

Crossroads of Change: An Environmental History of Pecos National Historical Park



Volume I

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PUBLIC LANDS HISTORY CENTER

By Cori Knudten

With two chapters by Maren Bzdek

Foreword by Dr. Mark Fiege

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Cover photo clockwise from left: View from the porch of the Forked Lightning Ranch, Mission ruins in 2008, Santa Gertrudis cattle on the Forked Lightning Ranch circa 1960, Aerial view of Pecos Pueblo in 1929, Pecos River in 2008.

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Foreword

Of the nearly 400 units that make up the U.S. national park system, surely one of the most unusual stretches across some 6,670 acres of a high valley in northern New Mexico. Pecos National Historical Park is an apt name for the place, because it encompasses a splendid concentration of sites with exceptional cultural value: a centuries-old pueblo, a Spanish colonial mission church, a portion of the Santa Fe Trail, a Civil War battlefield, a stretch of historic Route 66, and a ranch that once belonged to a Hollywood movie star. These remarkable features alone make Pecos worthy of national park status—and yet by themselves, they do not account for the unique appeal of this place. What also makes Pecos alluring is its setting: piñon-juniper forest, grassland, the cottonwood riparian corridor of an important western river, all lying below mesas, mountain peaks, and the dramatic New Mexico sky. But even these striking natural features do not make Pecos complete. Rather, what makes Pecos such a fascinating and satisfying park is neither its history nor its environment but its remarkable combination of the two. Every chapter of the Pecos story unfolded in relation to—indeed, *because* of—the distinctive environmental characteristics of the place: its proximity to Glorieta Pass along a major travel route between mountains and plains; its soils, water, and plants; its wildlife, habitat, and livestock forage; its spectacular vistas stretching to the horizon.

It is this story—this *environmental history*—that Cori Knudten and Maren Bzdek seek to tell. Environmental history as practiced by Knudten and Bzdek resists the powerful temptation to divide the world into the categories of human and non-human, cultural and natural, domestic and wild. However useful such casual distinctions may be in everyday life, they break down on close examination. Even in national parks established primarily for their non-human natural values, the interplay of humans and their environment has caused change and created a history. At Pecos the importance of culture in environmental change stretches back for centuries. A succession of people came and erected buildings, produced food, raised children, told stories, practiced religion, fought wars, and imposed distinctive names on the land. Yet none of these activities occurred apart from the biophysical substance—the soil, rock, water, wood, and flesh—that composed the place. Inhabitants and newcomers molded the warm, brown earth into dwellings and religious structures, consumed wood in fires, raised new plants such as corn, hunted and fished, and introduced powerful agents of biological change such as horses and sheep. As the people traded, fought, cooperated, and reshaped their environment, they, too, changed. Their tools, clothing, foods, families, beliefs, even their very bodies, took new forms in relation to the retreat and regeneration of the forest, the expansion and contraction of the buffalo herds, the pain and destruction of epidemics, and a host of other transformations.

Knudten and Bzdek are well-suited to piecing together and telling the Pecos environmental history. Both have considerable experience in the scholarly study of western national parks and other sites. Both are attuned, by academic training and personal inclination, to recognize that the historical record inheres in plants and animals, rock and soil—the land itself—as well as in the memories that people relate and in the paper documents kept in our libraries and archives. And both, perhaps most important, know how to tell a good story.

Indeed, one of the hallmarks of environmental history—and beautifully demonstrated in this volume—is that it synthesizes facts about the past into a compelling account of change over time. No other discipline places such importance on conveying meaning and emotion in a fact-based narrative of the intricate interplay of people and land through time. As you read about Pecos and its environmental history, note how the authors enable you to glimpse the past through

the eyes of an Indian woman, a Franciscan friar, an Anglo trader, a Confederate soldier, a dude rancher, a Hollywood actress, and a modern American family. Although the primary purpose of this history is to assist the National Park Service in its stewardship of a single cultural and natural landscape, ultimately it offers to all readers a deeply human story of life in an extraordinarily significant place.

People and place, culture and environment, human and non-human nature: this indivisible strand conveys the history of land and life across five centuries and more at Pecos National Historical Park.

Mark Fiege
Public Lands History Center
Colorado State University, Fort Collins
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Introduction

Hobe-wagi stood on the pueblo wall, gazing out over the meadows and dark green patches of piñon and juniper trees. Beyond her sight, the Pecos River followed a sinuous course, passing the fields of maize and wheat planted by the Pecos. Hobe-wagi had spent many hours along the river—gathering willows and pine boughs to construct the roofs of the pueblo, wading in the cool water on a summer’s day. Now, she looked beyond it—into the rocky hills where her people had disappeared, fleeing the Spanish soldiers. Hobe-wagi had tried to flee as well, carrying a precious bundle of animal hides with her. But she had passed too many summers and winters at Pecos Pueblo and no longer possessed the fleet strength of her youth. The Spanish soldiers had captured her and brought her back to their commander, Don Diego de Vargas. In the chronicle of his expedition, Vargas carefully noted the date of his arrival at the pueblo and this Pecos woman’s capture—Tuesday, the twenty-third of September, 1692. If he bothered to learn her name, he did not record it. In the absence of evidence, we will call her Hobe-wagi, the name of a Pecos woman that was recorded, although much later, in the early 1900s.¹

Vargas had traveled to New Mexico to take back the territory for the Spanish, who had been driven out in the Pueblo Revolt twelve years earlier. Hobe-wagi told Vargas that many of the older residents of Pecos Pueblo had wanted to meet peacefully with the Spanish, but younger members of the pueblo insisted that abandoning their home was better than acquiescing to Spanish control once again. Vargas stayed at the pueblo for several days, hoping that the Pecos would return, and kept Hobe-wagi with the twenty-seven other captives his soldiers had detained. Vargas eventually gave up waiting. He set his captives free and departed for Santa Fe—without destroying or damaging the Pecos’ home or their crops, a calculated decision that Vargas hoped would bring the Pecos to his side.²

With Vargas’s departure, Hobe-wagi disappeared from recorded history once more. Yet the absence of a written record does not lessen the reality of her experiences. Hobe-wagi was born before the revolt, when a Franciscan priest resided at Pecos Pueblo and Spanish officials demanded tribute payments from the pueblo. As a girl, she awoke to the sound of the bells pealing in the mission church. She helped her family cultivate corn and wheat in the pueblo fields by the Pecos River. She gathered piñon nuts and looked forward to the trade fairs when Plains Apaches came to Pecos Pueblo to barter bison hides and meat for corn and pottery. Her grandmother may have been among the first Pecos to encounter Spanish cattle and sheep, but to Hobe-wagi, they were a common sight as they grazed on the mesilla. She witnessed the Pueblos’ attempt to overthrow Spanish domination, a decision that meant rejecting many Spanish ideas about land and resource use as well.

About one hundred and sixty-four years later, Helen Kozlowski stood by the same river that Hobe-wagi had known. By that time, in 1858, the last residents of Pecos Pueblo had emigrated to Jemez Pueblo, and the walls of the pueblo were beginning to crumble. Helen walked along riverbanks that bore the imprint and effects of livestock hooves and grazing. Small homesteads divided the riverbank into parcels of individually owned property. Helen and her husband, Martin, occupied a piece of property along Glorieta Creek, a tributary of the Pecos River. Martin had purchased a hostelry along the Santa Fe Trail near the pueblo ruins and relocated his family from Missouri to New Mexico. Helen Kozlowski is almost as difficult to trace in the written historical record as the many women of Pecos Pueblo. Census records show that she came from Ireland, but her name is spelled variously as Helen, Ellene, and Elena.

Travelers often wrote about staying at her husband's ranch, but they rarely mentioned Helen. Adolph Bandelier, an archaeologist who visited the Upper Pecos valley in 1881, recorded one of the few direct references to her. Helen told him how her husband had taken some timbers from the abandoned mission church to use for constructing out-buildings at their hostelry.³

History's silence in regards to Hobe-wagi and Helen does not erase their experiences in the Upper Pecos valley. Helen Kozlowski helped run the family business, catering to the needs of travelers as well as tending to the family's few livestock and the crops they managed to grow in the high altitude environment. Helen looked out her door onto the Santa Fe Trail and the many people and animals that passed along it. The Kozlowskis' ranch hosted Union troops in 1862 when conflict over the land and resources of the western territories drew the region into the Civil War. In 1881 the Atchison, Topeka, & Santa Fe railroad extended its tracks through Pecos. Helen heard the whistle of the railroad and watched the engine smoke billow into the air. The Upper Pecos valley she knew was a landscape of small farms and ranches connected to the wider world by roads and rails.

Ninety years after Helen arrived in Pecos, Greer Garson Fogelson, the Hollywood film star, looked out on the Pecos River from the porch of her ranch house. Greer's husband, E. E. "Buddy" Fogelson, had purchased the Forked Lightning Ranch, a large parcel of land along the river that included the old Kozlowski homestead. Buddy had made his money in the oil industry, and he and Greer used their Pecos ranch as a vacation home. They owned a herd of Santa Gertrudis cattle that roamed along the banks of the Pecos River and Glorieta Creek. Greer was involved in managing the ranch but enjoyed numerous other diversions as well, including entertaining friends with chuckwagon picnics by the river. Sporting a red cowboy hat and bandana, Greer rode horses and drove trucks over the Pecos landscape.

By the time Greer moved to Pecos, wage labor had replaced farming and ranching as the dominant livelihood of the area. The growing metropolis of the capital city, Santa Fe, encroached ever closer into the forested hills around Pecos. Tourism had become important to the economy as well. Numerous visitors admired the ruins of Pecos Pueblo or fished along the Pecos River in the Santa Fe National Forest each year. Greer and Buddy supported the formation of a national monument at the old ruins of Pecos Pueblo, and before her death, Greer decided to transfer much of the Forked Lightning Ranch to the National Park Service. Although automobiles now drove down modern roads through the valley, to Greer, the Pecos environment remained a romantic landscape with deep connections to an idealized view of Southwestern history. She believed it was a landscape that should be protected.

Although the twentieth-century Pecos landscape would have appeared very strange to Hobe-wagi, certain characteristics of the Pecos environment have remained much the same over the centuries. The environment is semi-arid, with sixteen to twenty inches of precipitation falling per year on average, although this can vary greatly. Altitude also influences the valley's flora—elevation ranges between 6,700 feet and 7,500 feet, high enough that temperatures can drop quickly during the spring and summer, particularly at night. Piñon and juniper woodland dominates the vegetation types in the valley. A general term, piñon-juniper ecosystems can be quite diverse. Numerous openings, often extensive enough to be classified as grassland, break the forest cover. At Pecos the extent of grassland and piñon-juniper has varied over time. Pecos stands within a transition zone between piñon-juniper and mixed conifer woodland, characterized by ponderosa pine and Douglas fir.⁴

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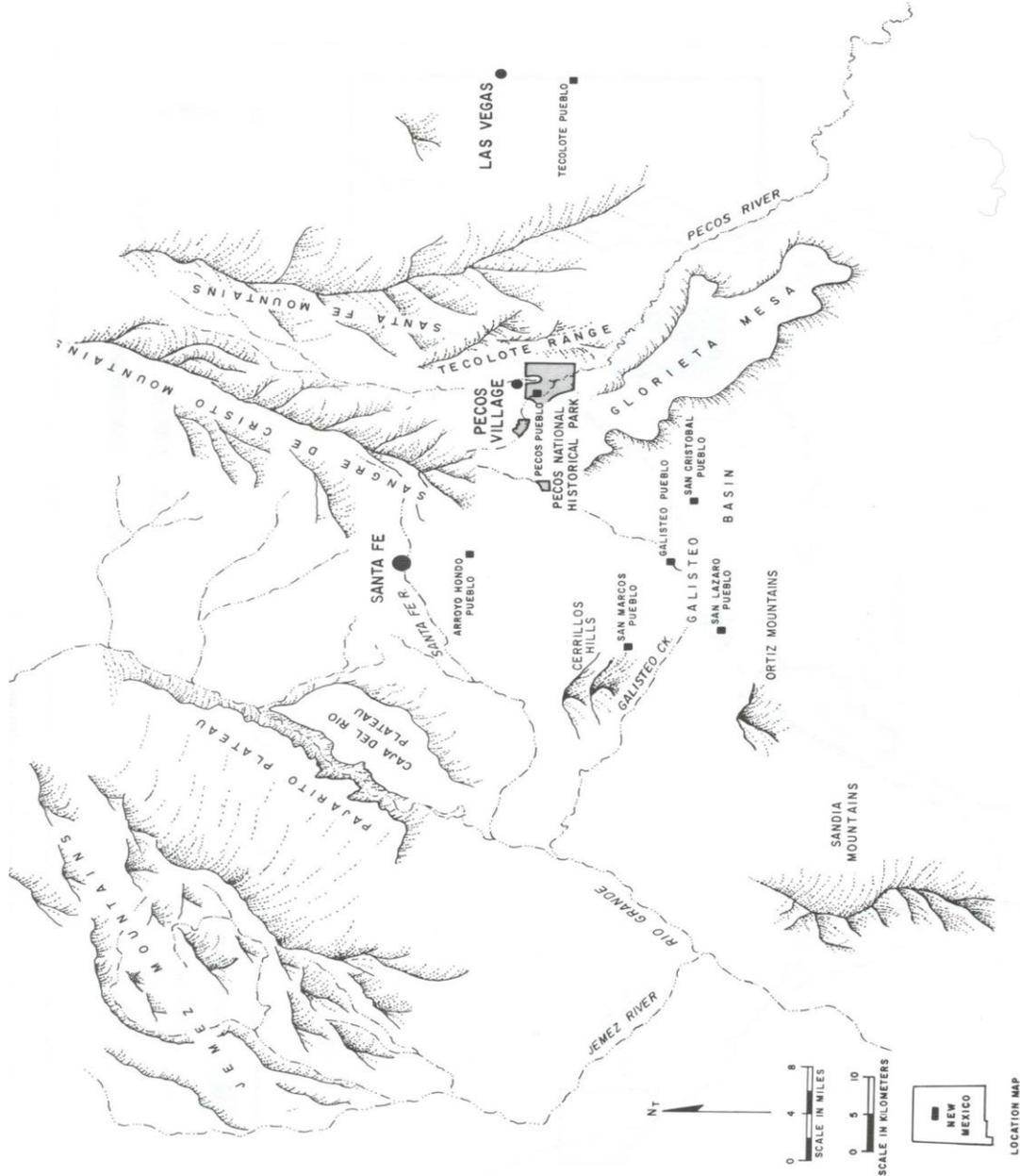


Figure 1. Upper Pecos valley and surrounding area, showing current Pecos National Historical Park units, population centers, and pueblo locations. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 1:3.)

Several centuries before Vargas arrived there, the Pecos built their pueblo on a small mesilla in roughly the center of a valley formed by the Glorieta Mesa on the west and the Tecolote range on the east. The Pecos River flows down the east side of the valley, descending through a narrow canyon from its headwaters in the Sangre de Cristo Mountains to the north. This section of the watershed is called the Upper Pecos to distinguish it from the very different environments the river flows through farther to the south. Throughout this history we use the terms “Upper Pecos valley” and “Pecos valley” interchangeably to refer to the area of study. A

small creek, known by various names but most commonly as Glorieta Creek or the Arroyo del Pueblo, enters the valley from the northwest and flows along the west side of the pueblo before joining the Pecos River. The presence of surface water for irrigation and human consumption was a crucial factor in the settlement of the valley. For both the Pecos and later settlers who depended on raising crops, control of the fertile floodplain was the key to their success.⁵

The dominant characteristics of the Pecos environment may have persisted over the centuries, but change occurred as well. The course of creeks and rivers shifted, fires swept through forests, and tree seedlings grew, matured, and died. The environment possesses its own long, slow history. Following the settlement of humans in the Pecos valley, many of the transformations in the environment occurred as a result of human actions. The Pecos created a landscape of farmed fields along the river; the Spanish introduced new species, such as wheat and cattle; Americans set aside the pueblo ruins as a place to be preserved and protected. Humans also influenced larger processes that had operated for millennia. The cattle and sheep that grazed the forests reduced the fuel load and altered the fire regime. Grazing and timber cutting increased soil erosion and contributed to more severe floods. Although many events remained independent of human influence—drought, flash floods, a lightning strike igniting a fire—the presence of humans at Pecos affected how they unfolded.⁶

Hobe-wagi's connection to this Pecos environment at first appears straightforward. She farmed crops, gathered fuel wood, and practiced a religion that invested the natural world with utmost importance. The connections between Helen Kozlowski and Greer Garson and the Pecos landscape may seem more elusive. What did the Union troops who camped at Kozlowski's in 1862 have to do with changes in the Pecos environment? How were Greer Garson's chuckwagon picnics connected to new perceptions of Pecos? Yet the troops represented the federal agenda for land use and development in the West; a vision rooted in ideas of private property and capitalism. Helen probably shared that vision and equated the railroad tracks, small farms, and ranches of Pecos to progress and civilization. Greer Garson's picnics reflected a fascination with a romantic, mythologized image of the Southwest—an image that encouraged tourism and its incorporation into the twentieth-century Pecos landscape. Even the relationship between Hobe-wagi and her home becomes more complex upon closer examination. The bison hides she carried probably came from the Plains Apaches—whose southern plains territory would soon be transformed due to the arrival of the horse. That transformation eventually brought the Comanches, and attendant environmental change, to Pecos.

