro de la Estrella allowed the Culhuas to begin sailing the produce grown on the \textit{chinampas} that were fed from the freshwater of Lake Chalco-Xochimilco into the city of Tenochtitlán.\textsuperscript{417}

While the Culhuas had fought against the Spanish during the siege of Tenochtitlán, the Chalco, indigenous allies of Hernán Cortés, invaded the town and the Culhuas were forced to submit to the Spanish.\textsuperscript{418} As Cortés began awarding \textit{encomiendas} to the Spanish after the fall of Tenochtitlán, Cortés awarded the encomienda of Culhuacan to twenty-year-old Cristóbal de Oñate in 1524.\textsuperscript{419} Seventeen years into Oñate’s rule,

\begin{itemize}
\item \textsuperscript{413} S. L. Cline, \textit{Colonial Culhuacan, 1580-1600: A Social History of an Aztec Town}, (Albuquerque: University of New Mexico Press, 1986), 1.
\item \textsuperscript{415} Cline, \textit{Colonial Culhuacan}, 2; Helmke and García, “Caves and New Fire Ceremonies in the Central Mexican Highlands,” 1.
\item \textsuperscript{417} Cline, \textit{Colonial Culhuacan}, 2-3.
\item \textsuperscript{418} Ibid., 6.
\item \textsuperscript{419} Ibid., 7.
\end{itemize}
warriors of Culhuacan departed the shores of Lake Chalco-Xochimilco for the Mayan town of Calkini in 1541.

Following military skirmishes that occurred between the Maya and the conquistadors that began to move into the Yucatán Peninsula under Cortés, the Culhuas entered the conflict on behalf of the Spanish by invading Calkini themselves. Under the leadership of their indigenous captain, Gonzalo, the Culhuas aimed to oversee the personal surrender of the cah (local Mayan ruler), Napote Canche, and extract tribute to deliver to the Spanish before the conquistadors arrived in Calkini. Significantly, The Title of Calkini documents how the baptized captain, Gonzalo, brought a herd of pigs alongside his force of Culhua warriors in their invasion of Calkini. When describing the arrival of the Spanish to Calkini, the Mayans wrote that “their swine and their Culhuas arrived first; the captain of the Culhuas was [a Mexica named] Gonzalo.” Not only were Nahua-speaking warriors from the Valley of Mexico marching against the Maya of the Yucatán as military allies of the Spanish, but the baptized captain, Gonzalo, had also notably brought along pigs as a food source for the Culhuas’ military forces.

---

420 Matthew Restall, Seven Myths of the Spanish Conquest (New York: Oxford University Press, 2004), 50.
421 Ibid., 50.
422 Quoted in Restall, Seven Myths of the Spanish Conquest, 50.
Fig. 3.4. The Lake Chalco-Xochimilco Region. (From S. L. Cline. Colonial Culhuaean, 1580-1600: A Social History of an Aztec Town. Albuquerque: University of New Mexico Press, 1986. xviii).
While this example of the Culhuas marching into Calkini demonstrates how “racial solidarity” did not exist between indigenous groups in the New World, *The Title of Calkini* also illuminates a particular, and familiar, socio-ecological niche that pigs could inhabit in the New World.\(^\text{423}\) Similar to ways in which Cortés, the Pizarros, De Soto, and so many others conquistadors traveled through the landscapes of the New World with droves of pigs as their mobile food source, the Culhuas of the Valley of Mexico slowly adapted their native style of warfare to incorporate pigs as well. The presence of pigs within *The Title of Calkini* not only demonstrates the ways in which pigs were adopted into indigenous warfare, but the account also shows that the Culhuas had been actively watching and adapting to the successful use of military provisions practiced by the Spanish.

Since the fall of Tenochtitlán in 1521, the Culhuas had witnessed a new kind of warfare that incorporated animals such as dogs, horses, and pigs. Instead of planning wars around the harvest season that centered on seizing sacrificial captives, the Spanish held no regard for who starved from the lack of maize harvested.\(^\text{424}\) The pigs that were kept by conquistadors such as Diego de Ordás under the orders of Cortés provided an additional food surplus that the Spanish could rely on when the tribute of maize and other crops from their indigenous allies dwindled. The Culhuas likely witnessed this style of warfare and use of pigs as a mobile food provision that could feed a large amount of troops, multiply quickly under close cultivation, and potentially make the difference between victory or defeat.


\(^\text{424}\) Hassig, “The Spanish Conquest,” 236-250.
On the other hand, *The Title of Calkini* also demonstrates that the Spanish did not hold a monopoly over the use of swine. The Culhua, just as others groups such as the Comanche quickly became master equestrians after the Spanish re-introduced horses to North America, provide a similar example to how pigs were not solely cultivated by the Spanish as war provisions. Finally, the human-animal relationship between the Culhua forces and their pigs markedly contrasts with the relationship that the Taíno man had cultivated between his three pigs in the Cordillera Central of Hispaniola.

*Change in the Chancay Valley*

The third example that demonstrates the cultivation of pigs by indigenous groups takes place outside the growing urban center of Lima, on the central coast of Peru. The Chancay Valley, as described by chroniclers such as Bernabé Cobo, was one of the main suppliers of pigs for the markets of Lima in the sixteenth and seventeenth centuries.425 As the following example will demonstrate, the history of agricultural labor in the Chancay Valley and the cultivation of pigs was intertwined with the control of indigenous laborers on the *encomiendas* and the *haciendas* of coastal Peru. An examination of the changes in land use within the Chancay Valley will reveal how the cultivation of pigs was often under Spanish supervision and at the mercy of the commercial needs of colonial economic centers such as Lima.

The Chancay people of the central coast of Peru were part of a “heterarchical polity” that emerged around 900 CE and lasted until the sixteenth century.426 Centuries

425 Gade, "The Iberian Pig in the Central Andes," 38.
before the Chancay were incorporated into the Incan imperial structure, and even while under the rule of the Incas, Andean ayllu (kinship groups) supported one another through what anthropologists have called “vertical archipelagos.” Members of specific ayllu, like the Chancay, or their neighbors in the nearby Huanangue Valley, would send kinsmen to different ecological regions of the Andes in order to cultivate and extract local resources in order to share or trade the supplies and products with one another as well as with different groups.

Beginning in the 1470s after the tenth Sapa Inca, Túpac Inca Yupanqui (Topa Inca), inherited the Incan crown from his father, Pachacuti Inca Yupanqui, Topa Inca continued his father’s agenda of territorial expansion by conquering the coastal plains of Peru until the end of his reign in the early 1490s.

The ayllu in the temperate Chancay Valley benefitted from their placement on the alluvial, coastal Chancay-Huaral River river that descended from the Andes (Figure 3.4). The Chancay-Huaral River basin spans about 1,200 mi² and sits 8,200 feet above sea level with annual temperatures that hover between 69ºF on the coast and 32ºF in the mountains. Although separated by long expanses of deserts, nearly 1.8 million acres of the coastal Peruvian valleys are thought to have been cultivated before the arrival of the Spanish. While there is very little rain in the region, the Humboldt Current creates a cool, damp mist, garúa, that blankets the region, that allowed the

---

427 Ibid., 83.
428 Ibid., 83.
429 Burkholder and Johnson, Colonial Latin America, 18.
432 Keith, Conquest and Agrarian Change, 6.
Chancay to farm maize (*Zea mays*), beans, avocado (*Persea* *cherrimoya*), squash, chili peppers (*Capsicum sp.*), pumpkin (*Cucurbitaceae*), achira (*Canna* *edulis*), cherimoya (*Annona* *cherrimola*) and tubers such as yacon (*Smallanthus* *sonchifolius*), mashua (*Tropaeolum* *tuberosum*), oca (*Oxalis* *tuberosa*), and ulluco (*Ullucus* *tuberosus*). The Chancay were also known for their craftsmanship in textile and ceramic works, long benefiting from one of the two only large domesticated mammals in the Americas – the llama.434

Perhaps the Chancay Valley became renowned for the cultivation of pigs due to their transferable skills in the herding and cultivation of llamas. Four species of South American camelids exist in the Andes: the guanaco (*Lama guanicoe*), the vicuña (*Vicugna vicugna*), the alpaca (*Lama pacos*), and the llama (*Lama glama*).435 As the largest camelid in the Western Hemisphere, weighing anywhere between 175-330 pounds and standing over five and a half feet fully grown, llamas likely descended from the guanaco.436 Beginning around 4600-4400 BCE, indigenous groups in the Andes began using llamas as pack animals.437 Alpacas, while primarily used for their fine wool, were also hunted for their meat and hides.