Environmental historians attempt to elucidate these connections between people and their environments. As historian William Cronon explains, people's interactions with nature go beyond natural resources and the products people derive from them. Cronon uses the term "cultural system" to describe how the social and political organization, religious and philosophical beliefs of people determine their experience of and interaction with the environment. Cronon cautions that such terms as "cultural system" are necessarily broad, and although they allow for succinct communication about a complex subject, can also obscure the many differences between people within a cultural system. Likewise, "capitalism" describes the dominant cultural system of Helen Kozlowski or Greer Garson and helps pinpoint many characteristics of that system but also hides the numerous divisions and diversions within it. With that in mind, "cultural system" refers to the worldviews of the various groups who interacted at Pecos, as their cultures provided the reasons for why land and resource use occurred as they did. Similarly, viewing the Pecos environment as a constantly evolving "cultural landscape" also draws our understanding of humans and "nature" closer together. Humans have

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been a part of the Pecos environment for thousands of years—removing them and imagining a strictly “natural” environment eliminates a crucial part of the story.⁷

Hobe-wagi, Helen Kozlowski, and Greer Garson represented dramatically different cultural systems. This environmental history covers the period from 1540 to the end of the twentieth century, a span of time that witnessed the arrival of many people and cultures in the Upper Pecos valley. The collision of these diverse cultural systems—as well as changes within each—often resulted in conflict, which manifested in the environment. The Pecos, Franciscan friars, Hispanic settlers, Anglo-Americans, and others who came to the valley all had different ideas about how to use the Pecos environment and whom that use should benefit. The collision of Anglo-American beliefs about private and federal property with Hispanic traditions of communal property in the nineteenth and twentieth centuries is one important example of that conflict.

The location of Pecos Pueblo and later settlements ensured that many different cultures encountered each other there. To the south of Pecos the mesas and hills give way to the broad expanse of the Great Plains, stretching out to the east. Directly to the northwest of the pueblo, Glorieta Pass provides a passage around the northern tip of Glorieta Mesa and into the Rio Grande drainage. Located between two centers of population and transitioning between two environments, Pecos served as a point of trade and contact. Connections radiated eastward to the Plains tribes, southward to Mexico, and finally eastward again as the expanding United States drew closer. These connections not only drew different cultures closer together—often in conflict—but also brought change to the Pecos environment.

The environmental history of Pecos, then, consists of three overlapping layers. The first is the cultural systems of the various people who passed through the Upper Pecos valley or called it home—how they thought of the environment and how they changed it. These attempts to alter and adapt to the environment within a specific worldview resulted in conflicts over the environment and its resources—the second layer. Pecos’s position as a portal between different environments and cultures, the third layer, often served as the catalyst for these environmental and social transformations. The history of Pecos from 1540, when Coronado arrived at the pueblo, until the twenty-first century, reveals itself in the Pecos landscape. As a home, as a traveler’s destination, as a battlefield, Pecos became a place that reflected the hopes and desires of its inhabitants and the consequences—both intended and unintended—of their lives.

Chapter One

Creating a Cultural Landscape, Prehistory-1598

Yellow willow leaves swirled in the water of the Pecos River as it wound its way past the fields of maize. Pecos men, women, and children moved through the fields in the autumn sunshine, harvesting their corn. Some of them may have glanced to the southwest, where a party of their friends and relatives had disappeared some days past. Word had reached Pecos Pueblo that Spaniards had entered the Pueblos' land. The Pecos, who had previously pondered the dim rumors of conquest to the south, now faced the potentially dangerous reality of the Spanish in their own territory. Pecos leaders decided to send a delegation to meet the Spanish. At best, the foreigners might prove to be strong allies—at worst, enemies. As they brought in their crops, the Pecos wondered which way events would turn.

Some two hundred and fifty miles southwest of Pecos Pueblo, the dreams of Francisco Vásquez de Coronado appeared on the brink of collapse, disintegrating into the dust. Chasing rumors of wealth that rivaled the riches of the Aztec empire, Coronado had led an expeditionary force north from New Spain in 1540. When he arrived at the Zuñi pueblo of Háwikuh, he discovered that the rumors were just that. No fabulous cities of gold awaited the Spanish. Instead, Coronado encountered a land whose Puebloan inhabitants struggled against the aridity of their environment to raise enough crops for subsistence and trade. Maize, hides, piñon nuts, pottery, turquoise—these were the valuable resources to the inhabitants of Háwikuh and the other pueblos. They promised small returns to the Spanish who hoped to find lodes of silver and gold to fuel their empire.

Coronado refused to give up hope. Poor as the Pueblos turned out to be, they could be conquered and transformed into Spanish subjects. The Franciscan friars who accompanied Coronado reminded him that the Spanish had a duty to bring Christianity to these barbaric heathens. Besides, Coronado believed that cities filled with wealth enough to satisfy any man's ambitions might still wait beyond the horizon. Traveling a day or two to the east, west, or north might bring him to the culmination of his dreams. And so, Coronado overcame the resistance mounted by the Zuñis at Háwikuh and set about subduing other pueblos in the region—preferably peacefully, but resorting to force if necessary. After all, God was on his side.¹

While Coronado prepared to explore and conquer, the delegation from Pecos Pueblo arrived at Háwikuh. The Spanish called the leader of the Pecos delegates *Bigotes* because he sported mustaches. Bigotes was probably a war leader among the Pecos or occupied some equally prominent position within Pecos society. Historian John Kessell speculates that Bigotes often may have traveled away from Pecos Pueblo on trading expeditions and probably knew at least one other dialect besides his own. Bigotes told Coronado that the Pecos wished to be friends with the Spanish. He presented gifts, including several bison hides. Coronado appointed Captain Hernando de Alvarado to travel with Bigotes to Pecos Pueblo to formally establish relations with the pueblo and learn more about the region.²

Bigotes led Alvarado and a small detachment to Pecos Pueblo, arriving in September or October. The Pecos were busy bringing in the autumn harvest. Coronado's men studied the pueblo carefully, determining how much of a threat the Pecos would be if they suddenly turned hostile. In a history of the expedition, Pedro de Castañeda de Nájera recorded that Cicuye, the Spaniards' original name for Pecos Pueblo, modeled on the name used by the Pecos and other people in the region, "is a pueblo containing 500 warriors. It is feared throughout the land."

Another description from Coronado's expedition mentioned that Pecos was "larger" than all other pueblos and "very strong." The pueblo itself was "four and five stories high" and "surrounded by a low stone wall."³ The environment around the pueblo also captured the men's interest. Castañeda stated that "Cicuye is located in a small valley between sierras and mountains covered with big pines. There is a brook which abounds in excellent trout and otters. Big bears and fine falcons multiply in this region."⁴ To the Spanish, Pecos appeared to be a pueblo that, if not filled with gold, would be a valuable prize, particularly because it offered a gateway onto the eastern plains.

Available evidence suggests that Bigotes and other inhabitants of Pecos did indeed occupy a powerful pueblo. Unfortunately, such evidence is limited. The Pecos left behind no written records. Ethnographic sources, usually from the nineteenth and twentieth centuries, hint at what the culture of the Pecos may have been like, but these sources are problematic. By the time ethnographers collected such information, Puebloan culture had changed dramatically. Accounts of the Coronado expedition and other Spanish forays into New Mexico provide the only written sources from the period. The Spanish descriptions of Puebloan society reflect their own cultural biases, and no written records exist for the centuries prior to Spanish contact. The majority of sources for prehistoric Pecos are archaeological—evidence either from Pecos or pueblos in the surrounding area. Cultures differed among the Pueblos, but their subsistence strategies were similar enough to allow for comparisons. Despite the limitations, we can reconstruct a semblance of life at Pecos Pueblo in 1540 when Coronado arrived.

Pecos in 1540

When Bigotes surveyed the landscape from Pecos Pueblo, he beheld a world to which his people had adapted for centuries. The cultural system of the Pecos incorporated agriculture, hunting and gathering, and trade into a worldview that made clear connections between religion, society, and the environment. Although their cultural system allowed them to survive in their dry, high-altitude surroundings, the Pecos did not escape conflict over the environment and its resources. Differences in gender and position in society affected a person's access to resources, and thus their relationship to the world around them. The Pecos also changed their environment, sometimes with disruptive consequences. For example, when the Pecos population peaked about a century before Coronado arrived, mule deer declined precipitously as Pecos hunters strived to supply the needs of the pueblo.

The position of their pueblo on the threshold of the southern plains brought the Pecos into contact and conflict with other American Indian groups, particularly the Plains Apaches. For both the Apaches and the Pecos, trade was an important component of their cultural systems. Both resources and subsistence strategies changed hands, along with the inevitable cultural and social components invested in the process. The Apaches brought bison meat and hides to Pecos Pueblo and took back maize and pottery to the plains. Captives also circulated among the trade networks—people from the eastern plains arrived at Pecos Pueblo in the hands of their Apache captors and became incorporated into the pueblo, first as slaves but eventually merging into Pecos families as kin. Voluntary liaisons between men and women occurred as well. Each meeting—whether a young boy captured and traded into slavery at Pecos, a Pueblo woman marrying into an Apache band, or the numerous variations that must have occurred—provided an opportunity for one group to learn about the cultural system of another. The Apaches learned agriculture from the Pueblos and many Pueblos ventured out onto the plains to hunt bison for themselves.⁵

Bigotes knew the familiar taste of dried bison meat and corn, walked through well-known fields and forests, and remembered the stories about the supernatural beings that formed an integral part of his world. Although the environment that Bigotes and his fellow Pecos inhabited in 1540 possessed many constants, it also held the fluid potential for change. One year, the maize growing in the pueblo's fields by the Pecos River might be tall and verdant. The next, a late frost in spring or a long spell of dusty, dry days might wither the corn. When the Apaches arrived to camp in the field by the pueblo each autumn, the Pecos expected to trade, but the potential also existed for conflict. Perhaps the last few years had yielded only poor harvests, and the Pecos did not have as much maize to trade as usual. Would the Apaches turn to violence to obtain the food they needed? Hunting a deer, cooking a meal, birthing a child—all of these actions reverberated in the Pecos environment. The religious leaders of the pueblo, crouched in the confines of a kiva, sought to propitiate the proper deities and perform the correct ceremonies to keep their world in balance.

“They Possess Quantities of Maize”: Early settlement and agricultural development in the Upper Pecos valley

Coronado's expedition brought disruption and uncertainty to the Pecos, but neither Coronado nor the two expeditions that followed him, captained by Antonio de Espejo and Castaño de Sosa, stayed long enough in New Mexico to have substantial effects on the Pecos' life or environment. Not until Don Juan de Oñate arrived in 1598 with a permanent colony of settlers and friars did the Spanish begin to induce change in the New Mexican environment. Because the Pecos environment had not yet undergone a dramatic transformation, Spanish descriptions of Pecos in the late 1500s provide further information about daily life at the pueblo in 1540. Baltazar de Obregón, in his 1584 *Historia*, provided an extensive description of the pueblo and its setting:

From this Río de Tibuex, which they say is four hundred paces wide, the army marched toward Cicuic [Pecos], the best and most populous of the pueblos discovered by Coronado and Antonio de Espejo. It is congregated on a high and narrow hill and enclosed on both sides by two streams and many trees. The hill itself is cleared of trees. Half a league from the site is a heavy growth of cedars, pines and oaks. Entrance is on the east and west sides. It has the greatest and best buildings of those provinces and is most thickly settled by *gente vestida* [clothed people]. They possess quantities of maize, cotton [?], beans, and squash. It is enclosed and protected by a wall and large houses, and by tiers of walkways which look out on the countryside.⁶

A member of Castaño de Sosa's 1591 expedition recollected life at Pecos in winter:

This pueblo had five plazas. It was also provided with such an abundant supply of corn that everyone marveled. There were those who maintained that the total must amount to more than thirty thousand fanegas, since each house had two or three rooms full of it, all of excellent quality. Moreover, there was a good supply of beans. Both corn and beans were of many colors; it seemed that some of the corn was two or three years old. In the houses, the natives also store quantities of herbs, chili, and calabashes, and many implements for working their cornfields.... These Indians have a great deal of pottery.... They also have plentiful supplies of firewood, and of lumber for building

houses. Indeed, we were given to understand that whenever anyone wanted to build a house, he had lumber for that purpose ready at hand. . . . There are two water holes, at the ends of the pueblo, which the natives use for bathing, since they obtain their drinking water from other springs about an harquebus shot away.⁷

Although the size and population of Pecos Pueblo impressed chroniclers, both of these accounts stress the abundant supply of stored crops, particularly maize, at the pueblo. In order to achieve the position of power that Pecos Pueblo enjoyed in Bigotes's time, the pueblo needed an adequate and consistent supply of food. The plentiful harvests of beans, squash, and corn that supported the large population resulted from techniques that had required years to develop.

Archaeological evidence from the Pecos area in the prehistoric period provides a glimpse into how the Pecos adapted to and changed their environment over time. Although limited evidence exists for human presence in the Upper Pecos valley until the Developmental period beginning in 600 C.E., Paleo-Indians did occupy the Southwest starting around 11,500 B.C.E. Archaeologists have located lithic scatters and Clovis and Folsom points in the region. Archaic era sites also have been found in the Upper Pecos valley. During the Developmental period (600-1200 C.E.), humans built habitations in the Pecos area meant for sedentary, long-term use. Pit houses, dating between 800-950 C.E., and a few small adobe structures of indeterminate use, dating to the eleventh and twelfth centuries, have been unearthed, but information about Pecos during this period remains scarce.⁸

During these early periods, societies in the Southwest began experimenting with agriculture, eventually transforming into sedentary, agrarian cultures. Indigenous species, particularly agave and little barley, may have been the first cultivated plants.⁹ These were swiftly replaced by maize (corn), which was probably introduced to the Southwest from Mexico during the Archaic period (5500 B.C.E. to 600 C.E.).¹⁰ More precise estimates place the date at 1000 to 1500 B.C.E., and by the end of the Archaic period, farming was integral to Puebloan life.¹¹ Corn seeds arrived the way many other resources did—passed from village to village through trade or social networks.¹² An introduced plant, maize became an accepted part of the Southwestern environment. The carefully planted and tended fields, along with the rock and adobe pueblos, represented the first visually prominent manifestations of the cultural system of the Upper Pecos valley residents. The wide distribution of a new plant species and the activities associated with farming, including clearing fields, altered the local environment. Farming encouraged the spread of other edible species. Maize replaced native plants and the disturbed soil supported the growth of such plants as *Chenopodium* (goosefoot), *Amaranthus*, and *Portulaca* (purslane). Abandoned fields harbored Indian ricegrass and cacti.¹³ The introduction of cultivated maize also changed human society. Maize required an input of human energy and technology in order to flourish.¹⁴ Cultivated fields created small spaces with unique cultural and environmental meanings. Puebloan society itself must have transformed in order to accommodate them.

Agriculture served as the primary mode of subsistence, and over time, the Pecos developed a number of strategies to cope with the undependable moisture and temperature extremes of their environment. Anthropologist Kurt Anschuetz cautions that Puebloan agriculture relied on a flexible combination of irrigation and dry farming techniques, and dry farming techniques should not be viewed as the more simplistic of the two methods. The Pueblos used a variety of methods to improve the fertility of the soil and trap moisture, even in areas far removed from the floodplains of rivers and creeks.¹⁵

The Pueblos could channel and check ephemeral moisture from rain or snow melt in several ways. Check dams retained water and diversion dams channeled water to a garden plot. They used terracing extensively to prevent the rapid runoff of water. The Pueblos also employed grid garden systems, in which borders made of earth or stone formed cells that captured moisture. Gravel mulching of plots increased the moisture retention of the soil. Proper location of a plot was essential for success—a plot situated at the head of a ravine behind a check dam ensured that an adequate supply of water would reach the plot, but at a slow enough rate to avoid damage to the plants. Some plots may have been located inside gullies where the surrounding walls trapped daytime heat, keeping the soil warmer overnight.¹⁶

Managing surface water distribution was an ongoing necessity. Excess water from spring runoff or a heavy summer rain that swelled the river could damage crops as much as a lack of moisture. The extent and sophistication of river or creek irrigation in precontact Puebloan society is difficult to determine. Several Spanish accounts mention “canals” in Pueblo fields, but, as Anschuetz says, cultural understandings of what agriculture was supposed to look like colored Spanish descriptions. The Spanish may have been describing a variety of irrigation methods. The Pueblos employed numerous water management strategies, including diversion dams, headgates, and ditches, to conserve precious water.¹⁷

Near Pecos Pueblo several archaeological sites show evidence of agricultural activity. Archaeologists have discovered terraces, check dams, grid gardens, and reservoirs near the pueblo.¹⁸ Yet considering the large population size at Pecos Pueblo, the number of agricultural features is surprisingly small. Bulldozers used to remove trees in grazing pastures in the 1950s and 1960s negatively impacted archaeological sites around Pecos Pueblo. The location of fertile and irrigable land also contributes to the lack of agricultural evidence. Although the Pecos irrigated fields by Glorieta Creek, the majority of irrigable land lies to the northeast by the Pecos River in a low, swampy area known to Spanish settlers as a *ciénega* (spring). Archaeological investigations have not been conducted in the *ciénega*. Little evidence would be found as flooding, vegetation change, and the consistent use of the *ciénega* for farming and grazing over the centuries have erased much of the evidence for agricultural activity undertaken by the Pecos.¹⁹

Fertile soils occur in the floodplains along the Pecos River and Glorieta Creek. As the Pecos population grew, the pueblo residents put marginal soils into production as well. Archaeological evidence indicates that over time the distance increased between habitation sites and non-habitation sites, such as fieldhouses and other sites associated with subsistence activities. The Pecos may have located fields along Glorieta Creek extending quite a distance from the pueblo, utilizing any small patch of fertile ground that they found. The depletion of resources forced the Pecos to move cultivation sites farther afield.²⁰

“The Best and Most Populous of the Pueblos”: Climatic trends and population aggregation at Pecos Pueblo

As a probable leader of the Pecos, Bigotes may not have spent much time in the pueblo’s fields, but many Pecos labored there throughout the year. These men and women anxiously watched for signs of rain in the summer, for although the Pecos developed agricultural strategies enabling them to thrive in their arid environment, growing a successful crop of corn each year was never a certainty. Maize requires around 120 growing days, although short season varieties do exist that can mature in 60 to 90 days. With an average of approximately 127 growing days, the Upper Pecos valley offers marginal conditions for corn agriculture.²¹ Farmers in the valley,

living at an elevation of around 7,000 feet, faced the threat of frost in the spring, which could kill seedlings. Colder temperatures could also prevail through the spring months, inhibiting growth. Moisture was critical. A lack of moisture later in the growing season put greater stress on corn.²² Puebloan groups usually stored enough corn to survive two- to three-year dry periods without significant problems. Droughts of five years or more significantly impacted food availability.²³

The quantity and timing of annual precipitation affected not only the flora and fauna that depended on the moisture but also the very rocks and soil of the Upper Pecos valley. A sudden flash flood or a heavy snowmelt could carve new channels into the earth or deepen pre-existing stream channels. The climate of the area exerted a dominating influence. Today, two precipitation regimes characterize the Southwest. The Pecos valley sits just below the line dividing these two regimes. Pecos and areas to the southeast are within a pattern characterized by unimodal, summer-dominant precipitation. To the northwest a bimodal pattern dominates. Due to this pattern, the Pecos valley receives most of its moisture during the monsoon months of July and August. Evidence suggests that this pattern also existed in the past, at least as early as 750 C.E. Between 1250 and 1450 C.E., however, the northwestern regime collapsed into a number of variable patterns. The monsoonal pattern of the southeast persisted.²⁴

Amounts of precipitation and average temperature varied over time. In general, the Southwest grew warmer and drier over the course of centuries. During the Paleo-Indian period (10,000-5500 B.C.E.), the climate was drier than it had been previously, yet still wetter and cooler than today. During the Archaic period (5500 B.C.E.-600 C.E.), the climate continued to grow warmer and drier. Desert species established themselves as woodland species withdrew.²⁵ Any discussion of the role of climate, however, must consider local variations. Climatic conditions can vary dramatically from place to place and broad generalizations may not accurately depict the climate of a specific area.

In their *Cultural Resources Inventory of Pecos National Historical Park*, Genevieve Head and Janet Orcutt utilized the Palmer Drought Severity Index (PDSI) to determine drought years. The PDSI covers the Southwest region as a whole—the Pecos valley may have seen substantially different localized conditions. Head and Orcutt developed a dryness index for four of the PDSI periods at Pecos, corresponding to years 1200-1700 C.E., and analyzed five year conditions. Six dry periods occurred in the interval from 1200-1325 C.E. 1325 to 1450 C.E., witnessed seven dry periods. Precipitation was more variable during the first interval, and although the second interval included more dry periods, these were generally shorter.²⁶

An analysis of tree rings from a location near the Arroyo Hondo Pueblo, located 4.5 miles south of Santa Fe, provides a more localized overview of climate, although the data does not extend further back than 985 C.E. No studies have been done specifically on the Pecos area, yet the close proximity of Arroyo Hondo suggests that the data would hold true for Pecos as well. The study, conducted in 1981, divided the precipitation regime into two groups—spring precipitation, encompassing March to June, and annual precipitation, encompassing July to February. Overall, spring precipitation fluctuated more than annual precipitation. The study provides a good example of the local variations in climate. A severe drought, called the “Great Drought,” occurred in the Southwest from 1275-1300 C.E. Interestingly, the study did not find substantial evidence of the Great Drought at Arroyo Hondo, although lower and more variable moisture occurred in annual precipitation during the drought period. Multiple periods of low precipitation did happen periodically, but the area experienced times of increased precipitation as well. Higher than average spring moisture prevailed from 1400 to 1415, for example. Evidence

of a severe drought occurred in the years around 1420, which correlates with one of the dry periods in the PDSI, lasting from 1415-1428.²⁷

The climate of the Upper Pecos valley—the periods of drought, welcome rains, and hot and cold spells—not only played a crucial role in agriculture but also affected population movement. Successful agriculture encouraged population growth in the Pecos area, but climatic changes also stimulated settlement at Pecos. Archaeologists have speculated that the sudden change in the precipitation pattern in 1250 to 1450 C.E. pushed groups who had settled in the Four Corners area further south.²⁸ From 1325 to 1450 C.E. an influx of people came to the valley, habitation sites increased in number, and finally the population aggregated at Pecos Pueblo. During the Coalition Period (1200-1325 C.E.), several pueblos were built in the Pecos valley, including Forked Lightning, Rowe, and the Black-on-White House, which occupied the later site of the Pecos Pueblo North Quadrangle. By the Early (1325-1400 C.E.) and Middle (1400-1525 C.E.) Classic Periods, people began to vacate these various habitation sites and congregate at the Pecos Pueblo, which was constructed in 1425 C.E. By 1450, all other pueblos in the valley had been abandoned.²⁹

Archaeologists offer a variety of reasons for population aggregation. Alfred V. Kidder, one of the founders of Southwestern archaeology who conducted excavations at Pecos Pueblo from 1915 through 1929, argued that people gathered at Pecos Pueblo for reasons of defense. The location of the pueblo, on an isolated mesilla providing a view of the surrounding valley, allowed its residents to spot enemies at a distance. Competition over resources also may have encouraged aggregation. As habitation sites proliferated in the Pecos valley, competition over fertile soils, hunting territories, and gathering areas increased as well. Consolidating into one pueblo may have been an attempt to share resources communally. A larger and stronger pueblo could have forced other, smaller groups away from resources. Aggregation occurred during a period of stable rainfall patterns, allowing a large population to support itself. Other social factors that are impossible to reconstruct also may have contributed to the decision.³⁰

The growth in population and concentration of that population in the Pecos Pueblo affected the environment in several ways. The Pecos quickly cultivated the most fertile soils in the area. The best soils occurred along the Pecos River and Glorieta Creek, particularly at the Pecos River ciénega. A large expanse of well-watered soil, the ciénega was a coveted resource. As the population in the valley grew, the Pecos needed to put marginal land into production. Anthropologist Katherine Spielmann estimated that about 640 hectares (approximately 1581 acres) of land suitable for cultivation were available in the vicinity of Pecos Pueblo.³¹ The highest number of people in the Pecos area occurred from 1325-1450 C.E. Population within the pueblo itself, when other sites had been vacated, peaked during 1450-1475.³² The fourteenth and fifteenth centuries, then, may have been a time period when the human population of Pecos pushed local resources to their limit.

Estimating population numbers for Pecos Pueblo and the Southwest in general presents problems. No firm agreement exists about the actual population at Pecos Pueblo when the Spanish arrived in 1540. Archaeologists estimate population size by measuring floor space and the number of occupied rooms in a pueblo, then multiplying that number by the average number of people in a Puebloan family group. Because people inhabited pueblos for a long period of time, with some rooms falling into disuse or changing function and new ones being added on, fixing a date of habitation onto individual rooms can be challenging without extensive excavation. At Pecos, archaeologists have used stratigraphy and ceramic assemblages along with maps based on Kidder's excavations to divide occupation into four periods. For the fifteenth and

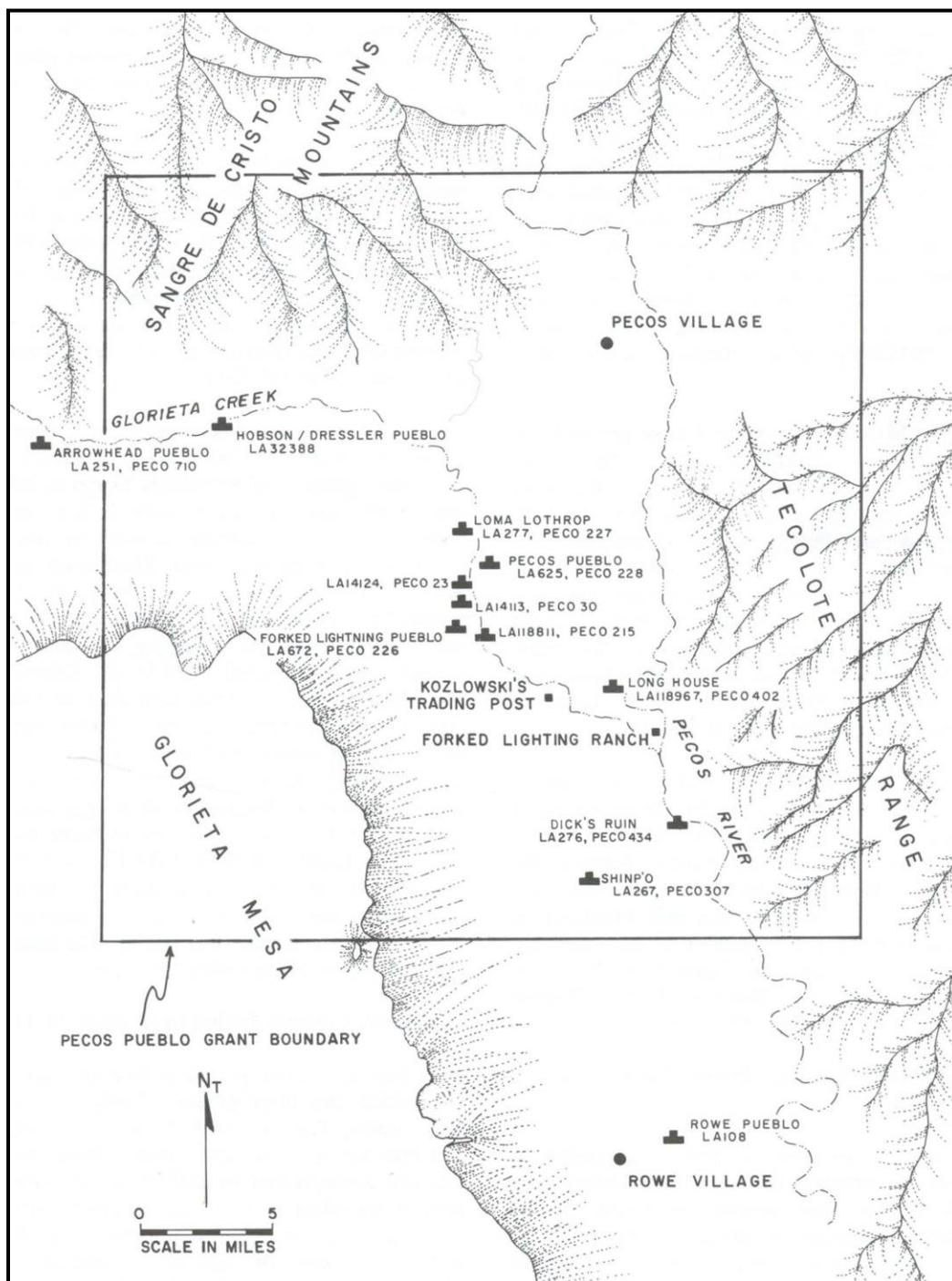


Figure 2. Locations of prehistoric settlement sites in the vicinity of Pecos Pueblo. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 1:7.)

sixteenth centuries, anthropologist Eden Welker organized the pueblo into “‘apartments’ of six rooms each,” and then multiplied the number of apartments by an average of five members per family.³³ The actual size of Pecos family groups is unknown, however. The estimate of five is based on modern Puebloan families. The “room-based” method results in a peak population of between 850 and 970 people according to Kidder and 800 according to Welker.³⁴

These numbers are well below Spanish sources, which described the Pecos population as approximately 2,000 in 1540. The archaeological estimates are more compelling than those in Spanish sources for several reasons. To achieve a population of 2,000, ten people would have been crowded into each apartment at Pecos Pueblo.³⁵ According to Spielmann, a population of only 1,000 would have needed 600 hectares of cultivatable land to survive, which draws near to the maximum of 640 hectares available in the Pecos area.³⁶ The Spanish had reason to overestimate the Pecos population—a higher number made their conquest sound more impressive. On the one hand, the unusual architecture of Pecos Pueblo, which exhibited a linear form with rooms centered on a plaza, as opposed to the “rambling” architecture of other pueblos, may have made it appear that the pueblo housed more people than it actually did.³⁷ On the other hand, the first detailed census of the pueblo, conducted in 1694, recorded 736 inhabitants at the pueblo after almost a century of close contact with the Spanish and exposure to disease epidemics, suggesting that perhaps a higher population estimate for Pecos Pueblo may be correct.³⁸

Regardless of the actual population at Pecos Pueblo, the Spanish observation that it was “the best and most populous of the pueblos” was probably accurate. The Pecos Pueblo did house a substantial population, and the Pecos had developed strategies to support that population. Much of their success rested on agriculture. An analysis of bone chemistry data from Pecos burials, ranging in date from roughly 1200 to 1850 C.E., revealed that seventy-five to eighty-five percent of the Pecos diet consisted of maize. Studies of the Arroyo Hondo pueblo concluded that in years of adequate rainfall, maize could provide one hundred percent of required calories.³⁹ The Pecos stored quantities of maize and other plants to serve as buffers during years when crops failed.⁴⁰ Severe droughts in the 1200s and 1400s are not reflected in the bone chemistry data, suggesting that the Pecos had sufficient provisions.⁴¹

“Plentiful Supplies of Firewood”: Influences on tree density around Pecos Pueblo

The Pecos’ subsistence did not rest on maize alone. The Pecos made use of all the resources at their disposal. Farmers grew beans and squash. Weedy annuals, such as goosefoot (*Chenopodium*), amaranth or pigweed (*Amaranthus albus*), and beeweed (*Cleome serrulata*), grew in disturbed soils, such as the borders of cultivated fields, and provided supplements to the Pecos diet. The Pecos could also use sunflowers, Indian ricegrass, and cactus fruits, among many other edible plants. The piñon nut provided an important source of protein in the Pecos diet. Substantial yields occur around every four to seven years and, like maize, the nuts can be stored. Plants possessed importance beyond their role as a food source. Pueblos used plants to make such diverse items as cordage, mats, sandals, and loom anchors. Ethnographic sources record a number of plants used by Pueblos for various purposes. Yucca root could be made into soap. Cota, *Thelesperma gracile*, could be boiled into a beverage and was consumed widely before coffee and tea became common. Piñon sap, when combined with lard, formed a salve for skin abrasions.⁴² In their study of the faunal remains of Arroyo Hondo Pueblo, Richard Lang and Arthur Harris caution that although agriculture was an important element of the Puebloan lifestyle, nonagricultural foods comprised a substantial portion of their diet. Because Pueblos are often seen as an agricultural people, it is easy to underestimate their other subsistence activities.⁴³

The Spanish observed that the Pecos possessed “plentiful supplies of firewood, and of lumber for building houses. Indeed, we were given to understand that whenever anyone wanted to build a house, he had lumber for that purpose ready at hand.”⁴⁴ The primary building materials

were mud and stone, but the Pecos used wood as well, particularly for roofs. While excavating the north pueblo complex, Kidder discovered beams of yellow pine, covered first with cedar or more pine, and then with small twigs of cedar, willow, wild cherry, or rushes.⁴⁵ Although wood was important for building purposes and for making tools and weapons, the Pecos used the greatest amount of wood to feed their fires. The Pecos used all easily available wood, including piñon and juniper for firewood. The Spanish remarked that the mesilla was “cleared of trees” and that only half a league away did “a heavy growth of cedars, pines and oaks” begin. The term “cedar,” used by both the Spanish and Kidder, probably refers to junipers. “Oaks” may refer to the Gambel oak, which grows in the area, or may be a catchall term for deciduous trees in general. By 1540 the Pecos had inhabited the area for centuries and the pueblo population had grown quite large. The Pecos searched for wood in an ever-widening circle around the pueblo.

Plant and pollen evidence from the church ruins, dating to as early as the seventeenth century, shows that the same assemblage of plants are present today, so it is unlikely that any radically different species were present in the prehistoric Upper Pecos valley.⁴⁶ It is difficult to know exactly what the landscape looked like, however, particularly the ratio of grassland to woodland. Opinions on the matter differ. In their study of Arroyo Hondo, Lang and Harris state that the piñon juniper woodland around the pueblo was “somewhat more open than that of today’s.”⁴⁷ Spielmann, however, states that “grassland in the vicinity of Pecos today is probably the result of historic clearing and would not have been present in the prehistoric period.”⁴⁸ The Pecos did not need grassland for pasture, but mule deer and elk used open areas for grazing. Grassland areas are commonly part of piñon-juniper woodlands.

The Pecos certainly harvested trees and may have affected forest density by using fire to clear away trees and brush. No evidence for the Pecos’ use of fire for clearing exists. Any conclusions must rely on an extremely limited number of sources, many of them discussing Indian tribes or locations far removed from the Upper Pecos valley. Probably any purposeful burning by the Pecos was limited in extent and did not affect the overall landscape. Instead, lightning provided the primary source for fire ignitions. Striking during dry spring weather and summer storms, lightning-caused fires match the fire scar record of the Southwest far better than anthropogenic causes. If Pueblos had been using fire to clear vegetation, the logical time to set such fires would have been in the fall or winter when conditions made the fire easier to control. Evidence, however, shows that most fires occurred in the spring and summer.⁴⁹

Historic and scientific literature supports the conclusion that fire played a role in the landscape of the Southwest, but exactly how remains open to debate. Fire evidence from tree ring data is abundant for the Southwest in general, but, as with climate, local conditions can cause tremendous variability in the fire regime. Topography, soils, and climate all affect the likelihood and intensity of fires. For piñon-juniper woodlands, with their innate diversity in types and amounts of vegetation, the question grows even more complicated.⁵⁰

Climate and the fuel load in the understory play an important role in determining fire frequency, as does the intensity and duration of the fire itself. More fertile soils support greater plant growth and a subsequent build-up in fuels. A series of unusually wet years would have increased plant growth even further. If a drought followed the abnormal rain, the chances of a severe fire would have increased. Short-term weather also could have an effect. Tree ring data shows that the majority of fires in the summer monsoon region of the Southwest occurred in the spring months of April to June, before heavy rains had arrived, or during the summer when thunderstorms brought lightning. Unusually hot or dry weather in the spring increased the

chances of fire. All of these elements—soil fertility, plant growth, precipitation—have significant local variations. Broad generalizations cannot be made about fire regimes.⁵¹

Drought also could threaten vegetation communities, including the piñon-juniper woodland. Piñon and juniper population dynamics are not well understood today. What may have occurred hundreds of years ago is hard to extrapolate, but forces such as drought, fire, insects, and disease always would have affected the trees. Severe droughts in recent years, particularly the 1950s, killed numerous piñon and juniper. Extensive droughts in the past also may have resulted in widespread tree mortality. In contrast, wet periods may have promoted tree growth. Episodes of disease probably played a periodic role in reducing piñon and juniper numbers as well.⁵² The Pecos had scoured the area immediately around the pueblo clear of trees and large brush—perhaps extending as far as the half-league described by the Spanish. Farther away from the pueblo, it is impossible to know the precise density of piñon-juniper woodland and grassland. The tree cover probably fluctuated over time due to drought, fire, and disease.