---

434 Osborne, *Indians of the Andes: Aymaras and Quechuas*, 8. Note: Alpacas and llamas were the only large domesticated animals in the Western Hemisphere at the time of the Spanish conquest.
436 Ibid., 228.
The domestication of the llama intensified between 4400 and 3000 BP when hunter-gatherer groups in the Andes began to develop complex social, economic, and ideological systems. Archaeologists and anthropologists argue that hunter-gatherers in the Andes increased their odds of survival by slowly moving from hunting to herding in an effort to conserve herd numbers in difficult environmental conditions. By the time that the Spanish had arrived in the Valley, the Chancay had relied on their herds of llamas in order to provide the fiber for their textiles. It may have been the close human-animal relationship between llamas and the Chancay that contributed to the indigenous laborers’ skills in raising pigs and other Old World livestock species such as cows and sheep. Herding pigs through the Chancay Valley was not unlike the herding of llamas in the region.

While Spanish had initially explored the Chancay Valley in 1533, the first *encomienda* of the valley was awarded by Francisco Pizarro on May 22, 1539, to the Dominican Fathers of Lima, which they named the Santa Catalina Martir de Palpa y Vicaria de Santo Domingo de Lumbra. The Dominicans soon began using Chancay labor in order to build irrigation canals (acequias), plant sugar cane, and construct churches. Town records from the *cabildo* of Lima show that gradually by 1550, the Chancay Valley was pulled into the commercial domain of Lima. The vecinos

---

439 Aldenderfer, “Costly Signaling, the Sexual Division of Labor, and Animal Domestication in the Andean Highlands,” 194.
441 Ibid., 152.
442 Ibid., 152.
(citizens) of the city had taken notice of what they saw as the lack of active land use by the indigenous people (likely from demographic collapse and/or different interpretations of land use) and petitioned the town council to be able to graze their herds of livestock such as pigs in the seemingly vacant valley.  


Due to its temperate climate, proximity to international trade routes, cities, and intensive mining regions such as Potosí, the southern coastal region of Peru was considered an advantageous position for *encomiendas* and soon, *haciendas*.  

However, the *encomiendas* of the Chancay Valley were weakened by both the rapid

---

443 Ibid., 152.
444 Keith, *Conquest and Agrarian Change*, 3.
decline of indigenous people due to the epidemics that swept the region and restrictive actions taken by the crown following reports of exploitation of the natives.\textsuperscript{445} In order to curb the mistreatment of natives and the rising economic power of the encomenderos, government-appointed corregidores (administrative officials) took over control of the districts beginning in 1550.\textsuperscript{446} The corregidor’s first course of action was subjecting encomenderos to the will of the Crown.\textsuperscript{447} The growing power of the royal government in the colonies transformed encomiendas from a structure of unsupervised exploitation to what historians such as John Lockhart and George Keith have labeled similar to “a government-controlled pension.”\textsuperscript{448}

As the historian James Lockhart has argued, unlike encomiendas, the creation of the hacienda system in the 1560s was largely a private affair based on monopolizing the land rather than converting indigenous peoples.\textsuperscript{449} Historians such as Robert Keith argue that the hacienda was a hybrid institution that welded together Spanish traditions of land grabbing from the Reconquista with indigenous and African land use practices and labor.\textsuperscript{450} Increased demand for livestock such as pigs in the flourishing mining sectors and cities of Peru created incentives for largescale stock raising.\textsuperscript{451} Haciendas were able to take up the largescale stock raising needed by the growing cities and mining regions across colonial Latin America.

\textsuperscript{445} Ibid., 53.
\textsuperscript{446} Ibid., 53.
\textsuperscript{447} Ibid., 53.
\textsuperscript{448} Ibid., 54.
\textsuperscript{450} Keith, \textit{Conquest and Agrarian Change}, 2.
\textsuperscript{451} Ibid., 57.
Since the Chancay Valley was located only forty-five miles north of Lima, the high agricultural demand of the city connected the haciendas of the valley to the needs of the city.\textsuperscript{452} As stated in the previous chapter, for over a hundred years, Lima consumed over 12,000 pigs a year between the sixteenth and seventeenth centuries.\textsuperscript{453} While large plantations in the Valley grew sugar cane and other agricultural products, the fertile midland grasses, or lomas, were used to cultivate livestock such as pigs and cattle.\textsuperscript{454} The lomas of the Chancay Valley proved crucial in supplying the pork industry of the central Peruvian coast until the late nineteenth century.\textsuperscript{455}

Fascinatingly, after King Charles V declared that all grasslands in Peru were “to be held in common” in 1541, the cabildo of Lima officially designated the lomas of the Chancay Valley as a dehesa of the city.\textsuperscript{456} This decree allowed for the construction of livestock pens on the commons in order to ensure stock raisers had enough pasturage to feed their herds of swine.\textsuperscript{457} For example, in 1571, pig farmers such as Francisco Velásquez de Talavera were able to feed some 800 pigs on the lomas of the Chancay Valley.\textsuperscript{458} Similar to the importance of the dehesa in southwestern Spain, the dehesa of the Chancay Valley was vital for the cultivation of pigs. While the hacendados (large estate owners) were away in Lima on business, mestizo mayordomos who worked under the haciendo supervised the hacienda similar to the Extremaduran mayordomos of Trujillo oversaw the oak forests on the dehesa during la montanera.\textsuperscript{459}

\textsuperscript{452} Lockhart, “Encomienda and Hacienda,” 425; Faron, “From Encomienda to Hacienda in Chancay Valley,” 148.
\textsuperscript{453} Gade, "The Iberian Pig in the Central Andes," 38.
\textsuperscript{454} Ibid., 169.
\textsuperscript{455} Ibid., 168.
\textsuperscript{456} Keith, Conquest and Agrarian Change, 62.
\textsuperscript{457} Ibid., 62.
\textsuperscript{458} Ibid., 56-57.
\textsuperscript{459} Lockhart, “Encomienda and Hacienda,” 420-421.
Assisting these *mayordomos* were the *estancieros* (ranch hands) who were largely *mestizo*, black, *pardos* (those with African ancestry), or poor Spaniards, who supervised the Chancay laborers who raised the large herds of pigs. It was the *estancieros* who oversaw groups of Chancay laborers that herded droves of pigs from the Valley forty-five miles south into Lima’s central markets and thus exposes another important aspect of the human-animal relationship between the Chancay and pigs.

In order to compel the Chancay to raise hundreds or even thousands of pigs for the greater central Peruvian region, *haciendados* exploited the labor demands of the *mita*. Beginning in the 1570s, the new viceroy of Peru, Francisco de Toledo, began a colossal transformation of Andean social, economic, and environmental landscapes through the establishment and enforcement of the *mita*, or mandatory labor draft. The *mita* appropriated the existing labor requirements imposed by the Inca and required Andean people to work agricultural lands, build churches and roads, and mine for silver in the depths of Potosí. It was not uncommon for *yanaconas* (indigenous free wage laborers) from different regions of Peru to migrate into the Chancay Valley to work the land and raise livestock such as pigs in order to avoid the brutal demands of the *mita*.

---

460 Ibid., 421-423.
461 Ibid., 421-423.
464 Burkholder and Johnson, *Colonial Latin America*, 137.
The case study of the Chancay Valley provides an example of the mandated indigenous cultivation of pigs in Peru through socio-agricultural systems such as the *mita* and the *hacienda* system. In Peru, not only were the Chancay removed from their land and placed on smaller settlements in order to make room for the *encomenderos* and the *hacendados*, the Chancay Valley was also categorized by the Spanish as a new *dehesa*. The coastal *lomas* were treated as common pastureland similar to the way that land was classified in Extremadura. Spanish agriculturalists and stock raisers reoriented the vertical archipelagos into a hierarchical system of Spanish propertied ownership based out of the *cabildo* in Lima. No longer were the *ayllus* able to trade with one another at the scale they once had. However, specific members of the Chancay were mandated to cultivate specific types of goods such as pigs, but under the control of the Spanish imperial structure and not by their own *ayllu*.

The demand for pork in Lima pulled the Chancay Valley into the city’s urban economic orbit and reconstituted how the coastal region was conceptualized and used. Unlike the Taíno man and the Culhuas warriors, the demand for pork in the growing city of Lima drew the Chancay into a system of forced labor and tribute under constant surveillance and control by the *estancieros* who worked under the *mayordomos* and the *hacendados*. Iberian traditions of agropastoralism were thus grafted onto Chancay land. The introduction of pigs and Spanish conceptions of land created a particular socio-ecological niche for the pig within the Chancay Valley. Pigs had taken advantage of the *lomas* of the valley and enjoyed the protection of the Chancay herdsmen who likely drew on their traditions of raising and herding llamas. The coastal misty valley supported swine as they fattened on the thick grasses and food waste of the *haciendas*,
growing large enough to be able to make the forty-five-mile journey alongside their Chancay herdsmen to the sprawling butchers’ stalls of Lima.

**Resistance to the Cultivation of Pigs**

The case studies of the Taíno man that had domesticated the three feral hogs, the Culhuas general who had adopted the pig in his methods of warfare, and the Chancay laborers who were either mandated or paid to raise swine, demonstrate the various ways that indigenous peoples cultivated socio-ecological niches for pigs as these omnivorous ungulates arrived in the Americas. Unlike the previous case studies that demonstrate the humans' active cultivation of pigs throughout the New World, pigs also drew adamant opposition from indigenous communities. The next two case studies of the Puruhá people of Chimbo, Ecuador and the Opata, Eudeve, Pima, and Tohono O’odham of Sonora, Mexico, demonstrate active indigenous resistance and opposition towards the introduction of pigs to American landscapes and native societies. As will be investigated through the proceeding case studies, the environmental conditions, distance from colonial centers of power, and pre-Columbian agricultural practices impeded the acquiescence of pigs into solidified and accepted socio-ecological niches.

**Problems for the Puruhá**

The fourth case study looks at the contentious human-animal relationship between people and pigs within the Cordillera Occidental of the Andes, in the town of Chimbo in the present-day Bolívar province of Ecuador (Figure 3.6). On July 3, 1581, the *caciques* (chiefs) of Chimbo filed two general complaints to the Audiencia of Quito claiming that they had been “aggrieved by the Spaniards” that lived in the Chimbo
Valley.\textsuperscript{466} Angry at the \textit{encomenderos} for requiring the indigenous people to raise livestock like pigs for the \textit{tambo} (local rest area) and carry goods as \textit{tamemes} (porters) to Guayaquil or Quito for little or no pay, the \textit{caciques} of Chimbo appealed to the Audiencia of Quito for help.\textsuperscript{467} The second complaint documents the Puruhá’s distress over the encroachment of Spanish livestock such as pigs onto their agricultural fields.\textsuperscript{468} The Puruhá appealed the Audiencia to implement a fence in order to stop the Spaniards’ livestock from “eating the sown lands,” or the recently planted fields.\textsuperscript{469} The Puruhá's appeal against the forced cultivation and encroachment of pigs is important in demonstrating how pigs were placed in opposition to indigenous groups.

\textsuperscript{466} Translated from “Queja de los caciques de Chimbo,” Archivo General de Indias, Quito, 211, L.2, F.78V (July 3, 1581), http://pares.mcu.es/ParesBusquedas20/catalogo/description/409153.


\textsuperscript{468} Translated from “Queja de los caciques de Chimbo,” Archivo General de Indias, Quito, 211, L.2, F.79R (July 3, 1581), http://pares.mcu.es/ParesBusquedas20/catalogo/description/409154.

\textsuperscript{469} Ibid., 211, L.2, F.79R.
The Ecuadorian highland provinces of Bolívar and Chimborazo in which the Puruhá people lived were vastly different environments compared to the Chancay Valley of Peru. In 1802, across the provincial border of Chimbo, the German naturalist Alexander von Humboldt ascended the slopes of the over 20,000-foot tall stratovolcano Chimborazo, wherein his observations on latitudinal variation led him to write about the different life zones that corresponded to various altitudes of the mountain. In the highest regions that Humboldt climbed, he likely encountered the paramo or the productive lands that the Puruhá had used to raise their llamas.

The regular occurrence of rain in the inter-Andean highland valleys formed the thick grasses of the páramo that blanket mountain slopes around 11,000-12,000 feet above sea level. While arid highland plains, or the puna, exist in Ecuador, the frequent rain showers and presence of fog on the slopes of the northern Andes envelopes Chimbo and the surrounding areas in a cold, humid environment where páramo grasses and scrubland are able to grow.

The grasses of the páramo were valuable to the Puruhá as they supported a wide range of crops such as potatoes, oca, ulluco, mashua, and quinoa, for raising llamas, and for hunting deer, partridges, and rabbits. Both the Puruhá and the Inca utilized

---

the coniferous and damp montane forests that grew at lower altitudes of this inter-
Andean highland valley for their supplies of wood and forest products.\footnote{Rowe and Meisch, \emph{Costume and History in Highland Ecuador}, 12.} In this sub-
páramo region at 9,800–11,500 ft, pigs likely ate the bushes of the \emph{Compositae} (in the
daisy family), \emph{Guttiferae (Clusiaceae)}, and \emph{Ericaceae} (in the heath family).
\footnote{Paul Michael Ramsay, “The Páramo Vegetation of Ecuador: The Community Ecology, Dynamics and Productivity of Tropical Grasslands in the Andes,” (PhD diss., University of Wales, 1992), 13.} At higher
altitudes of the páramo, around 11,500–13,500 ft, herds of sheep and llamas fed on
tussock grasses such as Calamagrostis and Fescues, the flowering bushes of Hypericum
and Senecio, and the shrubs and small trees of the Polylepis.\footnote{Ibid., 13.} Above 13,500 ft, the
extreme conditions allowed for the scarce speckling of \emph{Culcitium}.\footnote{Ibid., 13.}

While the páramo supported agriculture, wild animals, and indigenous
livestock, the thick, abundant grasses also supported extensive settled human
populations. The Spanish conquistador and chronicler of the conquest of Peru, Pedro
Cieza de León, described the Bolívar and Chimborazo provinces in 1547 as “highly
populated.”\footnote{Quoted in Newson, \emph{Life and Death in Early Colonial Ecuador}, 49.} While only under Incan rule for less than a century, the Inca sought to
control areas such as the town of Chimbo due to its fertile lands and potential for
agricultural tribute provided by the Puruhá in the latter half of the 1400s.\footnote{Newson, \emph{Life and Death in Early Colonial Ecuador}, 47.} From 1463
to 1471, Pachacuti Inca Yupanqui expanded his conquest outwards from Peru into what
is today Ecuador.\footnote{Rowe and Meisch, \emph{Costume and History in Highland Ecuador}, 12.} His son Túpac Inca Yupanqui followed in his footsteps and
conquered the highland regions near Chimbo.
When the Inca came into the region, they constructed an intricate system of roads that connected the Inca Empire through communication and trade. The highway system that wrapped its way through the Andes were tampu, or stone structures that were erected about a day’s journey apart that provided rest, protection, food, and supplies to travelers and Incan state employees. The tampu survived into the Spanish colonial period and were translated from Quechua into Spanish as tambos. These tambos became rest stops for traveling Spaniards and tamemes (indigenous porters) as they traveled along the Camino Real (the appropriated Incan highway system).