For the Pecos, the piñon and juniper formed a familiar landscape. Walking around the pueblo, a Pecos passed under the boughs of piñon pines, encountered meadows where the sun shone brightly, and pushed through willows on the banks of the river. The Pecos valued piñon and juniper as well as the many other species that grew in these ecosystems. Bigotes probably enjoyed the sweet fruit of the prickly pear cactus, drank doveweed tea to cure a headache, and snacked on nodding wild onion bulbs while on his travels.⁵³

“Big Bears and Fine Falcons Multiply in This Region”: Wildlife populations and hunting

Useful plants such as fragrant junipers and slender willows were only one component of the Pecos' world. The Spanish noted the “big bears,” possibly grizzlies, and “fine falcons” around Pecos Pueblo, but mule deer, rabbits, foxes, and others roamed the slopes of the mesas and nosed along the riverbank. The Pecos hunted many of them—meat provided an important supplement to cultivated foods, particularly as a source of protein. Animal bones discovered by Kidder in the large midden heaps on the east slopes of the pueblo provide evidence of meat in the Pecos diet. Unfortunately, Kidder did not undertake a systematic study of faunal remains and only left statements about the types and number of animal bones discovered. Mule deer comprised the most substantial number of bones in the midden—over three-quarters of those found. Rabbit bones occurred in large numbers, followed by antelope, mountain sheep, and elk. Kidder also discovered bison bones, which increased in number after about 1470 C.E.⁵⁴ All of these species occur in the Upper Pecos valley or within a distance that pueblo inhabitants could travel easily.

The Arroyo Hondo study, which examined animal bones in greater detail than any studies at Pecos Pueblo, recorded a number of species that currently inhabit piñon-juniper and grassland ecosystems, such as desert cottontail rabbits, white-footed mice, coyotes, and foxes. Spotted ground squirrels, Gunnison's prairie dogs, and Ord's kangaroo rats clambered about prehistoric Arroyo Hondo in large numbers but rarely appear today. Black-tailed prairie dogs, yellow-faced pocket gophers, white-tailed jack rabbits, and Richardson's ground squirrels also were present in greater numbers in the prehistoric period. Grizzly bears and gray wolves also appear at Arroyo Hondo Pueblo—species that faced local extinction in the nineteenth and twentieth centuries.⁵⁵ Arroyo Hondo residents raised turkeys, and some evidence exists that turkeys may have been raised at Pecos Pueblo as well. However, by the time of Spanish arrival, the Pecos no longer kept turkeys.⁵⁶

Social and practical considerations influenced the hunting methods of Puebloan groups. Spielmann discusses the hunting practices of the Pecos. Ethnographic evidence from other Puebloan groups shows that the people conducted communal rabbit hunts in the fall and spring—when corn was planted and when it was about to be harvested—to reduce rabbit depredations of the crops. Rabbits probably served as a year-round source of food, as the Pecos also set traps and snares in winter. Men hunted deer, elk, and antelope, which often required travel away from the pueblo. Spielmann estimates an average of one deer per hunter per year, using an average number of 210 hunters at Pecos Pueblo. The Pecos may have conducted communal deer hunts as well. Due to the concentrated nature of the population at Pecos Pueblo, it is likely that deer in the immediate area were over-hunted, requiring hunters to travel greater distances to find game.⁵⁷ At Arroyo Hondo, hoofed mammal bones declined over time, while small mammals and bird species both increased and diversified. This suggests that the population of hoofed mammals near the pueblo fell due to overhunting, forcing the people to broaden their subsistence strategies.⁵⁸ Evidence from Gran Quivira Pueblo, where the quantity of antelope bones declined over time, also supports this conclusion.⁵⁹

The antelopes nearest Pecos were on the plains, thirty-five miles to the east, near present day Las Vegas, or thirty-seven miles to the southeast near Anton Chico. A person could only carry so much meat back to the pueblo, however. In fact, the archaeological record of bison and antelope may show fewer numbers than people actually consumed. Because they often removed the meat from the bones and dried it during the hunt, the skeletal evidence found in the pueblo midden heaps does not reflect the total quantity consumed for the mammal species hunted farther afield. Spielmann suggests that bison meat may have served as a replacement for mule deer when local deer populations crashed due to overhunting.⁶⁰ Social factors also impacted large mammal hunting. Other Puebloan groups in the area, in the Galisteo Basin or on the other side of Glorieta Mesa, for example, may have controlled their own hunting territory, limiting the reach of Pecos hunters. Once again, evidence concerning hunting among Puebloan groups is limited, but we should not assume that the Pecos could freely make use of all the resources in the area.⁶¹ Based on the faunal remains at Arroyo Hondo, the researchers estimated that the pueblo's potential hunting ground consisted of about eighty square miles.⁶²

The Pecos River and Glorieta Creek afforded the Pecos plentiful fishing opportunities. The Spanish mentioned “a brook which abounds in excellent trout and otters.”⁶³ The description could refer to either the Pecos River or Glorieta Creek. The trout was probably the Rio Grande cutthroat trout.⁶⁴ General descriptive terms such as “trout” or “bear” do not specifically pinpoint a species, but when combined with other evidence, suggest reasonable assumptions. In 1540 the riparian ecosystems of both the Pecos River and Glorieta Creek would have possessed good physical stability, although the presence of agricultural fields as well as the use of plants, such as willows, may have resulted in a less dense riparian growth near the pueblo.

“They Worship the Sun and the Water”: Prehistoric Pecos religion and culture

Hunting deer, gathering piñon nuts, planting maize—the Pecos incorporated all these interactions with the environment into their society and culture. By eating a meal or lighting a ceremonial fire, the Pecos wove the environment into their cultural system. Existing evidence of Pecos society is limited and is extrapolated from archaeological studies as well as ethnographic sources from the Jemez, the people whom the last residents of Pecos Pueblo joined at their pueblo 60 miles west of Pecos in 1838. Often historians and anthropologists have grouped together the Pecos and Jemez as part of the same Towa language group, but linguistic evidence

suggests the Pecos may have spoken a Tewa dialect.⁶⁵ Additionally, the immigrants from Pecos Pueblo who melded into Jemez society brought cultural traditions modified by three centuries of contact with the Spanish. Consequently, the mores of the 1838 Pecos did not perfectly reflect the society of the pre-contact Pecos.

Placing the culture of nineteenth-century Pueblos into the context of their ancestors poses obvious difficulties. Although we cannot surmise the specifics of Pecos culture in 1540, we can suggest a few broad generalizations. Certainly agriculture was a mainstay for the Pecos. When they transitioned to an agrarian society, access to arable land became increasingly important. As the population grew, community members would have competed for access to land and those with greater social power, such as religious figures, may have controlled larger amounts of land. Possibly, land acquisition was similar to current systems of land control amongst the Pueblos. For example, clan affiliation can determine access to land. In a matrilineal society like the Jemez, land is passed down to both sons and daughters.⁶⁶

The demands of agriculture induced a variety of changes in Pecos culture, particularly in gender roles. Although both women and men participated in farming, the tasks and social standing associated with each gender no doubt differed. Women planted “kitchen gardens,” which contained more specialized plants such as herbs for religious ceremonies. The importance of the garden may have bestowed greater cultural status on their caretakers. Men may have farmed the land farther away from the pueblo. Certain plants may have been associated with a particular gender. Perhaps the social regime in field houses, where people stayed seasonally to tend crops, differed from that which operated at the main pueblo. If a nuclear family lived in a field house, they may have adopted different gender roles than those in the pueblo, where extended family relationships dominated.⁶⁷ We cannot answer any of these speculations conclusively, but they demonstrate the many intersections of culture and environment.

On a reconnaissance mission at Taos Pueblo, Hernando de Alvarado remarked that “they worship the sun and the water.” Although no one on the Coronado expedition commented on the religious practices of the Pecos, all of the Pueblos practiced a form of religion centered in nature. Natural landforms, such as lakes or mountains, possessed spiritual significance. During interviews with Pecos descendants in the 1990s, one elder recounted the story of a bull that emerged from a lake in the mountains above the Upper Pecos River canyon. The Pecos brought the bull back to the pueblo and chained it, but the bull broke the chains and returned to the lake. Pecos descendants still hold an annual Pecos Bull ceremony. As historian Tracy Brady says in a discussion of Tewa religious beliefs in the Upper Rio Grande area, “Through sacred places, the people had direct access to and connection with the sacred world.” Such perceptions differed dramatically from the Christian religion where “God . . . residing in heaven, could make his presence known anywhere, and so Christianity was arbitrary with regard to place.” In contrast the Pueblo’s religion depended on stories attached to specific places. The Pecos performed dances at certain times of the year in conjunction with planting, harvesting and other activities. Knowing when to offer a certain prayer, plant corn, or expect the first snows required a deep attunement to astronomical cycles. The stars, sun, and moon also figured into Pecos spirituality. For the Pueblos, religion was not a separate component of their lives but featured prominently in all daily activities.⁶⁸

“Very Heavy Hair Like the Mane of a Wild Lion”: Pecos Pueblo’s connections to the Southwestern Plains

From the moment Bigotes brought bison hides to Coronado, the Spanish wanted to know more about these strange “cattle.” When they reached the plains to the east of the Upper Pecos valley, the Spaniards encountered bison personally. Pedro de Castañeda de Nájera, the official chronicler of the expedition, struggled to describe the animal. He related it to animals familiar to his audience: “They are bearded like very large he-goats... From the middle of the body back they are covered with very woolly hair like that of fine sheep. From the belly to the front they have very heavy hair like the mane of a wild lion.” The Spanish quickly realized the utility of bison hides for warm clothing, sturdy tents, and other items.⁶⁹

The Pecos understood the value of bison hides and meat. They did not rely solely on their own hunting and farming capabilities to supply their needs. The pueblo’s position at the gateway to the plains situated them within a network of exchange that brought additional resources and cultural contacts within the pueblo walls. Tribes of Southern Athabaskan nomads—ancestors of the Indians who became known as Plains Apaches—arrived in the fall from eastern New Mexico and west Texas to trade with pueblos on the eastern frontier, including Pecos. The Pecos traded corn, pottery, turquoise, cotton, and other items for bison meat, fat, and hides. Archaeological evidence suggests that this interaction began at Pecos Pueblo in the mid-fifteenth century—about one hundred years before the Spanish arrived. At this time artifacts attributed to Plains groups begin to appear at Puebloan sites with greater frequency. The Pecos and other eastern Pueblos monopolized this trade, as few Plains Indian artifacts occur at interior pueblos.⁷⁰ The trade testifies to the success of Pecos agriculture as well as the importance of meat in their diet. The Pecos had enough corn to trade without threatening their own supply. Through trade they obtained protein that maize did not provide. Spielmann estimates that bison meat “could have provided up to 20% of annual Pecos protein needs.”⁷¹ Interestingly, bone-chemistry data suggests there was little change in either overall meat intake at Pecos or the type of meat (bison or mule deer) consumed from the pre-trade period (1200-1450 C.E.) to the trade period (1450-1600 C.E.). When local mule deer populations were depleted, the Pecos replaced them with bison. Because there is no evidence that meat intake declined during times of high population, the Pecos may have supplied their own community with bison meat before trade with Plains Indians groups became common.⁷² Historical accounts from the Pueblos state that bison migrated into the Rio Grande valley.⁷³ The Pecos may have traveled there to hunt or obtained meat through trade with Rio Grande pueblos.

Although trade with Plains Apaches provided both groups with needed resources, the relationship was not necessarily friendly. Spielmann speculates that the Apaches sometimes may have forced the Pecos to trade or risk raiding and harassment. When Apaches came to Pecos Pueblo to trade, they remained outside the pueblo, camping in the wide meadow to the east and perhaps only invited into the pueblo in small numbers. Although some hostility probably existed, trade also formed social ties between the two groups. Inter-marriage gave both sides more reasons to keep their relationship peaceful and strengthened strategic alliances. For example, in the 1700s some of the Pecos joined Jicarilla Apache bands, and Apaches sometimes joined the Pecos Pueblo—these interactions probably occurred in earlier periods as well.⁷⁴

The Pecos profited from and apparently controlled to some extent the lucrative trade with Plains nomads. Farming corn had proven to be successful as well. The diverse environments around their pueblo provided numerous other resources. For a time, the cultural system of the Pecos supported a high population, including numerous warriors who gave the pueblo a

reputation as a force to be reckoned with. Although Pecos Pueblo had already begun to decline from its peak population by the mid-1500s, it was still one of the most important pueblos in the region. The Spanish recognized the importance of Pecos when they entered the scene in 1540.

“We Shall Forcefully Enter Your Country”: Early Spanish expeditions to New Mexico

During his visit to Pecos Pueblo in 1540, Hernando de Alvarado read aloud the *requerimiento* to the Pecos, informing them of their new status as subjects of the Spanish crown and the promised death and destruction if the Pecos resisted Spanish rule. If the Pecos refused to submit, “We shall forcefully enter your country,” the *requerimiento* proclaimed, “and shall make war against you in all ways and manners that we can.” After dispatching with such necessities, Alvarado and Father Padilla, the Franciscan who accompanied him, pursued the topic that truly interested them—did the Pecos have any gold and if not, did they know anyone who did? The Pecos relinquished two captives from the eastern plains to Alvarado, who wished to extend his search for wealth. One of the men, called *El Turco* by the Spanish, claimed that in the kingdom of Quivira, a journey of some days to the northeast, gold and other fantastical sights abounded. El Turco told Alvarado that Bigotes possessed a gold bracelet from Quivira.⁷⁵

When Alvarado questioned him, Bigotes replied that El Turco had lied. He refused to accompany Alvarado back to Coronado’s main encampment. Alvarado seized Bigotes, clapped him in chains, and returned to Coronado with word of his discoveries in the east. After a winter spent fighting various pueblos and forcibly taking supplies to feed his hungry men, Coronado returned to Pecos Pueblo in the spring of 1541. He freed Bigotes in a gesture of good faith and, with El Turco in tow, set out for Quivira. Quivira was no more than a settlement of Wichita villages on the Arkansas River. Although the Wichita prospered in their subsistence culture, they possessed no gold. Coronado had El Turco strangled, but before he died, El Turco claimed that the Pecos had ordered him to mislead the Spanish.⁷⁶

Ahead of Coronado, Captain Tristán de Arellano returned to Pecos Pueblo and found the pueblo’s inhabitants in wait, armed and ready to resist. A prolonged battle ensued, but the Spanish emerged the victors. Arellano waited by the subdued pueblo until Coronado arrived, and the army returned to camp at the pueblo of Tiguex. By the following spring, Coronado’s disillusioned men convinced him to return to Mexico. Bigotes and the other Pecos resumed their normal activities, although they doubtless stayed alert for any news of the invaders’ return.⁷⁷

Two more Spanish expeditions did arrive at Pecos Pueblo. Antonio de Espejo traveled north with a small party in November 1582. Like Coronado, Espejo resorted to force to obtain needed provisions. Pecos did not offer Espejo a warm welcome, but when the Spaniards forced their way into the pueblo, the Pecos relented, offering food in the hope that Espejo would do no harm. Eight years later, don Gaspar Castaño de Sosa led a colony to New Mexico and once again turned to the Pueblos for food and shelter—perfectly willing to resort to violence if help was not offered freely. Again the Pecos resisted and fled the pueblo when Castaño captured it.⁷⁸ For all the violence and disruption these Spanish expeditions brought, all three failed to establish a permanent Spanish presence in New Mexico.

Bigotes experienced firsthand the cultural gulf separating Spaniards and Pecos. The insistent Spanish demands for gold, a metal the Pueblos did not value; the tame Spanish horses and bleating sheep, both animals the Pecos had never seen before—these were integral elements of the Spaniards’ culture. Under Coronado and his successors, the first horses left their hoof prints in the ground around Pecos Pueblo, and the Spanish and Pecos fought over the food supplies the Pecos had spent many arduous hours coaxing to grow or hunting in the forests.

Crossroads of Change

These early contacts between Pecos and Spanish were brief, but they hinted at how contentious conflicts over resources could become when two diverse cultural systems encountered each other.

Chapter Two

A New Way of Life, 1598-1680

Fray Andrés Juárez stood by the banks of the Pecos River, watching as his charges carried out their daily tasks. He noted with approval the stalks of wheat growing next to the traditional fields of maize. One of the Pecos boys employed as a herder wandered by, urging sheep from the mission flock to drink in the river. In the distance, Juárez heard the bells pealing in the church that now stood side by side with the ancient pueblo on the mesilla.

As Juárez presided over the daily Mass in that church, he looked out over the faces he had come to know so well during his thirteen-year ministry at Pecos Pueblo—the longest of any Franciscan friar at the pueblo. Juárez had arrived at Pecos in 1622, following his first assignment at Santo Domingo. Now he was preparing to leave Pecos for a new ministry at Nambé Pueblo. Reflecting on his time at Pecos, Juárez must have felt a sense of achievement. He had overseen the completion of the massive church that now dominated the mesilla. He had done his best to teach the Pecos about God and encouraged them to live in a civilized manner according to the Spanish definition of the term—growing wheat, tending to cattle, herding sheep, attending Mass, speaking Spanish. Although many rejected his ministry, Juárez would leave behind concrete proof, obvious in the very landscape of the valley, of his attempts to fulfill his duty to God and his king, Philip IV.