In 1531 when Francisco Pizarro first landed in Esmeraldas, Ecuador, the grandsons of Túpac Inca, Huascar and Atahualpa, were engaged in a fierce civil war after the death of their father, Huayna Capac in 1525. After Pizarro captured Atahualpa in 1532, the conquistador sent a contingent led by Sebastián de Benalcázar to conquer the northern region of the Inca Empire in present-day central Ecuador. Between 1532-1533, with the help of Cañar soldiers, Benalcázar had brought the Puruhá of the Riobamba region under Spanish control. By 1535, encomiendas were parceled out to the Spanish who settled in the region. In 1544, as a response to the predations of encomenderos and the travelers who frequented the local tambos, Viceroy Cristóbal Vaca de Castro issued an ordinance stating that no travelers were allowed to

---

483 Ibid., 76.
484 Newson, Life and Death in Early Colonial Ecuador, 126-127; Rowe and Meisch, Costume and History in Highland Ecuador, 76.
485 Newson, Life and Death in Early Colonial Ecuador, 206.
486 Burkholder and Johnson, Colonial Latin America, 18.
487 Rowe and Meisch, Costume and History in Highland Ecuador, 96.
488 Ibid., 97.
489 Ibid., 97.
extract supplies from nearby indigenous towns or stay in the local *tambo* for more than one night.\(^{490}\)

Similar to the Chancay Valley in Peru, the *mita* imposed in the 1570s reorganized indigenous communities and instituted forced labor requirements for the Puruhá in the Chimbo Valley.\(^{491}\) After the establishment of *encomiendas* alongside the *Camino Real* that wound its way through Chimbo, *encomenderos* ensured that the Puruhá completed the *mita*’s tribute quotas by raising livestock to supply the local *tambo* or as *tamemes* who had to carry agricultural produce and textiles to Guayaquil or Quito.\(^{492}\)

To keep up with the demand for pork by traveling Spaniards, the Puruhá laborers likely raised pigs throughout the wetter, subtropical base regions (6,500-9,200 ft) of the Andes, and to a much lesser extent, in the lower half of the subalpine elevations (9,200-16,400 ft) alongside cattle, llamas, and especially sheep.\(^{493}\) Similar to the Guanches who had been forced to raise pigs for the growing Spanish settlements on La Gomera, the Puruhá began to cultivate swine in service to the Spanish travelers and *encomenderos*. However, unlike the island of La Gomera, the Cordillera Central of Hispaniola, the low-lying towns of Culhuacan and Calkini, or the coastal Chancay Valley, the highland basins of the northern Andes did not always suit the cultivation of pigs. Compared to pigs, sheep were better adapted at living in the colder, dryer

\(^{490}\) Ibid., 205-206.  
\(^{491}\) Newson, *Life and Death in Early Colonial Ecuador*, 46.  
\(^{492}\) Ibid., 206.  
subalpine regions of the Andes and could take advantage of the grasses that grew in the páramo.494

Due to the predominance of the textile industry in the region by the mid-1560s, the cultivation of sheep for their wool to supply the obrajes (textile factories) took center stage in the town of Chimbo.495 The lower regions of Chimbo Valley were utilized as the principal agricultural regions of the Andes as seasonal rains supported a variety of crops such as potatoes, manioc, and quinoa to supply the tambos and obrajes. The swine that lived in the central Andean highland valley likely concentrated at lower altitudes near the town center where they foraged for scraps or unattended crops in indigenous agricultural fields.

In 1581, after nearly forty years since Viceroy Vaca de Castro’s pronouncement, the Puruhá of Chimbo were still raising and transporting pigs to the local tambo.496 Frustrated with their continued mistreatment, that same year in July of 1581, the caciques of Chimbo filed joint complaints regarding their grievances with the local travelers and encomenderos, as well as over the encroachment of Spanish livestock on indigenous agricultural plots. Pigs had thrived in the agricultural lands the Puruhá had cultivated compared to the high pastures of the páramo.

The first letter addressed to the Audiencia of Quito from the town of Chimbo illuminates the Puruhás’ refusal against the forced cultivation of pigs in the service of the local tambo. The second letter filed on the same mid summer’s day is as a repudiation of the encroachment of Spanish livestock such as pigs on the agricultural

494 Newson, Life and Death in Early Colonial Ecuador, 207.
496 Ibid., 206.
lands of the Puruhá. The two complaints together from the caciques of Chimbo form a cohesive pronouncement against the cultivation of pigs on the Spaniards’ terms.

Both complaints addressed to the Audiencia of Quito, a center of political and administrative power in colonial Ecuador, demonstrate how the caciques of the region used the juridical language of the colonial Spanish system in order to voice their committed opposition against the unbridled tribute demands manifested through the cultivation of pigs for the tambo as well as against the rampant encroachment of Spanish-owned pigs onto indigenous agricultural fields. While the outcome of these complaints remains unknown, indigenous opposition to pigs throughout the New World did not only occur in Ecuador. As will be investigated, contention arose in the northern frontiers of New Spain within the mission towns of Sonora.

**Separation in Sonora**

The fifth and final case study looks at the historical, geographical, and ethnographical writings of the German-born Jesuit, Father Ignaz Pfefferkorn, who lived in Sonora, Mexico for eleven years and transcribed his observations in 1794-95, in his book, *Sonora: A Description of a Province*. Born in Mannheim, Germany on July 21, 1725, Pfefferkorn entered the Society of Jesus in 1742, and by 1754 he was appointed a position at a missionary in Mexico, where he arrived in 1756. Father Pfefferkorn spent his first seven years in western Sonora at the mission of Atí (Figure 3.7). Then with his failing health, Pfefferkorn moved to the central-Sonoran mission of Sonora.

---

Cucurpe before the Spanish crown expelled all Jesuits from the colonies in 1767. In response to the growing economic independence and power of the Jesuits throughout the New World, in 1767, the Spanish crown expelled the order from the Spanish colonies. After the expulsion of the Jesuits, Father Pfefferkorn was held as a prisoner in Spain for ten years until he was able to return to Germany in 1777. By focusing on Father Pfefferkorn’s description of the indigenous peoples’ disdain for pigs, this fifth case study will examine the environmental and socio-cultural factors that inhibited the pig’s success in Sonora, Mexico.

Beginning in 1539, the first viceroy of New Spain, Antonio de Mendoza, set out to find the rumored riches of the Seven Cities of Cíbola. In order to do this, he dispatched Francisco Vásquez de Coronado and Fray Marcos de Niza. However, while the expedition failed to find the cities, new discoveries of gold in Zacatecas in 1546 triggered a large movement of Spaniards into the northern frontier regions. Additionally, in 1578, the arrival of Sir Francis Drake’s raiding expedition off the west coast of Mexico prompted a flood of Spanish settlers to the interior of Mexico in order to ward off the threat of English colonization.

---

499 Ibid., 337.
503 Ibid., 165.
504 Ibid., 165.
Beginning in the 1630s, after the Jesuits had established missions in most of the river valleys of Sonora, the Crown set its sights on the silver, gold, and copper deposits of the region.\footnote{David Yetman, \textit{Conflict in Colonial Sonora Indians, Priests, and Settlers} (Albuquerque: University of New Mexico Press, 2012), 16.} While one-fifth of the mineral wealth extracted from northern Mexico was to be paid to the Crown, the growing significance of the nascent mining industry of Sonora attracted thousands of settlers seeking riches throughout the 1640s.\footnote{Ibid., 33.}

After this increase in settlement began to dwindle, a new group of settlers began to expand into the frontier of New Spain in an attempt to “civilize” the Chichimeca, Seris, and Apache groups of northern Mexico.\footnote{Herbert Eugene Bolton, \textit{Rim of Christendom: A Biography of Eusebio Francisco Kino, Pacific Coast Pioneer} (Tucson: University of Arizona Press, 1984), 6, 243.} The historian Philip Wayne Powell argues that missionaries played a dominant role in the colonization of the Mexican frontier through the “mission system of frontier pacification” that was forged from the collaboration between military and religious authorities.\footnote{Phillip Wayne Powell, “Franciscans on the Silver Frontier of Old Mexico,” \textit{The Americas}, vol. 74, (Cambridge University Press, 2017): 295-310, 296-297.} The colonization of the far northwestern borderlands of the Spanish empire began with the Jesuit Fray Gonzalo de Tapia, who pushed beyond the Sierra Madre Occidental to establish a mission, San Felipe, on the Sinaloa River in 1591.\footnote{Bolton, \textit{Rim of Christendom: A Biography of Eusebio Francisco Kino, Pacific Coast Pioneer}, 243.} By 1614, the first missionaries of Sonora had been established along the Mayo River by the Jesuits Pérez de Ribas and Father Tomás Basilio.\footnote{Eckhart, “A Guide to the History of the Missions of Sonora, 1614-1826,” 166.}

Father Pfefferkorn’s religious work in Sonora began in the mission of Atí in 1756, just five years after the major Pima revolt wherein the Tohono O’odham groups
destroyed the previous church along with the priests’ homes. Over his seven years at Atí, Pfefferkorn was able to gain the trust of the Pima people of the region as well as a few of the Tohono O’odham groups that had previously rebelled. After seven years with the Pima and Tohono O’odham people, Pfefferkorn, in his failing health, moved to the mission of Cucurpe with the Opata and Eudeve (Eudebe) people for four years until he was expelled by the Spanish in 1767.

When it came to the Sonoran landscape, Father Pfefferkorn’s described how the region “has many high mountains, very fruitful valleys, and broad plains.” Pfefferkorn continues, “in general the valleys are watered by rivers flowing through them, but there are also extensive plains where there is no running water.” The German-born Jesuit remarks next on the aridity of Sonora by stating “this scarcity is now and again relieved… by a spring issuing from the earth… sometimes, however, one travels eight or ten hours without finding a drop of water, a condition which is extremely inconvenient in such a hot country.”

Home to the second largest desert in Mexico, the 119,370 mi² of the Sonoran Desert consists of nearly half of the province of Sonora, extending into California, Baja California, up into Arizona, all the way to the Colorado River. While there are few regional differences due to latitude and elevation that rise between 260 ft-3,000 ft above

---

512 Ibid., 9.
514 Ibid., 9.
515 Ibid., 37.
516 Ibid., 37.
sea level, the Sonoran Desert has some of the highest sustained temperatures in North America.\textsuperscript{518} Separated from the Chihuahua Desert by the Sierra Madre Occidental, the hotter and drier Sonoran Desert can reach mean daytime temperatures of over 100°F in July and daily averages hovering above 90°F for eleven months out of the year.\textsuperscript{519}

Not surprisingly, practically all of the missions in Sonora were founded near a river or stream. The first mission Father Pfefferkorn was assigned to, Atí, was built on the westward-flowing Río Altar.\textsuperscript{520} Similarly, the second mission Pfefferkorn moved to, Cucurpe, was founded on the south-moving Río San Miguel in 1642.\textsuperscript{521} On these missions, the priests were able to eat crops such as wheat, maize, chili peppers, as well as “peas, lentils, and beans” that were able to be cultivated through irrigation farming or by the biannual flooding of nearby rivers and streams.\textsuperscript{522}

Shrubs such as \textit{Acacia constricta}, \textit{Condalia spathulate}, yellow paloverde (\textit{Cercidium microphyllum}), blue paloverde (\textit{Cercidium floridum}), creosote bushes (\textit{Larrea tridentata}), brittlebush (\textit{Encelia farinosa}), and cacti such as \textit{Opuntia engelmannii}, \textit{Opuntia spinosior}, \textit{Carnegiea gigantea}, and \textit{Yucca brevifolia} dominated the landscapes surrounding the missions of Atí and Cucurpe where Father Pfefferkorn had lived for eleven years.\textsuperscript{523} The native scrubland provided a diversity of vegetation

\textsuperscript{519} Schmidt Jr., “The arid zones of Mexico: climate extremes and conceptualization of the Sonoran Desert,” 250-252.
\textsuperscript{522} Pfefferkorn, \textit{Sonora: A Description of the Province}, 28, 47.
\textsuperscript{523} Shreve and Wiggins, \textit{Vegetation and Flora of the Sonoran Desert}, 73-74.
such as *Aloysia wrightii*, *Calliandra eriophylla*, *Prosopis velutina*, *Prosopis pubescens*, and *Atriplex canescens* that the missions were able to feed their livestock.\(^{524}\)

The valleys beneath the sierras held fertile land that was fed by the rivers that flowed from the surrounding higher elevations such as the Río Sonora and Río Bavispe.\(^{525}\) Pfefferkorn writes of the “most excellent pastures, where grow in superabundance the choicest grass and all kinds of healthful herds” that provided Sonora the “most desirable conditions and conveniences for a considerable livestock industry that has, for some thirty years, nourished a multitude of animals on its fine pastures the whole year round.”\(^{526}\) The rhizomatic qualities of the shrub species *Calliandra eriophylla* likely provided the root systems that pigs could forage for through the Sonoran soils.\(^{527}\)

During his time in the missions of Atí and Cucurpe, among his descriptions of the landscapes, the mineral resources, and the natural life, Father Pfefferkorn composed a gripping segment on indigenous attitudes towards pigs. While his recollection of the indigenous Sonorans’ conceptualization of pigs was made some twenty-seven years after the event, Pfefferkorn’s depiction departs from the other socio-ecological case studies of Hispaniola, the Yucatán Peninsula, and Peru.

Father Pfefferkorn begins the segment on pigs in Sonora by stating, “swine are not raised in Sonora, although it could be very easy to introduce this species of animal.”\(^{528}\) He continues, “in other parts of New Spain they are raised in such numbers


\(^{525}\) Bolton, *Rim of Christendom*, 244.

\(^{526}\) Pfefferkorn, *Sonora: A Description of the Province*, 42-43.

\(^{527}\) Ibid., 143.

\(^{528}\) Ibid., 103.
that lard from this source is in daily use as the only substitute for butter. The industry [of swineherding] cannot be expected to develop in Sonora, however, because no one wants to be a swineherd.” Pfefferkorn goes on to explain that, “to expect a Spaniard to become one would be a sovereign offense. And no Indian can be induced to do it, not because his pride stands in the way, but because of his inherent, implacable hatred for swine.” The German missionary concludes by stating, “the animal is so abhorrent to him [the natives of Sonora] that he would suffer the severest hunger rather than eat a piece of domestic pork.”