Juárez grew up in the Spanish town of Fuenteovejuna, near Córdoba. He crossed the Atlantic in 1611, volunteering to become a missionary in the remote territory of New Mexico. Thirteen years prior to his departure, Don Juan de Oñate established the first successful colony in New Mexico. At least Oñate called it a success. Many of the colonists, struggling to survive, revolted and tried to return to Mexico. The Franciscans pleaded with the Crown not to abandon this new territory, and so royal officials replaced Oñate with a new governor, Pedro de Peralta. For Peralta, Fray Juárez, and other Spaniards who drifted north in the early 1600s, New Mexico appeared to be an isolated frontier filled with heathens. To the Spanish, this northernmost foothold of their empire was still an alien environment. No horses, cattle, or sheep grazed around the pueblos. Corn, not wheat, grew in the fields. Few of the vegetables and fruits familiar to the Spanish ripened in the sun-drenched earth. The Pueblos gave unintelligible names to the surrounding landforms. They worshiped strange gods.¹

The Spanish did not intend their new environment to remain unfamiliar for long. They herded cattle and sheep with them from Mexico. They planted wheat, grapes, and radishes. The Franciscan friars not only planned to instruct the Pueblos in the tenets of Christianity, but also expected them to embrace a completely Spanish lifestyle. At Pecos, Fray Juárez made sure that his charges planted wheat and tended his kitchen garden filled with European herbs and vegetables. Sizeable herds of livestock grazed around the pueblo, supplying Juárez with meat and revenue. To survive, the Spanish colonists did sometimes abandon Spanish ways and adopt Pueblo ones. Many, particularly the poorer members of the colony, ate maize, learned to speak Puebloan dialects, and intermarried with the Pueblos. To the Spanish officials and Franciscans, however, such accommodation spelled certain ruin. They tried to keep Pueblos and Spaniards separate, while attempting to erase the Puebloan lifestyle and substituting the Spanish one in its place.

Their efforts bore varying degrees of success. The Pueblos did plant wheat and raise cattle under Spanish direction. Some Pueblos learned to speak Spanish. Some incorporated

Christianity into their beliefs. Overall, though, the Pueblos resisted Spanish domination, often in subtle, non-violent ways. While a Pecos might come to Mass in Fray Juárez's church during the day, he also attended a ceremony in a kiva during the evening. While the Pecos might bring their required tribute of maize, piñon nuts, and hides to the governor at Santa Fe, they also exploited the adversarial relationship between Spanish secular and religious officials to their own advantage. Although the Spanish tried to turn the Pueblo's world into a European one, a hybrid culture and environment resulted instead.

Pecos, 1598-1680

Spanish attempts to force their cultural system onto the Pecos and the Pecos' attempts to resist revealed themselves in the Pecos environment. By the end of the seventeenth century, cattle and sheep had become a common sight grazing around the pueblo, trampling the fragile riverbanks of Glorieta Creek and the Pecos River. Wheat crops grew alongside corn each summer. Messengers on horseback galloped over Glorieta Pass, bearing news and orders from the governor in Santa Fe. The Franciscan church stood on the mesilla, its massive walls a visual statement of Spanish power. A few yards away from the church, however, the Pecos maintained their kivas. They continued to imbue the landscape with spiritual power. Although new species had been added to the familiar ones, they still grew corn and used indigenous plants for food and medicines. The Apaches continued to come to Pecos Pueblo for trade, setting up their camp below the pueblo, even if Spaniards now joined in the trading and Franciscans urged the Apaches to accept conversion.²

The mixing of different people, plants, animals, and cultural systems at Pecos Pueblo in the seventeenth century typifies the contact that occurs in a frontier region. Historian David Weber defines a frontier as "a social phenomenon, representing an interaction between man, his institutions, and the physical and spatial environments of an area of low population density where two cultures or two nations meet."³ Although a frontier does not necessarily require a "low population density" (which would depend on how one defined "low") and is not limited to two cultures or nations, this definition captures the interconnected nature of Spanish and Indian relationships, which affected not only their cultures but also their physical environment. The concept of borders is implicit in the idea of a frontier region. People construct borders in the spaces they inhabit. Borders can be physical: the wall of a pueblo, the edge of a cultivated field. They also can be conceptual: the boundary between two territories, the association of a particular space with a certain activity or person. The Spanish, Pecos, Apaches—all those who came into contact at Pecos Pueblo—constructed borders and often came into conflict over them.

The cultural systems of the Spanish and the Pecos collided during the seventeenth century. The Spanish attempted to exert control over the Pecos and their environment by introducing new species, a new religion, and a new form of government. The Franciscans were expected to convert the Pueblos into *gente de razon* (rational people) who not only believed in the Christian God but also wore Spanish clothes, tended livestock, and spoke Spanish.⁴ The Spanish also exercised power by exploiting resources—demanding tribute payments from the Pecos in the form of piñon nuts, hides, and corn. The Pecos contested the dominion of the Spanish. But the pueblo's position on the threshold of the plains and its sizeable population made it a valuable conquest, and the Spanish exerted all their power to remain in control.

The Pecos entered the seventeenth century in a position of relative comfort, facing the Spanish within the boundaries of a familiar world. Assuredly the nature of this world created uncertainties—drought, crop failure, potential famine—but they could overcome these with

cultural and social strategies developed over centuries of living within that environment. During the decades of Spanish colonization, the familiar world of the Pecos eroded. Now they had to divert their hard-won resources to satisfy Spanish tribute demands. As a consequence, no longer could they weather droughts and famine successfully. No longer could they labor solely for themselves. A Franciscan friar took up residence at their pueblo and required them to work in his fields and care for his sheep. He urged them to abandon their gods. Strange diseases swept through the pueblo and the Pecos were powerless against them. These pressures accumulated until many Pecos joined other Pueblos in revolt in 1680. By the time of the Pueblo Revolt, the Pecos landscape reflected a century of immense change. The muddy banks of Glorieta Creek bore the hoof prints of sheep and cattle, the aromatic scent of chocolate drifted out of the friar's quarters, and the underground kivas hid the whispers of those who wanted to see the Spanish driven from the land.

“The Friar Makes Them Sow Some Grain and Raise Some Cattle”: The introduction of exotic species

Fray Juárez came to New Mexico expecting to suffer deprivations and hardships, but he did not intend to forego all the trappings of a civilized life. For Fray Juárez, this meant enjoying wine, olive oil, and fine linens transported to New Mexico every few years via a lengthy wagon train. He also expected the Pecos to sow wheat, plant vegetables and herbs in the kitchen garden by the convento, and tend the mission herds of cattle and sheep. Fray Alonso de Benavides, in an account of New Mexico written in 1634, recorded that every friar ordered the Pueblos at his mission to “sow some grain and raise some cattle” in order to “support...all the poor of the pueblo.”⁵ Although some produce was distributed to the poor and held in reserve for times of famine, the Franciscans never allowed the Pecos to begin herds of their own. Like all the missions in New Mexico, Pecos produced crops and livestock controlled by the priests.

By introducing new species of plants and animals to the New Mexican environment, Fray Juárez and other Spaniards participated in what historian Alfred Crosby has termed “ecological imperialism.”⁶ The Spaniards already had experienced the benefits accrued from introducing European species to American shores in their conquest of South America. They discovered that possessing a self-propagating food supply freed them from some of the burdens of feeding exploratory missions. The Spanish brought cattle, sheep, pigs, and goats, all previously unknown in the Americas, across the Atlantic. The animals swiftly adapted to the new environment. Pigs, in particular, reproduced quickly and the Spanish deliberately left the animals on various islands or locations on the mainland to serve as food for other Spaniards following in their footsteps. The Spanish introduced horses as well, which gave them tremendous psychological and physical advantages over the natives of the Americas. Cattle and horses multiplied rapidly in the conducive environments of Central and South America. Because comparable animals had long been extinct in the Americas, cattle and horses found an untapped source of grass, an ecological niche, that permitted a population explosion. Sheep, although requiring more care, adapted well to arid environments and quickly became an important component of Spanish settlement in South America and eventually North America as well.⁷

Coronado brought horses, cattle, and sheep on his expedition to New Mexico— theoretically enough to keep his force supplied with meat and perhaps also serve as the foundation stock for herds on the frontier.⁸ When Coronado's entire force encamped at Pecos Pueblo in May of 1541 it was probably the first time that these animals appeared in the environment around the pueblo. The Spanish had no intention of sharing their livestock with the

Pueblos. They recognized full well the advantages gained from the animals, particularly the horse, and did not want potential vassals or enemies to seize horses and overturn the balance of power. Coronado did leave a small herd of sheep with Brother Luis de Úbeda, who remained behind at Pecos Pueblo to begin saving heathen souls. Neither Brother Luis nor the sheep survived long.⁹ There was no mention of a sheep herd at Pecos by the later expeditions of Espejo and Sosa.

The Spanish felt that the livestock which supplied them with food and other necessities should be part of any colonizing force. In 1596 Don Juan de Oñate received approval from the crown to lead the beginnings of a colony northward. Over five hundred settlers and thousands of head of stock followed Oñate to New Mexico. Oñate had been born in Mexico. His father, Cristóbal de Oñate, had discovered and made his fortune in the Zacatecas silver mines. Oñate possessed the fortune to fund an expedition, and the Crown instructed Oñate to bring along sufficient supplies so that settlers and soldiers would not be driven to seize food from the Pueblos. The previous expeditions of Coronado, Espejo, and Castaño de Sosa had forcibly taken food from the Pueblos to sustain themselves through the winter. Inevitably this policy caused friction and conflict. Memories of the harsh measures used by the Spanish to procure supplies remained vivid in the minds of the Pueblos throughout the subsequent decades.¹⁰

The Spanish recognized the harmful effects of these uncontrolled expeditions. By the time Espejo was traveling to New Mexico, the Crown officially had switched from a policy of conquering natives to a policy of pacifying them, as set forth in the 1573 Comprehensive Orders for New Discoveries. The Orders attempted to make the process of empire building less fatal to indigenous inhabitants. In reality the Orders were ineffective. No one on the frontier enforced them; colonizers and explorers did what they deemed necessary for survival.¹¹ Espejo, for example, forcibly took maize and other supplies from Pecos Pueblo when the Pecos refused to give it to him.¹² Castaño de Sosa, too, turned to the Pueblos to keep his colonists fed. He attacked Pecos Pueblo on December 31, 1590, defeating the pueblo's warriors and taking supplies. Had Castaño managed to forge a viable colony, the Crown might have ignored his actions. But Castaño failed and the viceroy ordered him brought back to Mexico in chains, along with the dispirited and hungry colonists.¹³

Although Castaño failed, his expedition maintained the Crown's interest in New Mexico and the potential for a colony. The Crown cast about for suitable candidates to lead—and pay for—another colonizing expedition, and settled on Oñate. Oñate attempted to follow the spirit of the Orders, but bureaucratic delays kept him in Mexico for two years. The colonists consumed the food meant for the road and for surviving the first months in their new home. By the time the settlers—and the cadre of Franciscan friars who joined Oñate—reached New Mexico, their circumstances forced the settlers to demand sustenance from the Pueblos' food stores.¹⁴ The settlers did so reluctantly—they had come prepared to grow crops more familiar to them.

Some Spanish cultigens already had arrived in New Mexico. By 1598 some Pueblos were growing watermelons, a plant introduced by Europeans.¹⁵ The dispersal of new plant species had begun immediately after the Spanish arrived in the Americas. When Columbus returned in 1493, he brought with him “seeds and cuttings for the planting of wheat, chickpeas, melons, onions, radishes, salad greens, grape vines, sugar cane, and fruit stones for the founding of orchards.”¹⁶ Oñate's settlers carried many of these same seeds with them when they traveled north in 1598. The Spanish probably introduced clovers (*Melilotus* and *Trifolium* species), used to feed livestock, and mullein (*Verbascum thapsus*), a medicinal plant, to New Mexico fairly early.¹⁷

The colonists who migrated to New Mexico envisioned a future where they planted and ate familiar European grains, fruits, and vegetables.

In attempting to recreate European life in North and South America, the Spanish also undertook what historian David Weber has termed a “cognitive conquest” of the American environment.¹⁸ The discovery of entirely new continents, people, plants, and animals with no resemblance to anything in Europe or Asia bore potentially devastating ramifications for Christian theology because they cast doubt on biblical theories of creation. How could such extremely different people and animals exist in the Americas when God had created all life in the same time and place? Although the discoveries in America did lead some to question their beliefs, the majority of people accepted the only conclusion that made sense to them: the Indians were heathens whose souls would be lost if they were not converted. The Spanish placed unfamiliar animals and plants into pre-conceived categories as well. Explorers described the new species they found by relating them to European flora and fauna and even European myths. Europeans fit not only Native Americans but also the environment into their worldview without substantially changing it.¹⁹ The Pueblos encountered a familiar world slowly being made unfamiliar, while the Spanish made an unfamiliar world familiar.

Despite the biological and psychological tools at their disposal, Oñate’s colony faced an uphill struggle. Colonists, unused to the cold temperatures of winter and the opposite extremes in summer, described the climate as “eight months of winter and four of hell.”²⁰ The Pueblos accepted the settlers and friars grudgingly, if at all. Although Oñate immediately drafted 1500 Pueblos to dig irrigation canals at the newly established capital of San Gabriel de Yunge, the fields of the Spanish were not immediately fruitful.²¹ Many of the things the Spanish settlers must have viewed as necessary for a civilized life—iron tools, bread, linen cloths—did not exist except for what they had managed to bring themselves.

Clinging to a precarious existence, the Spanish settlers began to consider abandoning the colony. Fray Francisco de San Miguel supported leaving, stating that “if we stay any longer, the natives and all of us here will perish of hunger, cold, and nakedness.”²² Oñate was determined to stay. He repressed dissension among his colonists and the Pueblos. When the Pueblos resisted Spanish control at Acoma in 1598, Oñate’s men seized the pueblo and inflicted a harsh punishment on the inhabitants. Finally, when Oñate was away on an expedition onto the eastern plains, most of the colonists fled south. The Crown investigated the situation. Although many favored abandoning the colony, the Franciscans protested, claiming that thousands of Indians had been baptized and thousands more awaited salvation. The Crown relented and declared New Mexico a colony of the Crown, supported by the royal treasury, not individuals. More friars, settlers, and supplies trundled north under the leadership of Governor Pedro de Peralta, prepared once again to turn the northern frontier of their empire into a civilized, fruitful region.²³

“They Do Not Die Because of Us”: The effects of disease among the Pueblos

The Spanish deliberately introduced numerous species to the Americas, but they unknowingly introduced a number of plants and animals as well. Weed seeds traveled in the mud on human and animal feet and in their waste products. Rats, which the Spanish would have happily left behind, also came in the ships to America. But the species with the most immediate ramifications were European disease pathogens, which had devastating consequences for Indians encountering them for the first time.²⁴ Disease became the dark shadow of the Spaniards’ ecological imperialism. In New Mexico some diseases may have preceded Spanish arrival, transported through existing networks of trade. The long-term presence of Spaniards and more

constant contact between Spaniards and Pueblos made exposure far more common, however. A Jesuit missionary, Fray Juan Bautista de Velasco, commented in 1593 that the natives “do not die because of us.” He claimed that even the natives did not blame the friars because they assisted the sick during epidemics.²⁵ Despite the priest’s words, many natives and Spaniards probably connected the arrival of the Spanish to the epidemics. Fray Juárez hoped to baptize every Pecos before death, and during the seventeenth century burials became distressingly common. The presence of new diseases and their shocking effects shattered the Pecos’ world as much as Spanish demands for tribute, labor, and religious conversion.

Smallpox was the most deadly, but other diseases such as typhus or measles also were effective killers. Confronting new diseases for which they had no cure disrupted Native American societies. The sudden loss of numerous members of a pueblo overturned social networks and hierarchies. The epidemics also affected the Pueblos’ ability to gather, hunt, and farm food. Starvation could follow the plague when too few remained healthy to harvest or plant crops. Europeans, who had already formed immunities to these diseases, watched as thousands of Pueblos perished. Like their animals and technologies, the seeming invulnerability of Europeans to disease also gave them a psychological advantage in their conquest.²⁶

Records of specific epidemics at Pecos Pueblo before the Pueblo Revolt do not exist, but the pueblo obviously suffered the effects of disease. In 1622 Fray Juárez claimed that he ministered to “2,000 souls, a few less,” at Pecos. Although Juárez had the time and ability to conduct a detailed census at the pueblo, he either did not do so or the records do not survive. Not until 1694—after the Pueblo Revolt and Spanish Reconquest—does a record exist of a careful census, conducted by Fray Diego de Zeinos at Pecos. Zeinos recorded a total of 736 inhabitants. From the time of the permanent Spanish presence established by Oñate, and possibly before, the Pecos lost people to smallpox, measles, and other illnesses.²⁷

The downward trend in population at Pecos Pueblo over the sixteenth, seventeenth, and eighteenth centuries is clear, although, as discussed in the previous chapter, the pueblo population during the first years of Spanish contact remains uncertain. Several historians, including John Kessell, consider the Spanish estimates of around 2,000 people at Pecos in the mid-1500s as approximately correct. This figure remained in use throughout the seventeenth century. For example, in 1680, Vetancourt recorded “more than 2,000 Christians” at Pecos, while in 1692, Diego de Vargas estimated the population at about 1,500. Fray Juárez estimated around 2,000 people in 1622, while in the same time period, Fray Alonso de Benavides said there were “more than 2,000 souls” at Pecos. Yet the 1694 census conducted by Zeinos recorded 736 people at the pueblo. The Spanish continued to inflate population numbers during the eighteenth century as well. Fray Andres Varo estimated “more than 1000, counting children and adults,” at Pecos in 1749 while a year later, a detailed census reported 449 people.²⁸

Although we cannot confirm the exact Pecos population during the sixteenth and seventeenth centuries, the population began declining in the sixteenth century and continued to do so until 1838 when the last Pecos left to join the Jemez.²⁹ Similar stories occurred throughout Puebloan society. In a study of conditions in New Mexico before the Pueblo Revolt, historian Andrew Knaut states that “estimates place the number of inhabited pueblos at the time of European contact in 1539 between 110 and 150. In 1581 nine members of the Chamuscado-Rodríguez expedition counted 61 pueblos in their travels through the area and agreed on a total population for those towns of 130,000 persons.” Oñate placed total Pueblo population at 60,000 by 1600. Even allowing for inaccuracy, population had declined drastically.³⁰

By disrupting Puebloan society and compromising the Pueblos' ability to resist the Spanish, disease gave Europeans an advantage, however unplanned. The presence of other European species also benefitted the Spanish. The ability to eat mutton and beef, to grow wheat and make it into bread, allowed them to feel more comfortable and in control of their environment. Of course, not every settler enjoyed equal benefits. Wheat, for example, did not grow well everywhere and could be difficult to obtain. Many settlers subsisted on a maize-based diet, just like the Pueblos. Spanish officials discouraged eating like the Pueblos, adopting Puebloan customs, and engaging in sexual or conjugal relationships with them. Officials wanted to maintain Spanish culture, but also hoped to use their cultural distance to maintain authority among the Pueblos. The Spanish realized that their control of certain resources and tools—guns, cattle, horses—gave them an advantage that would be lost if the Pueblos gained free access to them. Laws prohibited mission Indians from traveling to Spanish towns and forbade Europeans, blacks, mestizos, or mulattos from spending more than three days at a pueblo.³¹

In the seventeenth century, a small Spanish population and a fairly rigid policy of intolerance towards Puebloan religion on behalf of the Franciscans did prevent the accommodation and cultural interaction that became a hallmark of the colony in the eighteenth century. Despite Spanish attempts to keep the borders between their culture and the Pueblos' firm, their encounter with a new environment meant that change was inevitable. The Spanish tasted bison meat and realized that bison hides were a valuable resource. Piñon nuts, too, became a coveted item. Bison hides and piñon nuts traveled down the trail to Mexico to mingle with goods from other countries and continents. The Spanish also adapted to life in a new place. Although they may have planted wheat and grazed sheep, they could not completely transform the New Mexican environment into a copy of Spain or Mexico. Instead, the Spanish incorporated the environment into their own culture—giving Spanish names to mountains and rivers, enjoying the warmth of piñon wood fires, identifying new birds, plants, and animals. During his thirteen years at Pecos Pueblo, Fray Juárez became familiar with thunderclouds piling over the slopes of Glorieta Mesa in the summer, the hard ground that changed to mud as the snows melted, and the sound of the Pecos language.