Before attempting to pinpoint the exact indigenous group or groups Pfefferkorn refers to in his section about pigs, the Jesuit historian of Spanish borderlands, John Francis Bannon, writes “while it is probable, therefore, that though he [Father Pfefferkorn] meant his generalizations to include [the Pima, Tohono O’odham, Opata, and Eudeve], one is at least safe in allowing them to apply to the Opata and Pima Indians.” While Bannon argues that the Opata and Pima people interacted with Pfefferkorn the majority of the time, it is important to investigate all four groups that Pfefferkorn potentially includes in his analysis about pigs in Sonora.

To elaborate on the people that Pfefferkorn references, the social scientist and ethnobotanist of Sonora, Mexico, David Yetman, considers the Eudeve people a subgroup of the Opata that originated from Pima groups that had moved into Opata territory and adopted the Opata language. Meanwhile, the American historian David

---

529 Ibid., 103.
Levering Lewis argues that the Tohono O’odham people of the desert were closely related to the Pima people of the river regions as both groups tended to overlap near the border of what is today Sonora and Arizona.\textsuperscript{532}

Located in the northwestern regions of Sonora and up into Arizona on the Gila River, the Pima and the Tohono O’odham were two of the major indigenous groups that interacted with Father Pfefferkorn over his seven years at the mission of Atí (Figure 3.8). While the Pima and Tohono O’odham speak similar Uto-Aztecan dialects, the Pima identified themselves as the “River People” while the Tohono O’odham were considered the “Desert People.”\textsuperscript{533} The Pima and the Tohono O’odham hunted coyote, ground squirrels, muskrats, mule deer, turkeys, mountain sheep, Bighorn sheep, owls, sage hens, pronghorn antelope, and javelinas (peccaries).\textsuperscript{534} While the Pima gathered mesquite beans, pigweed, and saguaro fruit, they capitalized on the summer rains, \textit{las aguas}, to grow tepary beans, kidney beans, maize, gourds, and pumpkins through canal irrigation using rivers such as the Río Altar.\textsuperscript{535}

Since the Tohono O’odham lived in far more arid regions of the Sonoran Desert outside of the lush offerings of the Altar Valley, they did not have stable access to water.\textsuperscript{536} Instead, the Tohono O’odham lived semi-nomadic lives. During the rainy season they planted crops and beginning in the dry season, they set out to find water,

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{532} David Levering Lewis, \textit{Neither Wolf Nor Dog: American Indians, Environment, and Agrarian Change}, (New York: Oxford University Press, 1994), 118.
  \item \textsuperscript{533} Ibid., 118.
  \item \textsuperscript{534} Edward Franklin Castetter and Willis Harvey Bell, \textit{Pima and Papago Indian Agriculture}, (Albuquerque: University of New Mexico Press, 1942), 30.
  \item \textsuperscript{535} Yetman, \textit{The Ópatas}, 17; Castetter, and Bell, \textit{Pima and Papago Indian Agriculture}, 5, 31-35.
  \item \textsuperscript{536} Castetter, and Bell, \textit{Pima and Papago Indian Agriculture}, 40-41.
\end{itemize}
\end{footnotesize}
hunt wild animals in the sierras, and gather naturally occurring fruits and vegetation in the plains.537

**Figure 3.8.** The Languages of Northwest Mexico, 1700. (From David A. Yetman. *The Opatas: In Search of a Sonoran People.* Edited by David Leedom Shaul. Tucson: University of Arizona Press, 2010, 51).

In order to survive the harsh conditions of the Sonoran Desert, the Pima and the Tohono O’odham regularly interacted. During the harvest season, the Tohono O’odham moved into the Altar Valley to trade with the Pima.538 With the arrival of the

---

537 Lewis, *Neither Wolf Nor Dog*, 123; Castetter, and Bell, *Pima and Papago Indian Agriculture*, 45.
538 Castetter, and Bell, *Pima and Papago Indian Agriculture*, 46.
Jesuits and Spanish crops such as wheat, migrating family units of the Tohono O’odham were regularly hired by the Pima to harvest their plots of wheat during the months of May and June.\textsuperscript{539}

Meanwhile, the Opata and Eudeve people lived around the mission of Cucurpe where Father Pfefferkorn spent his last years in Mexico. The Opata and Eudeve existed in a polyglot world before the Spanish missionaries arrived. Throughout the seventeenth century, as the Jesuits moved into Sonora, the fathers began to combine linguistic subgroups such as the Sauaripas, Hegues, Vatucos, and Teguimas into larger groups that they labeled as the Opata and the Jovas.\textsuperscript{540} Under the label of Eudeve, the Jesuits had combined other linguistically similar subgroups such as the Aivinos, Batucos, Mâtapas, Tepupas, as well as the inhabitants of Bacanora, Cucurpe, Opodepe, Banámichi, and Huépac.\textsuperscript{541} The Opata and Eudeve, specifically in the surrounding area of Cucurpe, interacted through inter-tribal trade relations and warfare for centuries.\textsuperscript{542}

Both groups gathered the fruits from the prickly pear cactus, figs, saguaros, \textit{pochote}, and cultivated maize, beans, chili peppers, squash, and mesquite through harnessing the bi-annual summer and winter floods.\textsuperscript{543} By using flood-irrigation techniques that included the construction of dams, canals, and weirs that diverted water from the nearby rivers such as the Río San Miguel, the Opata and Eudeve were able to grow their crops in the desert heat.\textsuperscript{544} While being skilled bowmen, the Opata actively managed their hunting ranges by cultivating underbrush, scrubland, and forests that

\textsuperscript{539} Ibid., 47.
\textsuperscript{540} Yetman, \textit{The Ópatas}, 15-16.
\textsuperscript{541} Ibid., 16.
\textsuperscript{542} Ibid., 50.
\textsuperscript{543} Ibid., 36-37.
\textsuperscript{544} Ibid., 37.
attracted the whitetail and mule deer, cottontail rabbits, javelinas (peccaries), quail, squirrels, and other rodents.\footnote{Ibid., 25}

In a region where the people grew their crops through bi-annual flooding, how willing they were to share their limited resources in feeding mobile herds of pigs in the late eighteenth century is worth pondering. For the indigenous people that lived around the missions of Atí and Cucurpe, whether that be the Pima, Tohono O’odham, Opata, or Eudeve, their conceptions of the pig differed greatly from the Taíno man that had trained the three feral pigs, or the Culhuas who had adapted the swine as a military asset against the Maya of Calkini.

The groups of Sonora held an “implacable hatred” for pigs. Perhaps these feelings arose as a response to the arid and oftentimes unforgiving conditions of the northwest fringes of the Spanish empire, with its limited availability of agricultural resources and water. Perhaps the semi-nomadic, migratory lifestyle of the Tohono O’odham in the dry alluvial soils of Sonora did not suit the physiology or movement of the pig. With no previous experience with domesticated animals in the desert, it is questionable how plausible it would for the migrating Tohono O’odham families to share the same limited food and water sources of the desert with a drove of pigs.

Meanwhile, for the Opata and the Eudeve, the arrival of pigs, like in the case of the Puruhá of Chimbo, Ecuador, also led to the destruction of carefully cultivated fields.\footnote{Yetman, The Ópatas, 134.} In the 1760s, before the arrival of Father Pfefferkorn, the Opatas had raised their grievances with the Spanish about how free-range livestock, such as pigs and

---

\footnote{Ibid., 25}
\footnote{Yetman, The Ópatas, 134.}
cattle, had uprooted, eaten, and trampled carefully cultivated agricultural plots.\footnote{Ibid., 134.} This example does not demonstrate the easy acquiescence of pigs into the lives of the Opata or the Eudeve in Cucurpe. Even while Pfefferkorn’s account was written nearly thirty years later after his work at Atí and Cucupre, whether he was embroidering or not, the Jesuit dedicated the time to portray the impassioned rejection of pigs by the people that he spent over a decade living in the mission towns of Sonora.

Indigenous distaste for the pig also connects to an important dichotomy between Old World and New World foodways. An important aspect in understanding why the pig was so hated in Sonora is illuminated through Pfefferkorn’s comparison of the pig with the peccary, or javelina. When Father Pfefferkorn asked the people within his missions why they chose to eat the peccary (Pfefferkorn does not clarify what mission or what people he consulted), the people responded that “el seno [the peccary] is not a cochi [hog]; that is why we eat it. But the tame hogs are Spanish.”\footnote{Pfefferkorn, Sonora: A Description of the Province, 113.} Pfefferkorn continues in the section of the peccary by comparing it to the European wild hog: “though not as large… it is just as savage, and it resembles the European animal in all respects except for its back.”\footnote{Ibid., 112-113.}

Pfefferkorn goes on to describe that the Spanish have “an aversion” to the peccary because of the hole, or “navel,” on its back that produces a strong and pungent musk (giving it the name “musk hog”) that the peccary releases when threatened or wounded.\footnote{Ibid., 113.} While he never clarifies the hunting tactics of a specific group, Pfefferkorn describes how the indigenous people knew how to successfully hunt and cook the
peccaries in an effective manner. The Father writes how after the hunters speared a peccary, they “draw off” the odor produced by the peccaries “navel” by either cutting off the navel or by sticking the rod inside it while they cook it in order to release the odor so that they could eat its meat.\footnote{Ibid., 113.} The peccaries are then thrown into a shallow ditch with a small fire, to which they roast the peccary in what Pfefferkorn refers to as a “bake oven.”\footnote{Ibid., 113.}

The name “peccary” is derived from the Cariban language from what is now Guyana, Suriname, and French Guiana that was used to describe the animal (Figure 3.9).\footnote{Ibid., 56.} The term javelina or jabalí came from the Arabic/Spanish term for wild boar and was first used to describe the peccaries of the New World by Martyr d’Anghiera in 1510 in his De Orde Novo.\footnote{Donkin, “The Peccary,” 48.} Beginning in the middle of the sixteenth century, Cieza de León’s Crónicas del Perú and José de Acosta’s Natural and Moral History of the Indies differentiate Old World pigs from the peccary by the presence of a prominent seno (scent gland or cavity) on the peccaries back.\footnote{Ibid., 48.}

While peccaries had been hunted for their meat throughout Mexico, Central America, and as far south as the Bolivian Amazon and Peru, in Sonora, it was the collared peccary (Tayassu tajacu) was the most common variety.\footnote{Ibid., 11, 74.} Similar to Old World pigs, the collared peccary lived in both the humid environments as well as in tropical or deciduous forests, marshy thickets, pine, and scrub-oak woodland.\footnote{Ibid., 18-19.}
case of Sonora, they avoided the arid, open plains and gathered in the mesquite, acacia, and cactus scrubland and brushwood.\textsuperscript{558} Peccaries, like pigs, omnivorous diets are made by foraging for roots, worms, insects, toads, reptiles, snakes, bird eggs, fish, manioc, maize, and acorns.\textsuperscript{559} Peccaries were known to forage through \textit{milpas} using their tusks to uproot the crops planted by indigenous farmers.\textsuperscript{560}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.9.png}
\end{figure}

By investigating the how the peccary was firmly ingrained into the foodways of the Pima, Tohono O’odham, Opata, and Eudeve also encompasses the socio-cultural rituals around hunting were deeply ingrained and important within the Sonoran Desert. It is thus worth pondering the importance of indigenous hunting practices within the indigenous peoples that interacted with Father Pfefferkorn during his years in Sonora. While the ungulate species shared many of the same features as the pig, the groups of northern and central Sonora made the decision to hunt the peccary, \textit{el seno}, instead of

\textsuperscript{558} Ibid., 18-19.
\textsuperscript{559} Ibid., 20.
\textsuperscript{560} Ibid., 20.
raising the pig, *el cochi*. The designation of the pig as the *cochi*, also represents how pigs were categorized differently than the peccary in indigenous conceptions of the natural world. Perhaps hunting the peccary represented a signature aspect of the Pima, Tohono O’odham, Opata, and Eudeve cultures in ways that the pig did not. Compared to the domesticated pig, the socio-ecological niche of the peccary likely made more sense within the context of the Sonoran Desert. As pigs were added to the lexicon of the Pima, Tohono O’odham, Opata, and Eudeve, these groups had taken an active stance in resisting the adoption of pigs into their cultures.

In terms of the Spanish conceptualizations of the pig within seventeenth-century Sonora, Father Pfefferkorn’s observation also demonstrates a significant departure from the human-animal relationship between the Spanish *porqueros* and their pigs on the Extremaduran *dehesa* in fifteenth century Spain or with the conquistadors in Florida who built rafts in order for their pigs to cross rivers. Unlike in the city of Trujillo in Spain, the label as a swineherd did not carry the same meanings of economic stability for the Spanish inhabitants of Sonora, Mexico. The “sovereign offense” incurred for assuming a Spaniard would be a swineherd, as described by Pfefferkorn, departs from the view Hernán Cortés held in the early sixteenth-century when he strategically placed conquistadors in various indigenous towns in order to produce food for his forces.

Nearly 246 years after Cortés conquered Tenochtitlán, in the eyes of Father Pfefferkorn, the Spanish of the northern frontier of Sonora near the missions of Atí and Cucurpe were no longer interested in the raising of swine. On the northern frontier of New Spain, under the beating sun over the Sonoran Desert, the relationship between
the pig and the Spanish transformed to the new socio-ecological demands of the New World. Perhaps the position as a swineherd by the 1760s on the fringes of Spanish settlement came to mean something of debasement for the Spanish living in Sonora.

Since the first Spanish settlers to Sonora were driven by the hopes of amassing great fortunes in the growing mining industry, the majority of wealth and status in the region came from the mining of precious metals, not through the possession of large herds of swine. Spanish settlements in Sonora were based around conversion or mining, not settling the land in order to farm it. Unlike the massive haciendas of coastal Peru that fed a growing Lima, the main occupation of the Spanish in Sonora was not in the agricultural production of the land but in the conversion of indigenous groups that the mining of the land in order to reap large financial rewards.

On the fringes of the Spanish empire, far from the markets of Mexico City, combined with the difficult environmental conditions of the Sonora Desert, intensive agricultural schemes such as the estancias or corrales of Cuba or the herds of pigs raised on the haciendas of coastal Peru, could not take place on the same scale. The Europeans that arrived were centered around extracting mineral deposits or infused Christianity into the region of Sonora.

Lastly, unlike the Taíno man who had trained the three feral pigs or the Chancay who were forced to raise pigs for the market of Lima, the people of Sonoran Desert actively distanced themselves from swine. Perhaps similarly to the hostile environments of the páramo in Chimbo, Ecuador, the desert ecology of Atí and Cucurpe, with its limited water and food supply were unable to support the successful cultivation of pigs. Perhaps the groups that Father Pfefferkorn had interacted with at
Atí and Cucurpe had understood the limitations of adopting the pig. While there are examples of the Opata taking on increasingly large herds of cows in the 1760s-1790s, in the alluvial sands of Sonora, pigs could not gain traction.