“Devoted to the Service of the Church”: The Franciscan ministry at Pecos Pueblo

The Franciscan friars who resided at Pecos Pueblo induced many changes in the environment of the Pecos valley, but the Pecos created many of the changes themselves. They tended the herds of sheep, cattle, and horses owned by the Franciscans. The Pecos—not the priests—planted the fields of wheat and kitchen gardens filled with European herbs and delicacies. A few served as cooks and servants. Fray Benavides claimed that at every mission, “more than twenty Indians, devoted to the service of the church,” labored for the friar.³² The Franciscans did not establish a mission at Pecos Pueblo until 1617, but once they did, change followed rapidly. Fray Pedro Zambrano Ortiz served as the first friar at the pueblo and constructed a small church on the north end of the mesilla, which would be replaced by his successor, Fray Ortega. By 1620 to 1630, large numbers of European artifacts, specifically “domestic animals, china dishes, and metal implements” appear in the archaeological record.³³ The growing European influence coincides with Fray Ortega's and, particularly, Fray Juárez's ministries. Although the Spanish capital moved to Santa Fe in 1610, settlers did not move beyond Santa Fe—and closer to Pecos Pueblo—until late in the eighteenth century. In fact, Spanish settlement in New Mexico remained low throughout the seventeenth century. By the time of the Pueblo Revolt in 1680, probably only about 1,000 Spaniards lived in New Mexico.³⁴

The governor in Santa Fe demanded tribute from Pecos Pueblo, but it was the Franciscans who spearheaded the changes in the Pecos environment and culture.

Both Spanish officials and Franciscans entertained high hopes for the colony, but as the seventeenth century progressed it became apparent that New Mexico would provide only poor returns to the Crown.³⁵ The labor of the Pueblos proved to be the most profitable resource in New Mexico, and one that both Franciscans and governors used to their advantage. The construction of the mission church by Pecos Pueblo, under the direction of Fray Ortega and Fray Juárez, demonstrates the onerous demands the Spanish often made of the Pueblos. The most visually obvious manifestation of Spanish influence at Pecos, the church had walls forty-five-feet high and ten-feet thick. It required about 300,000 adobe bricks, each weighing about forty pounds. Timber was needed for scaffolding and roof construction. Pecos laborers did everything from cutting the wood, to forming the bricks, to laying them in place. The Pueblos considered the task of laying adobe walls to be the province of women. Fray Benavides recorded how if the priests forced a man to do the work, “he runs away from it, and the women laugh.”³⁶ Building the church kept both men and women away from their fields and other tasks. While the Pecos were building the church, the friar occupied rooms in a structure located to the south of the main pueblo. Probably during the early 1600s, the Pecos added rooms and stories to the structure until it stood as a second pueblo on the mesilla. Historian John Kessell speculates that Pecos sympathetic to the Christianizing mission of the Franciscans may have inhabited the south pueblo.³⁷

Although the Pueblos labored for Franciscans, debates over the merits of resisting Spanish control probably consumed many of the Pecos’ private councils during the seventeenth century. The Pueblos were by no means a conquered people. Revolts flared up occasionally, although the Spanish succeeded in suppressing them.³⁸ Even if the Pueblos did not actually fight the Spaniards, they resisted adopting Spanish religion and culture on a daily basis. For example, Spanish officials often criticized the Franciscans for failing to master the Pueblo languages, but keeping their language secret allowed the Pueblos to preserve their own customs despite the watchful eyes of the friars.³⁹

Although many of the Pecos rejected Spanish religion, they could see the advantages the Spanish enjoyed in the resources and materials they possessed. The Spaniards’ metal axes and tools made such tasks as cutting firewood or hoeing weeds much easier.⁴⁰ Draft animals such as oxen also eased the human labor demands of agriculture. Horses transported goods and people quickly and easily across vast distances. Sheep and cattle provided new sources of food and clothing. These advantages were obvious to the Pecos but not available to them. The Franciscans, who owned some of the largest herds of livestock in the colony, kept tight control over their animals. Controlling the livestock gave the Franciscans leverage in their constant fights with secular officials, and the friars probably also sold some for their own profit. Governor Rosas complained in 1641 that “every convento is a livestock operation and general store owned by the friars.”⁴¹ The Parral mining district, seven hundred miles south of Santa Fe, was the largest market for New Mexican livestock in the seventeenth century.⁴² The friars’ livestock only benefitted the Pueblos and Spanish settlers when famine demanded that the friars distribute meat to the poor.

At Pecos Pueblo the Franciscans ordered the construction of several corrals adjacent to the church to hold the mission’s livestock. The Pecos probably built “two corral-like courtyards” immediately. Later, between 1640 and 1670, the friars oversaw the construction of another large corral complex to the south of the convento. This corral included three pens for stock against its

east wall.⁴³ Existing accounts do not reveal what kinds of animals the friars kept at Pecos, but it was probably a mixture of sheep, cattle, oxen, horses, and possibly goats. No specifics exist for the numbers of livestock, but evidence from other missions suggest approximate numbers for Pecos. In 1669 Acoma Pueblo suffered the loss of eight hundred sheep, sixty cattle, and an unspecified number of horses in an Apache raid.⁴⁴ As a large pueblo, Pecos must have had numbers equal or greater.

Just as the presence of the mission changed the visual landscape at Pecos Pueblo, the presence of livestock altered the environment as well. Although not in sufficient numbers to cause widespread damage, the animals kept at the Pecos mission must have affected their immediate surroundings, in particular the riparian vegetation around Glorieta Creek where they watered and grazed. Their presence on the mesilla and along the creek banks probably accelerated soil erosion. The Pecos herders pastured livestock in other areas around the pueblo as well, although it is doubtful they followed the late-nineteenth- and twentieth-century practice of summering livestock in the mountains and herding them back to the valley in the winter. During the seventeenth century, threats of Apache raids increased, keeping both people and animals close to the pueblo. Manure could be used to fertilize the soil, boosting the agricultural output of the Pecos' fields. Livestock introduction also brought exotic plants to the environment—dispersed in dung, mixed in with feed, or intentionally cultivated. Alifaria or heron's bill (*Erodium cicutarium*) is one species known to have arrived in the Southwest during the sixteenth century that spread throughout what became New Mexico and Arizona.⁴⁵ Goathead (*Tribulus terrestris*) probably followed the introduction of livestock. The Spanish planted clover species as grazing fodder as well.⁴⁶ Although no evidence exists for such cultivation at Pecos, seeds could escape into the wild and thrive on their own.

The sheep and cattle that the Pecos tended for Fray Juárez also affected ecosystem dynamics in the Upper Pecos valley. When grazing in the piñon-juniper woodland, cattle and sheep favored the herbaceous understory species. The decline of these species may have enhanced piñon and juniper growth around the mesilla. On the other hand, Pecos demands for firewood may have counteracted any new growth. In the fall, the Apaches now came to trade on horseback and grazed their horses in the meadows around the pueblo. Wagons trundled between Pecos and Santa Fe. The increased amount of traffic around the pueblo, particularly horses, oxen, and wagons, may have discouraged plant growth and kept the area around the mesilla clear.

The decline of herbaceous species in the piñon-juniper woodland also may have altered the fire regime in the area. In a study of fire regimes near Albuquerque, Christopher Baisan and Thomas Swetnam took samples from a piñon-juniper forest near settlement sites. In the first period, which extended up to 1680, tree ring evidence indicated frequent fires, but fires that did not burn large expanses of woodland. The high frequency of fires did not correlate with modern evidence of lightning caused fires in the same area, suggesting that humans may have increased the fire frequency. The authors caution, however, that it may not be possible to compare the modern woodland with past vegetative and climatic conditions. Following the Pueblo Revolt, from 1681 to 1784, the interval between fires almost doubled and fires became more intense, burning larger portions of woodland. The authors speculate that this may have been due in part to livestock grazing, which reduced understory vegetation, leading to less frequent fires. Severe fires often occurred when a dry year followed a period of high precipitation. At Pecos, where livestock numbers probably were high, a change towards less frequent, more intense fires may have started early in the seventeenth century.⁴⁷

The Pecos continued to cultivate the fields in the ciénega and elsewhere along the river as well as by Glorieta Creek and areas that required dryland farming techniques. As the population at Pecos Pueblo decreased throughout the century, fields may have been abandoned due to a lack of labor. It is doubtful that any would have been abandoned by choice. If cultivated land did decrease, the first fields removed from production would have been those on marginal lands farther from the river and creek. However, the Pecos may not have been able to reduce their farming due to Spanish demands on their food supply. In either case, probably no more fields were cultivated than when the pueblo was at the height of its population.

Because the Pueblos lived in the most fertile areas of New Mexico, the Franciscans automatically gained control of this valuable land upon the founding of a pueblo mission. The crops raised in Franciscan-controlled fields spelled the difference between starvation or survival for Pueblos and colonists alike. The Pueblos, in particular, had to turn to the Franciscans for food as the produce from fields they had formerly used now went straight to the mission stores.⁴⁸ The Franciscan domination of arable land engendered bitter feelings among the Spanish settlers and officials who also desired the land and labor of the Pueblos, which they accused the friars of monopolizing.⁴⁹

“From Pecos They Have Brought Only Twenty-Three Fanegas of Piñon Nuts”: Spanish demands for tribute

Unlike his successor Fray Juárez, Fray Pedro de Ortega was born in Mexico to wealthy, aristocratic parents. Ortega renounced the wealth he stood to inherit and joined the Franciscans. He traveled north in 1617, accompanying a party that included the new governor for the colony, Don Juan de Eulate. Ortega and Eulate did not get along. While traveling north, Eulate supposedly extolled the virtues of marriage over celibacy. Fray Ortega rebuked Eulate, who went on to comment that the “religious didn’t work, that all they did was sleep and eat, while married men always went about diligently working to earn their necessities.” Ortega stiffly replied “that the sleep of John had been more acceptable to Christ Our Lord than the diligence of Judas.”⁵⁰ The other Franciscans disliked Eulate as well, and his tenure in New Mexico—like that of many other governors—was rife with discord between Eulate and the friars.

Ortega and Eulate’s relationship did not improve. When Fray Ortega began construction of the mission church at Pecos, he requested the loan of oxen from settlers—probably those near Santa Fe, the nearest Spanish settlement to Pecos—to help with the work. Eulate disliked any indication that the friars were bettering their situation at the expense of his own and confronted one of the settlers who had loaned oxen to Fray Ortega. Eulate demanded that the settler retrieve his oxen immediately or face a fine of forty fanegas of maize.⁵¹ When Ortega smashed the idols of the Pecos and removed a dissident named Mosoyo from the pueblo, placing him in the service of a Spanish family, Eulate ordered the man released. Mosoyo had claimed that Eulate did not want the Pecos to follow the orders of the Franciscans. Although Eulate probably had never stated the matter so plainly, he did what he could to undermine the Franciscans’ authority.⁵²

The bickering and constant power struggles that characterized the relationship between Spanish religious and secular officials in New Mexico centered on the question of who would control the land and resources of the colony. The governors accused the friars of exploiting Pueblo labor and being more concerned about making a worldly profit than saving souls. The friars, in return, accused the governors of squeezing the most tribute they could from the Pueblos and forcing them to provide unpaid labor. The Pueblos often became mired in the middle as both the governors and Franciscans tried to win their loyalty. The Pueblos understood the hostile

relationship between church and state and often used it to their advantage. They waited, for example, until a governor had fallen into disfavor before requesting compensation for the various tasks for which they had not received payment.⁵³

As did the Franciscans, Spanish officials placed demands on the Pecos that changed the environment and the Pecos' relationship to it. Under the *repartimiento de indios* ("allocation of Indians," i.e. forced labor system), Spanish officials could legally assign Pueblos to public works projects. Theoretically, the duration of the work was to be limited and they were to be paid for their labor. In reality, as was usual on the frontier, officials often ignored these regulations.⁵⁴ They put the Pueblos to work digging irrigation canals, planting crops, and transporting goods. The Spanish often pressed the Pecos into service. While building the church for Fray Juárez, the Pecos had acquired an array of carpentry skills. Soon, Pecos workmanship and Pecos lumber became a coveted resource throughout the colony. Correspondence between Governor López de Mendizábal and Diego González Bernal, the *alcalde mayor*, or district officer for the region encompassing Pecos Pueblo, refers to the carpenters of the pueblo. In 1660 the Governor mentioned the "boards I ordered made and ready at Pecos this week."⁵⁵ Cutting timber for the church as well as for building projects throughout the colony may have extended the cleared area around the pueblo or depleted some species, such as ponderosa pine, in the vicinity. Logging and building homes for the Spanish kept the Pecos from tending their own fields and repairing their own pueblo.

Even more burdensome than physical labor were the Spanish demands for tribute. Each Pueblo household owed a yearly tribute to the Spanish consisting of a fanega of maize and a cotton blanket or deer or bison hide. The governor raised tribute levels in 1643 to one fanega and one blanket or hide each quarter, owed by each eligible individual, not household. Pueblos like Pecos also collected piñon nuts to satisfy tribute payments. In 1660, Governor Mendizábal wrote to Diego Bernal, complaining that "they have brought only twenty-three fanegas of piñon nuts" from Pecos, reminding Bernal that fifteen had yet to be delivered.⁵⁶ Governors also distributed pueblos as *encomiendas* to well-placed Spanish officials and settlers, usually those on good terms with the governor. These *encomendera* collected tribute as well. Although *encomenderas* were not authorized to demand personal service or labor from the Pueblos, they often did.⁵⁷

Probably the first Spaniard to receive Pecos Pueblo as an *encomienda* was Francisco Gómez, a soldier and colonist who arrived in New Mexico during Oñate's brief rule as governor. By the 1660s, his son, Francisco Gómez Robledo, had inherited the *encomienda*. Gómez Robledo also held shares, and the resulting tribute, in three other pueblo *encomiendas*—Taos, Shongopovi, and Acoma—but he amassed the most tribute from the Pecos. In the 1660s Robledo received "170 units per collection, or 340 per year, 'in buckskins, mantas, buffalo hides, and light and heavy buffalo or elkskins'" from Pecos.⁵⁸ In contrast he received only fifty units from a half share in Acoma per year. Gómez Robledo did not own the entire pueblo. Pedro Lucero de Godoy received tribute from twenty-four households at Pecos Pueblo, and the friars at the Pecos mission had access to ten households.⁵⁹ Caravans from Mexico, arriving around once every three years, brought needed supplies to the Franciscans and took back the livestock, hides, and piñon nuts that had been collected from the Pueblos. Unsurprisingly, the friars and governors quarreled over whether the governors could use the wagons to transport goods back to Mexico for free.⁶⁰

As the population declined at Pecos, meeting the demands of the Spanish became increasingly onerous. In an environment where the climate and growing season too often conspired against a successful harvest, the obligation to surrender part of their food in tribute payments created a precarious situation for the Pecos. Fluctuations in climate did not help—

before the Spanish arrived, the Pecos could weather such times through their stored food resources, but those resources now were gone. During the Little Ice Age period from the 1500s through the 1700s, the climate was wetter and colder on the whole in North America.⁶¹ The Palmer Drought Severity Index for the Southwest shows that the seventeenth century was indeed somewhat wetter than previous periods, although as always, the climate varied locally.⁶² Records at Arroyo Hondo also show the seventeenth century as a period with less variation in precipitation.⁶³ Although more moisture would have been beneficial, the colder weather may have shortened the growing season, particularly at the high altitude of the Pecos area. When early frosts or dry summers destroyed their crops, the Pecos looked ahead to a winter bereft of the resources that had sustained them previously.