**Chapter Conclusions**

In this third and final chapter, the five presented case studies have been analyzed in order to provide five lessons of the diverse socio-ecological niches that pigs inhabited in the New World as well as the ways in which indigenous peoples negotiated the arrival of the pig. Whether on islands, in tropical jungles, along coastal plains, on the slopes of mountains, or in desert valleys, the creation of these socio-ecological niches relied on an intensive relationship between humans and pigs. In other words, over the nearly 9 million mi² of the Spanish empire, the constant human cultivation of and interactions with pigs within or outside the bounds of Spanish control produced vastly different socio-ecological niches for pigs depending on their environmental context.

While no experience of indigeneity or conquest was similar, the five case studies illuminate how humans continually negotiated and or cultivated the presence of pigs. For the Taíno man of Hispaniola, he had mobilized his own cultural conceptions of a functioning human-animal relationship that subverted Iberian hierarchies practiced on the *dehesa* in Extremadura or in the *corrales* of the Caribbean islands. The Culhua armies that departed the town of Culhuacan for the village of Calkini had adopted Spanish uses of the pig as a military food supply by adapting the movements of the pig to their specific form of indigenous warfare against the Maya. The Chancay people of coastal Peru subjected to conscripted labor on the various *encomiendas* and eventually
haciendas that were run by the ruling Spanish elite from Lima. The growing power of the economic, social, and political center of Lima had drawn the Chancay into a close bond with the pigs they had to raise across the northern coastal valleys of Peru.

At the same time, due to the environmental and social aspects of their specific locations, indigenous groups had not always participated in the intensive cultivation of pigs. The Puruhá of Chimbo, Ecuador, for example, actively protested the encroachment of pigs onto their agricultural plots to the cabildo of Quito, arguing for the installation of community-wide fences in order to limit the movement of the Spaniards’ pigs. The Puruhá’s second complaint protested against the local labor demands that required them to raise pigs to provide pork for the tambos along the Camino Real. Coupled with the extreme environment of the central Andean highlands that benefitted sheep and llamas more than pigs, the Puruhá’s complaints represent firm resistance to the production and presence of pigs.

In the arid desert of Sonora, the Jesuit Father Pfefferkorn’s account of life in the missions of Atí and Cucurpe along the Río Altar and Río San Miguel details the “implacable hatred” that the Pima, Tohono O’odham, Opata, and Eudeve people held against raising and eating pigs. The Jesuit’s remarks about the environment of Sonora and the cultures of the indigenous people he lived alongside suggest that perhaps the foodways of the Pima, Tohono O’odham, Opata, and Eudeve people did not align with the consumption or production of pork in Sonora. Pfefferkorn’s observations also represent a transformation in the human-animal relationship between the Spanish and pigs. In all, these groups of northern Sonora and central Ecuador had vehemently rejected the integration of the pig into their cultural practices and landscapes.
In closing, these five case studies teach important lessons on how the relationship between the Spanish, the indigenous groups they interacted with, and pigs were constantly in contention as they slowly adapted to changes within their socio-ecological realities. These five case studies also show that pigs would not have succeeded in the New World without humans. The presence and introduction of pigs into the New World was actively constructed and negotiated by competing human groups in the region as well as by the different environmental factors that characterized Hispaniola, Mexico, Ecuador, and Peru.
“How is it possible to define the roles of animals… in producing change over time? What happens when these different kinds of environmental entities and forces connect and combine with human actions to produce complex historical phenomena?” – Paul S. Sutter

Humans have never been confused about how they feel about pigs. Some people love the animal for its personality, while others, for its taste. However, other groups, due to religious identities, personal beliefs, or fear, detest the pig. For more than 10,000 years, people and pigs have been interconnected in a strangely intimate relationship that is unlike all other human-animal relationships. For an animal that does not carry loads, pull plows, produce milk for human consumption, provide wool or transportation, pigs have consistently remained central actors throughout history. Where human groups migrated, pigs followed. Within the hemispheric story of the emerging Spanish Atlantic world, arguably one of the most interesting dynamics was the human-animal relationship between humans and swine as it unfolded on the dehesa of southwestern Spain, on the island of La Gomera, in the Caribbean, and throughout Latin America.

Paul S. Sutter asks a crucial question: “How is it possible to define the roles of animals… in producing change over time? What happens when these different kinds of environmental entities and forces connect and combine with human actions to produce

---

561 Albarella and Dobney, Pigs and Humans, 2.
562 Ibid., 13.
complex historical phenomena?” One could argue, for example, that the relationship between people and pigs contributed to the unfolding of complex historical phenomena such as land reclamation during the Reconquista, contraband peasant economies in the Caribbean that supplied pirates and buccaneers, and the reconfiguration of New World landscapes through the redistribution of seeds through pigs’ manure. The unfolding of the Spanish colonization of the New World cannot be told without including the cultivation of the pig.

The various agro-ecological, socio-cultural, economic, and ecological factors within southwestern Spain, on La Gomera, and in the New World, affected the relationship between people and pigs and led to the creation of regionally specific socio-ecological niches for the pig. Over thousands of years, pigs never existed outside of a socio-ecological niche. One can also argue that the formation of colonial Latin America was closely linked to the actions and agency of domesticated and feral livestock such as pigs. *Sus scrofa domestica* was not just an object acted upon by outside forces. As evidenced through the process of feralization in the New World, pigs, like humans, are highly intelligent creatures that possessed agency of their own. The escape of pigs from their indigenous swineherds was not altogether negative for humans. Porcine agency inadvertently fed the *palenques* across the Spanish colonies and provided the meat used in Afro-Caribbean divination ceremonies.

In attempting to answer Sutter’s question, the eight pigs that trotted aboard Christopher Columbus’ ship in 1493 played a significant role in the Spanish colonization of the New World. The subsequent combination of pigs’ physiology and
behavior with early modern socio-cultural, agro-ecological, and economic factors greatly impacted the formation of colonial Latin American society.

Just as in Neolithic Turkey, medieval Spain, and early modern Latin America, we are negotiating our human-animal relationship with pigs up to the present day. While factory farming, genetic engineering, and animal testing run abound, researchers have begun breeding piglets that could one day provide hearts and kidneys for humans. Xenotransplantation or the transfer of living cells, tissues, and organs between species has been developed by researchers over the past decades in the hopes of one day helping people in need of organ transplants. This procedure will connect humans and pigs more intimately than ever before.

As Winston Churchill said “I like pigs. Dogs look up to us. Cats look down on us. Pigs treat us as equals.” Churchill has a point. By the end of the century, pig hearts and kidneys may save thousands of peoples’ lives. This prospect is far greater than we can imagine. The probability of pigs’ hearts pumping blood through our veins in the near future will not only reconstitute our relationship with pigs that extends as far back as the Holocene. The transplantation of pig organs into human bodies will blur the lines between what constitutes a human and what constitutes a pig. With this in mind, say what you want about pigs, but remember – one day that may include you.

---

BIBLIOGRAPHY

Archives

Portal de Archivos Españoles (PARES)

———. “Queja de los caciques de Chimbo.” Archivo General de Indias, Quito. 211, L.2, F.78V (July 3, 1581).
http://pares.mcu.es/ParesBusquedas20/catalogo/description/409153.

———. “Queja de los caciques de Chimbo.” Archivo General de Indias, Quito. 211, L.2, F.79R (July 3, 1581).
http://pares.mcu.es/ParesBusquedas20/catalogo/description/409154.

The John Carter Brown Library Archive of Early American Images (JCB Online)


De Herrera y Tordesillas, Antonio. “[Historia general de los hechos de los castellanos] Historia general de las Indias Occidentales ... Tomo primo.” Etching. 19.2 cm x 22.2 cm. Antwerp: Juan Bautista Verdussen, Mercader de Libros, 1728.


Primary Sources


**Secondary Sources**


Mundy, Barbara E. *The Death of Aztec Tenochtitlan, the Life of Mexico City*. Austin, Texas: University of Texas Press, 2015.