Spanish efforts to dominate the Pueblos were aided by Puebloan cultural systems. Unlike the nomads on the nearby plains, the Pueblos lived in sedentary farming communities. The concentrated populations made it easier for the Spanish governors to exert control and for the Franciscans to indoctrinate them. The Pueblos also faced more dire consequences if they attempted to resist. It was much easier to destroy the resources of a sedentary people—their fields and homes and stored foods—than those of a constantly moving population. Although the Spanish attempted to convert the nomadic Apaches, it was not until the Apaches needed Spanish aid against the Comanches that the Spanish enjoyed any sort of success.⁶⁴

The Pecos could not avoid the Spanish. The location of Pecos Pueblo—at the gateway to the plains, whence, the Spanish quickly learned, came valuable bison hides—made it an irresistible target. It provided a starting point for exploration to the east and, once the capital moved to Santa Fe in 1610, stood between the capital and potential threats from the plains. Its large population and prosperous situation made it appealing to both Franciscans and secular officials. The Franciscans could save many souls at Pecos and whoever received Pecos as an *encomienda* enjoyed substantial profits.

“There Is Not a Fanega of Maize or Wheat in All the Kingdom”: The ravages of famine and raiding

Each autumn, Fray Juárez watched from the doors of the church as a cavalcade of Plains Apaches arrived at Pecos, setting up their tepees in the meadows east and south of the pueblo, preparing to trade. Amid the barking dogs and heaps of bison hides, Fray Juárez saw the potential for gaining further converts. He wrote to the viceroy that “many times when [the Apaches] come they will enter the church and when they see there the retablo and the rest there is, the Lord will enlighten them so that they want to be baptized and converted to Our Holy Catholic Faith.” Juárez seized the initiative and traveled onto the plains himself to meet the Apaches in their own territory.⁶⁵

During Juárez’s (mostly futile) attempts to bring the Apaches Christianity, the Apaches remained on fairly friendly terms with the Pecos. As the seventeenth century progressed, however, their relationship changed. Accounts of Apache raiding in the colony appear in the first decade of the 1600s.⁶⁶ At Pecos raiding became a frequent occurrence by the 1640s and 1650s and intensified in the 1670s.⁶⁷ The shift in the Apaches’ relationship with the Pecos arose from the environmental and cultural changes sweeping the region. The resources brought by the Spanish—sheep, cattle, metal tools—proved powerful inducements to increase raiding. The Apaches’ acquisition of the horse by the late 1600s also changed their relationship with the Pecos. The horse allowed the Apaches to expand their raiding capabilities. They could travel faster and take more with them. Pecos Pueblo was a tempting target, particularly with the

increasing amounts of Spanish livestock and manufactured goods at the pueblo.⁶⁸ Mounted on horses, the Apaches struck quickly and then disappeared with their captured goods. In the year of 1640 alone, Apaches stole 20,000 fanegas of maize from the Pueblos and Spanish of New Mexico.⁶⁹ The Apaches were not united—some bands continued to trade peacefully while others raided—but those who did attack kept the colony in a constant state of fear. In addition, Spanish demand for deer, elk, and particularly bison hides meant that the Pecos now had more at stake during the annual trade fairs with those Apaches who remained at peace. Tribute payments had depleted their trade stores of maize, yet the Spanish still wanted bison hides as well. Obtaining those may have reduced food supplies at Pecos Pueblo to an even greater extent.⁷⁰

As the 1660s and 1670s progressed, Pecos and the other pueblos bowed under the combined pressure of Spanish demands and Apache raiding. Drought during these decades worsened their plight. Fray Bernal, agent of the Inquisition in New Mexico, sent a saturnine letter to his superiors in Mexico explaining why he could not send a prisoner to them:

The whole land is at war with the very numerous nation of the heathen Apache Indians. . . . No road is safe. One travels them all at risk of life for the heathen are everywhere. They are a brave and bold people. They hurl themselves at danger like people who know not God, nor that there is a hell.

The second calamity is that for three years no crop has been harvested. Last year, 1668, a great many Indians perished of hunger, lying dead along the roads, in the ravines, and in their hovels. . . . The same calamity still prevails, for, because there is no money, there is not a fanega of maize or wheat in all the kingdom.

Forced to subsist on cowhides, the Spanish were suffering as well, Bernal stated.⁷¹

The famine that Bernal spoke of began in 1667 and, in some areas, lasted through 1672. As with most shortages, the famine did not affect everyone equally. Poorer Pueblos and Spanish settlers suffered to a greater extent than those who had managed to achieve some success in farming. The Franciscans, who had always maintained that they hoarded grain and livestock precisely for times such as these and not for their own profit, initiated an extensive supply system. They sent supplies from mission stores by heavily guarded wagon trains to settlements and pueblos in need of aid throughout the region. Pecos sent “twenty fanegas of wheat” to the general food supply of the colony, the only pueblo that still had supplies to spare.⁷² At the missions, the Franciscans distributed supplies to pueblo inhabitants. An average amount was “72 bushels of all grains and beans, 3 cows, 10 sheep, and 20 fleeces of wool per month.”⁷³

Despite the aid of the Franciscans, the diets of the Pueblos, including the Pecos, declined in quality both during famines and when harvests improved. The demands of tribute and trade as well as the loss of control of arable land depleted the Pecos’ food supply. Bone chemistry data from burials at Pecos Pueblo shows how these new stresses affected their diet. By 1675 the amounts of maize consumed had decreased. Spielmann estimates that wild plants probably made up the difference, supplying perhaps twenty percent of the Pecos diet. Apache and Spanish demands for maize compelled the Pecos to turn to other food sources, while Spanish demands for hides forced the Pecos to overhunt local herds of mule deer, perhaps decreasing populations to the point where venison no longer figured extensively in the Pecos diet. At Gran Quivira Pueblo in the seventeenth century, life expectancy among pueblo inhabitants decreased. The archaeological record shows a higher reliance on small mammals for food.⁷⁴ The same situation may have occurred at Pecos.

Although perhaps an exaggeration, Fray Bernal's lugubrious description reveals how the imposition of Spanish rule disrupted the Pueblos' world. Pecos, for example, had weathered many droughts before without facing starvation. Disease, which had disrupted labor networks and depleted population, had undermined the Pueblos' resistance. The Spanish horse gave their enemies new strength and speed. The tributary and labor demands of the Spanish reduced the Pueblos' ability to provide for themselves. The Franciscans and their God were disrupting the religious order and destabilizing the Pueblos' world. In 1680 these stressors reached the breaking point and the Pueblos revolted, driving the Spanish out of New Mexico.

The success of the revolt depended on concerted action, but despite the fact that many Pueblos did join together to oust the Spanish, divisions remained. Among the Pecos, some warned the Spanish of the impending revolt several days in advance. The governor ignored their warnings. Other Pecos killed Fray Juan de la Pedrosa as well as a Spanish family and united with warriors from San Cristóbal, Galisteo, and other pueblos in an attack on Santa Fe.⁷⁵ The terrified Spanish who survived the attacks fled south to safety, leaving the Pueblos once more in possession of the territory. At Pecos, either the pueblo inhabitants themselves or members of other pueblos who had come to help fight the Spanish in Santa Fe set fire to the roof of the mission church. The wooden beams burned in the conflagration, bringing the roof crashing to the ground. When the ashes had cooled, the Pecos tore down part of the high walls. The church that had stood for eighty years as a symbol of Spanish domination was now a burned ruin, tumbled onto the stones of the mesilla.

As they clambered around the fallen walls, the Pecos surveyed a landscape that no longer harbored Spanish interlopers, but that bore the unmistakable marks of almost a century of Spanish influence. Wagon tracks led to Santa Fe. Erosion along the banks of Glorieta Creek marked where cattle and sheep grazed, and the animals themselves clustered in large corrals to the south of the pueblo. European plants grew in the fields and gardens. Many resources—piñon nuts, deer hides, timber—had declined in the valley to satisfy the Spanish. Despite Spanish demands and the presence of livestock, however, resource exploitation had not approached a critical level, as it would in the nineteenth century. The Pecos population had decreased and no Spanish colonists had attempted to settle in the valley. Still, the Pecos environment had changed. Although some Pueblos wanted to completely erase all signs of the Spanish from the land, there was no going back. Bleating sheep, stalks of wheat, smallpox—these had become familiar to the Pecos. They had not become Spaniards, but neither their culture nor their environment could revert to the days before Fray Juárez stood before them and offered them bread while speaking strange words to his God.

Chapter Three

A Comanche Borderland, 1680-1821

Juan de Dios Peña straightened from his work, resting his shovel on the mound of dirt. The beginnings of a new *acequia*, or irrigation ditch, connecting his fields to the Pecos River lay before him, the result of his labors that morning. He and the other settlers on the Cañon de Pecos grant had possessed their new lands for only a few months, but they were preparing to plant crops and had started constructing homes. Shielding his eyes against the sun glare on the water, Peña stared down the river to the south. The Pecos Pueblo still stood on its mesilla, but by 1815, the year Peña moved to the Pecos valley, only a few families remained in residence. Peña frowned as he contemplated the fertile lands in the *ciénega* by the Pecos River. The Pecos hardly planted any crops there now. The *ciénega* was far superior to his own lands, and yet it was going to waste. Scuffing the toe of his boot in the dirt, Peña contemplated the possibility of appropriating some of the land. It would benefit the Crown, after all. With better land, he and the other settlers could raise more crops and help make New Mexico a prosperous colony. Pushing the matter to the back of his mind, Peña returned to his task. He wanted to finish the *acequia* that afternoon as tomorrow he planned to ride down to San Miguel del Vado, a trip of some twenty miles, to do some trading.

Much had changed in the Pecos valley since the Pueblos rose in revolt in 1680. In the immediate aftermath of the revolt, the Pecos had destroyed the huge church built by Fray Juárez and built a kiva directly adjacent to the ruins.¹ The Pueblos did not, however, completely reject all Spanish influences. El Popé, the leader of the revolt, urged the Pueblos to give up everything introduced by the Spanish, but the Pueblos kept the livestock, crops, and doubtless many of the tools and implements that the Spanish had brought.² In the absence of Spanish control, the Pecos could use the livestock and food for their own benefit. Some Pecos may have supported El Popé's ideas and counseled the destruction of these Spanish animals and plants. The priest's kitchen garden at the Pecos mission, for example, may have been destroyed along with the church. Although the Pecos chose to keep some of the new resources brought by the Spanish, they did not want to see the Spanish again. Hobe-wagi, the Pecos woman who lived during the late seventeenth century, must have hoped that the Spanish would not return. In the triumphant days after the successful revolt, Hobe-wagi never would have envisioned a time when Hispanic settlers would move into her people's valley and begin taking their land.

Yet many of the Pecos may have feared the Spaniards' return, and events proved their apprehensions correct. The Pueblos succeeded in forcing the Spanish out of New Mexico, but the Spanish had no intention of permanently giving up the colony. Maintaining a precarious foothold in El Paso, the Spanish prepared to reconquer the province. Don Diego de Vargas began the process in 1692 and within four years had brought the Pueblos back under Spanish control, overcoming another revolt in 1696. At Pecos he captured Hobe-wagi, who lived to see the return of a Franciscan friar to the pueblo and the construction of a new church on the mesilla. Relations between the Spanish and the Pueblos did not revert to their pre-Revolt status, however. The Spanish did not resume the *encomienda* system and no longer required tribute payments from the Pueblos. Despite easier relations with the Spanish, the Pecos failed to regain their earlier prosperity in the eighteenth century. Although Hobe-wagi may not have lived long after Vargas's reconquest, her children and grandchildren continued to experience disease epidemics that

reduced the pueblo's population. Hobe-wagi's descendants also encountered a new people who invaded the region—the Comanches.

Hobe-wagi's granddaughter may have fled in terror as Comanche raiders attacked harvesters in the fields by the Pecos River. She watched the Comanches drive away the pueblo's cattle and horses. The Spanish governor sent some troops to the pueblo's aid, but the Comanche empire dominated New Mexican affairs throughout the eighteenth century. The Comanches kept Hispanic settlers like Juan de Dios Peña from settling in the Upper Pecos valley. The Comanches also forced the Pecos to remain close to their pueblo, reducing their effects on the surrounding environment. Not until the Spanish finalized peace accords with the Comanches in 1786 did the situation change. Freed from the threat of the Comanches raids, Hispanos such as Peña petitioned the Crown for lands in the northern reaches of the colony.³ By that time, few Pecos remained in their ancient pueblo. As more Hispanos came to the area, they set the stage for a return to more intensive land use, but one that assumed a different form than that practiced by the Pecos. Peña and the other settlers expected to turn the valley into a prosperous settlement with many individual homes, gardens, and fields. Peña wanted to provide for his family but also desired to acquire capital through trade—with Mexico, the Comanches, and even the forbidden French and Americans to the east. Hobe-wagi lived in an environment that had been changed through Spanish contact but still bore many of the same patterns of land use—population concentrated in the pueblo, dry and irrigated fields scattered throughout the valley, camps of Apache arriving to trade—that had persisted through several centuries. The presence of the Comanches disrupted these patterns. Later, peace with the Comanches allowed the establishment of a new, Hispanic cultural landscape in the Pecos valley, created by Peña and other settlers.

Pecos, 1692-1821

During the eighteenth and early nineteenth centuries, the Pecos environment became part of a borderland. The term “borderland” implies the existence of at least two political entities competing for control of the space. Historians Jeremy Adelman and Stephen Aron define a borderland as “the contested boundaries between colonial domains,” thus emphasizing the importance of imperial power relations in the transformations that occur in such a region.⁴ The Pueblos, who rarely acted as a politically unified whole, cannot be described as an imperial power. By the eighteenth century, though, the powerful Comanche empire contested the imperial designs of the Spanish. The French and later American empires to the east also influenced events in New Mexico. On the eastern edge of Spanish New Mexico, the Pecos area continued to serve as a contact point where people from these empires interacted—sometimes peacefully but often violently.

Although Spanish officials in Mexico and Spain worried about French expansion in North America, the Comanches became the true power on the Southwestern plains in the eighteenth century, and the inhabitants of New Mexico knew it. Much as the Spanish had arrived in New Mexico with a cultural system that placed new demands on the Pecos environment, the Comanches, too, approached the region from a different perspective. The acquisition of the horse had changed Comanche culture, turning them into hunters who traversed the plains in pursuit of bison. Possessing an abundance of protein and horses, the Comanches relied on obtaining carbohydrates and manufactured items, particularly guns, from others, either through trade or raiding. As historian Pekka Hämäläinen argues, the Comanches operated with a different imperial system than the Spanish, one that focused on resource exploitation as opposed to

territorial occupation. Northern New Mexico, although never settled by the Comanches, became in effect a colonial satellite whose resources were reoriented to the east.⁵

As their interactions with the Comanches—whether peaceful or violent—grew increasingly frequent, the inhabitants of northern New Mexico drew further away from Spanish Mexico, its government, and its culture. Spain continued to view New Mexico as an important component of its empire and hoped to use the northern provinces as a buffer against French and later American imperial ambitions, but the resources Spain provided never matched its expectations. A restrictive commercial policy kept New Mexico underdeveloped and encouraged the colonists to explore other trade relationships to satisfy their material needs. Only a few presidial soldiers were stationed in the province for defense, leaving the New Mexicans to fend for themselves. Instead of becoming a strong component of Spain's American empire, New Mexico fell into the orbit of the Comanche empire. Pecos's geographical location placed it on the swirling forefront of the borderland between the Comanches and Spanish. For a time, the Apaches on the plains to the east and north of Pecos bore the brunt of Comanche attacks. The Apaches abandonment of their lands put Pecos Pueblo in a vulnerable position, and the Comanches raided Pecos frequently.

The arrival of new peoples and a new cultural system in the Pecos vicinity once again changed the physical environment. An initial burst of activity following Vargas's reconquest resulted in new construction on the mesilla, an increase in livestock, and perhaps an intensification of farming and timber cutting. With the beginnings of Comanche depredations, Pecos entered a contentious period that resulted in a decrease in human effects on the landscape. Livestock practically disappeared, fields were abandoned, and the population declined. The Spanish probably constructed a presidio to the west of the pueblo at this time, but overall the Pecos entrenched, huddled into the relative safety of their pueblo.

The situation changed when Spanish and Comanche leaders signed peace accords in 1786. For a brief moment, Pecos Pueblo resumed its status as a key community on the eastern border of New Mexico. Trade fairs and increased livestock numbers affected the pueblo environment, but the pueblo population still did not increase. The low population kept the effects of the revival localized to the immediate vicinity of the pueblo. The peace with the Comanches, which lasted until Mexico declared its independence from Spain in 1821, had other, more lasting consequences as well, such as the expansion of Hispanic settlement. The establishment of San Miguel del Vado, a town twenty miles southeast of the pueblo, usurped Pecos Pueblo's position as the first settlement encountered by parties arriving from the eastern plains. The presence of San Miguel encouraged other settlers to move into the area and construct homesteads in the vicinity of the pueblo, encroaching on the lands of the few remaining pueblo inhabitants. Although Peña and his fellow settlers did not possess the means for any large-scale exploitation of the land, their arrival heralded a return to intensive land use that once again impacted the Pecos environment.

“A Cross Was Left for Them, Placed as a Sign of Peace”: The Spanish Reconquest of New Mexico

Under Vargas's leadership, the Spanish returned to New Mexico determined to avoid a repeat of the events twelve years before. The Spanish did not want resentful, bitter subjects who plotted their overthrow. They wanted peace in the colony; peace that would allow them to reestablish their livestock industry and farming enterprises and encourage settlers to come to the region. Therefore, although Hobe-wagi no doubt felt fearful and anxious when Vargas captured

her, she need not have worried. After several days parleying back and forth with the hidden Pecos produced no results, Vargas simply left. He did not despoil the pueblo or kill any of his prisoners. "A cross was left for them, placed as a sign of peace," Vargas recorded. Although Vargas had been willing to fight and lay siege to the pueblo when he first arrived, the lack of opposition forced Vargas to consider other strategies. He hoped that his peaceful gestures would bring the Pecos to his side.⁶

His hopes proved well founded. After receiving the submission of several other pueblos, Vargas returned to Pecos Pueblo. This time the Pecos welcomed Vargas and his men. The shift in the pueblo's position reflected the flexibility of Puebloan politics, which differed dramatically from Spanish practices. As historian John Kessell points out, El Popé, leader of the 1680 revolt, disparaged the Spaniards, but attempted to consolidate his power in a Spanish manner. He tried to make himself the sole leader of the Pueblos, bringing them all into a unified conglomerate.⁷ The Pueblos, though, had never operated in such a manner. Their slow decision-making process, in which many people discussed potential actions and one person's decision did not necessarily bind another, offered flexibility and adaptability but also limited the Pueblos to some extent. The centralized Spanish power network allowed them to make decisions quickly, relying on one authority figure who, although he answered to others, could also act at their behest.⁸ When the Spanish vacated the colony in 1680, internal divisions once more flared up among the Pueblos.

Hobe-wagi's explanation to Vargas of internal strife within Pecos Pueblo—of older members who wished to accommodate the Spanish versus younger members who wanted to resist—reflect these political and social divisions. Vargas attempted to exploit these differences at Pecos and gain firm control of the pueblo after receiving its capitulation. He installed a number of political figures, including Juan de Ye as the Pecos governor. Juan de Ye proved to be an invaluable ally of Vargas, warning him of potential rebellions and bringing 140 Pecos warriors to help the Spanish retake Santa Fe. He lost his life in an attempt to negotiate a peaceful agreement between the Spanish and the rebellious Taos pueblo.⁹

The willingness of the Pecos to submit to Spanish control once more also resulted from the continued erosion of power and population at the pueblo. The twelve years between the revolt and the reconquest had not been easy ones for the Pueblos. Over the previous century, the Spanish had severely disrupted the Puebloan way of life. Merely removing the Spanish did not ensure a return to older ways, particularly during a time of violence and internal strife. The diseases the Spanish had brought did not disappear either. Overall, the Pueblo population in New Mexico declined from 17,000 to 14,000 between 1680 and 1700.¹⁰ The population continued to fall at Pecos Pueblo, too. The Spanish also disrupted trade, which had always been important to Pecos. The Pecos did not always find it easy to resume old trading patterns. The Spanish left behind livestock and goods after the revolt, but also took with them the protections offered by their soldiers and their guns. Some evidence suggests that in the absence of the Spanish, the Pueblos established a thriving livestock trade, horses in particular, with the Apaches and other Plains Indian tribes.¹¹ Other evidence points to an increasingly violent relationship that disrupted potential trade. Juan de Ye apparently pleaded with Vargas to help Pecos reestablish their trade fairs with the Apaches. When several Apaches came to survey the situation, Vargas did everything he could to convince them of the Spaniards' honorable intentions. By the end of August 1694, a trade fair was being held at Pecos Pueblo with Apaches, Spaniards, and pueblo residents participating.¹²

Whether or not the Pueblos did establish a livestock trade of their own, Vargas found too few livestock when he returned to satisfy Spanish ambitions. Many livestock may have been

killed after the revolt or the Pueblos may simply have allowed the herds to decline to levels they could easily maintain. In any case, few animals remained at the pueblos, and Vargas distributed livestock, including 4,000 sheep, to the settlers who came with him. Vargas also gave two hundred head of sheep to the Franciscans to aid in rebuilding their missions at the pueblos, including the one at Pecos. Several decades passed before numbers were high enough to renew livestock exports to Mexico, however.¹³

Although the Spanish did not reinstitute the *encomienda* and tribute system, they did pressure the Pecos to work for them. Often the tasks related to the Pecos' carpentry skills and the supplies of timber in the area. In 1723 a judicial review of governor Martínez's administration revealed that he owed the Pecos payment for two thousand boards they had cut and hauled for him and "for the personal labor that had caused them to lose their crops."¹⁴ A 1776 account by a visiting Franciscan recorded that "most of [the Pecos] are good carpenters" and that the "sierra provides them with timber."¹⁵ Trees remained important for other resources as well. A letter from Fray Manuel de San Juan Nepomuceno y Trigo in 1754 refers to the piñon trees in the mountains between Pecos and Santa Fe that "every three years affords delight to the taste with [their] crop of piñones."¹⁶

The return of a Franciscan friar to Pecos placed labor demands on the Pecos once again. Fray Diego de la Casa Zeinos resumed the ministry at Pecos in 1694 and oversaw the construction of a new, temporary church that utilized the north wall of the old church, still standing over seven feet high. In 1705 Fray José de Arranegui compelled the Pecos to build a more permanent structure on top of the church ruins. The Pecos also rebuilt the convento and corrals.¹⁷ They constructed new corral complexes south of the church to hold the livestock, perhaps adding onto corrals that survived the revolt. One set of rooms probably served as mangers for oxen and had a gate that opened onto the fields around the pueblo.¹⁸ Archaeologists have located the remains of a stone corral on the west side of Glorieta Creek, and although it is not clear exactly when the corral was built, it is definitely of post-revolt construction.¹⁹

The Franciscans required the Pecos to once again plant crops for them in addition to their other labors. Fray Trigo recorded that the Pecos "sow for the father four fanegas of wheat and one *cuartilla* of corn.... They pay no obventions, but they furnish for the assistance of the father and the convent four boys, a bell-ringer, a porter, a cook, three grinding-women and the wood needed for use."²⁰ The Pecos had not, of course, abandoned agriculture after the revolt. When Vargas came to Pecos Pueblo he noted that it was "well supplied with all sorts of vegetables and maize." Sending his men out to search for the recalcitrant Pecos, Vargas recorded how the "squads spread over the mountain and range bordering the milpas [fields] across the river from the pueblo."²¹ With the return of the friars, the Pecos either planted additional fields or dedicated existing fields to the friar's sustenance. Evidence of other agricultural pursuits surfaces occasionally. A report by Fray Miguel de Menchero in 1744 refers to Pecos Pueblo as having "one hundred and twenty-five families.... A river flows through the settlement, and on its banks there are plum trees of the kind called in Spain 'yolk of egg,' whose fruit is very savory and pleasant to the taste."²² Apparently these were plum trees planted on either the banks of Glorieta Creek or the Pecos River.

For a brief period, the presence of the Franciscans at Pecos Pueblo resulted in an increase in the numbers of livestock at the pueblo and possibly a slight intensification in farming. The Franciscans of the eighteenth century, though, did not possess the same power as their predecessors. Conflict continued between the friars and the governors, but new attacks on Franciscan power appeared as well. The bishop in Durango took an interest in New Mexico and

began arguing that the province would fare better under his control. He accused the Franciscans of charging ridiculous prices for marriages and burials. They still had not learned the Pueblos' languages and had failed to truly instill Christianity in their charges. Many of the bishop's allegations bore a measure of truth. After a brief, intensified campaign against Puebloan religion, the Franciscans stopped attempting to eradicate traditional Puebloan lifestyles. By the 1720s, a policy of accommodation became the norm. The barriers separating Pueblos and Spanish, which had been so important to Oñate a century before, eroded. Partly, the Spanish feared inciting the Pueblos into mounting another rebellion. But the presence of a new enemy—one that targeted Spanish and Pueblo alike—also brought them together. As the Comanches moved into the southwestern plains, Spanish settlers, Franciscans, and Pueblos had to join in common defense or perish.²³

When Hobe-wagi was born, the massive church constructed by Fray Juárez still stood next to her pueblo. She lived to see that church destroyed but also witnessed the return of the Spanish to Pecos. Many of the Spaniards' old requirements and demands, which Hobe-wagi remembered, reappeared as well. Once again the Pecos had to build a church, plant wheat for the friar, and tend to his livestock. Life at Pecos resumed many of the same patterns of the seventeenth century. In the last years of her life, Hobe-wagi resigned herself to the fact that once again her home bore the unmistakable marks of Spanish influence and their demands on the environment. Hobe-wagi may have lived to hear of the first Comanche attacks in New Mexico, but she could not have imagined how these new people would change her home. Soon, the Pecos environment began to reflect Comanche, as well as Spanish, influence.

“I Have Fortified These Two Pueblos of Pecos and Galisteo”: The growing power of the Comanche Empire

The consequences of the Pueblo Revolt did not end at the borders of New Mexico. Many Pueblos, disillusioned after the failure of the 1696 revolt, had fled New Mexico and joined the Apaches on the plains. The influence of Puebloan culture had already affected the Apaches, who adopted irrigated farming beginning in the 1500s. The addition of many Pueblos in the late 1600s accelerated the process. The Apaches expanded their territory, moving farther onto the central plains, where they encountered the Comanches, who were migrating south. The Comanche were transforming into a pastoral society, having acquired horses from the Utes around 1690. The Pueblo Revolt had placed livestock, including horse herds, into the control of the Pueblos. It is not certain to what extent the Pueblos traded horses with Plains Indians or if the first Comanche horse herds had originated in New Mexico. The presence of large livestock herds in New Mexico, particularly after the return of the Spanish, did provide an incentive for the Comanche to begin pushing southwards.²⁴

Accounts of Comanche raiding first appear in New Mexico around 1706.²⁵ The Apaches, who had kept up an alternating policy of raiding and trading with the Hispanos and Pueblos, found themselves under a sustained attack. They began retreating from the plains and appealed to the Spanish for aid. The Apaches promised to convert to Christianity and maintain settled villages if the Spanish kept the Comanches away. The prospect of having a friendly Indian group as a buffer between their northern provinces and threats such as the Comanches or French appealed to the Spanish. In 1719, 1723, and 1724 expeditions of Spanish soldiers and native auxiliaries set out for the plains but failed to prevent Comanche attacks. Hesitant Spanish officials in Mexico City did not fully support the policy, and by the late 1720s the Comanches

had driven the Apaches from the plains. Several Apache bands settled near Pecos, reflecting social ties stemming from the years of trade with the pueblo.²⁶

The Comanches soon dominated the southern plains. Their reliance on buffalo hunting meant that they needed to supplement their diet with carbohydrates—food that the Pueblos and Hispanic settlers possessed. The Utes, living in the mountain valleys and plains to the north and west of New Mexico, allied with the Comanches in 1706 and joined them on their raiding expeditions.²⁷ The Comanches also developed a profitable trade to the east with such groups as the Wichitas and Taovayas, who in turn passed goods into French Louisiana. The Comanches needed livestock and human captives for this trade, which they could also obtain in New Mexico.²⁸ Pecos Pueblo's position on the eastern border as well as its close ties with the Apaches made it a favorite target for the Comanches. By the mid-1730s, raiding was endemic at the pueblo. In 1746 a Comanche attack resulted in several killed and horses stolen. In 1748, the same year an epidemic struck, the Comanches, Pecos, and Spanish fought before the walls of the pueblo. The Spanish recognized that losing Pecos would leave Santa Fe open to attacks from the plains, and in the 1740s, a Spanish squadron took up residence west of the convento, although they were often required elsewhere.²⁹ Governor Tomás Vélez Cachupín alerted the viceroy of defensive measures he had installed at Pecos Pueblo and nearby Galisteo Pueblo in 1750: "I find it necessary to garrison them with thirty presidial soldiers....I have fortified these two pueblos of Pecos and Galisteo with earthworks and towers at the gates capable of defending them against these enemies."³⁰ Archaeologists have found evidence of construction that could relate to the garrison and may have been the small presidio. Located between the church and Glorieta Creek, the evidence consists of a compound of Spanish construction with several small corrals.³¹

The escalation of violence in New Mexico in the eighteenth century altered not only relations between the Pueblos and Spanish but their relationship with the land as well. Deep canyons, the steep walls of mesas, dense concentrations of trees—these landforms now held the potential for both defense and sudden attack. Although raiding had been a component of intertribal relations in northern New Mexico for centuries, the endemic nature of Comanche and Ute raiding in the eighteenth century strengthened the associations between the environment, fear, and death. Historian Ned Blackhawk argues that "by the mid-eighteenth century the colony's relations of violence had become so normative that the physical and natural worlds were now imbued with violent meanings."³² The piñon-juniper forests around Pecos, for example, not only offered wood and food to the pueblo's inhabitants but also offered cover for raiders sneaking up on the pueblo.

Not all relations between the Comanches and Pueblos consisted of violence, however. Like the Apaches, the Comanches also sought to trade with the Pueblos. Taos became an important trading center for the Comanches. In fact, the Comanches became a source of manufactured goods, including guns, for New Mexico. The Comanches obtained British and French guns through a variety of channels and soon possessed such a surplus that they were able to trade the guns in turn. These, along with horses, mules, and captives that the Comanches may have acquired elsewhere in New Mexico, changed hands at Taos.³³

The Comanches' ties to the French territory of Louisiana worried the Spanish, who constantly feared an attempted French takeover of their northern colonies. To the annoyance of the colonists, any news of French incursions on the plains created greater excitement in Mexico City than the deaths of hundreds at the hands of the Comanches. Many Spanish officials recognized, however, that it was often French traders providing the Comanches with the weapons that made them so deadly.³⁴ During the 1700s, several Frenchmen made the long

journey over the plains to New Mexico in pursuit of trade, not territory. In 1739 French traders arrived in Santa Fe via Taos. Others followed, including four who arrived at Pecos Pueblo in 1750. These Frenchmen probably traveled on a path similar to what later became the Santa Fe Trail. New Mexicans, hungry for manufactured goods, welcomed the French. Governor de Mendoza entertained the first party of French traders who arrived in New Mexico, and he sent them off with a list of goods the province urgently required. When suspicious Spanish officials heard of the contact, they made it clear that Frenchmen who came in the future would be removed precipitously. Mendoza's successor, Vélez Cachupín, followed Spanish policy and arrested any French traders who arrived.³⁵

Cachupín proved to be an able administrator and pursued a peace with the Comanches. Spanish policy towards Comanche attacks had been inconsistent, depending on the governor in office at the time. Cachupín negotiated a treaty in 1752 that gave the Comanches open access to the trade fairs at Pecos Pueblo, which must have continued in the 1730s and 1740s despite raiding. The treaty also terminated any Spanish aid to the Apaches, and the remaining bands retired from the Llano Estacado and resettled near Pecos. The Apaches and Pecos apparently drew quite close at this time, and when the Apaches "went for their brief hunting forays they often left their women and children behind in the town." The Utes also formed an alliance with the Spanish after their accord with the Comanches fell apart. The 1752 peace was kept until Cachupín departed whereupon relations with the Comanches degenerated into raiding and violence once more. Cachupín reestablished peace upon his return in 1762, but when he permanently left New Mexico in 1767 the peace was once again broken and was not reestablished for twenty years.³⁶

As Fray Trigos wrote in his 1754 letter, by the mid-eighteenth century Pecos Pueblo was "invaded continually by barbarians."³⁷ The pueblo's ties to the Apaches, its position on the eastern edge of the province, its livestock and agricultural produce—all made it a favored target for Comanche raids. Traveling away from the pueblo—over the pass to Santa Fe, for instance—became a dangerous enterprise. Herding livestock or working in the fields away from the safety of the pueblo walls now incurred substantial risks. Governor Cachupín ordered soldiers garrisoned at the pueblo. The construction of a presidio at Pecos Pueblo as well as earthworks and towers for the pueblo's defense were visible signs of the changes wrought by the Comanches on the landscape. Under Comanche pressure, immediate human alterations to the Pecos environment diminished—fewer livestock grazed along the river banks, and fields farther away from the pueblo lay fallow. Cachupín's two peace treaties in 1752 and 1762 offered a brief respite, but when the second peace failed, Pecos Pueblo faced an intensified onslaught from the Comanches.

"This Pueblo Is Very Much Besieged by the Enemy": Diminishing effects of human and livestock populations at Pecos Pueblo

The failure of the accords between the Comanches and Spanish had devastating consequences for New Mexico. Settlers abandoned villages and ranchos under the pressure of Comanche raids. The numbers of livestock in the province declined as the Comanches funneled New Mexican herds to eastern markets. Pecos Pueblo remained a favored Comanche target.

By the 1760s, accounts of the fall trade fairs at Pecos disappear from Spanish records.³⁸ Sporadic but continuous raiding kept the inhabitants of the pueblo in a constant state of terrified uncertainty. The Spanish in Santa Fe tried to help the pueblo as their limited manpower permitted. On March 10, 1769, reports of a potential Comanche attack galvanized alcalde mayor

Chapter Three, 1692-1821

Sena, who hurried to Pecos Pueblo with a squad of soldiers. The Pecos, thinking the threat had disappeared, released the stock from the sheltering corrals near the pueblo. The Comanches struck immediately. Four Pecos died and Sena recorded that the Comanches “did run off 42 horses and kill part of the cattle, while the cattle still in the corrals were unharmed.”³⁹

Besides stealing livestock from the pueblo, the Comanches also made it dangerous for the Pecos to farm in their fields by the Pecos River, far from the protection of the pueblo. In September 1771, when the wheat was ready for harvest, a squad of Spanish soldiers escorted the Pecos to their fields. The Comanches did attack, but the Pecos and their Spanish protectors managed to retreat to the pueblo with both the wheat and livestock. The Pecos were not always so lucky. In August 1774, one hundred Comanches attacked the Pecos working in their milpas. Nine died and seven others were captured.⁴⁰

The cumulative effects of raiding wrecked the Pecos’ daily lives. Fray Francisco Atanasio Domínguez, touring New Mexico in 1776, recorded the sufferings of the people of the province. He included a lengthy account of conditions at Pecos Pueblo:

The Indians have arable lands in all the four principal directions, but only those which lie to the north, partly east, enjoy irrigation. The rest are dependent on rain. These irrigated lands are of no use today because this pueblo is so very much besieged by the enemy, and even those dependent on rain which are at a distance cannot be used. Therefore, but a very small part remains for them. Since this is dependent on rain, it has been a failure because of the drought of the past years, and so they have nothing left. As a result, what few crops there usually are do not last even to the beginning of a new year from the previous October, and hence these miserable wretches are tossed about like a ball in the hands of fortune.”

On the other hand, Governor don Pedro Fermin de Mendinueta, Knight [of the Order of Santiago], has come to their aid with twelve cows, which, added to eight old ones they had before (which were all the enemies had left them), make twenty. As for horses, they have twelve sorry nags all together when they once had a very great number.⁴¹

Comanche depredations forced the Pecos to abandon their irrigated fields in the ciénega of the Pecos River. The raids also completely demolished the livestock herds at the pueblo, which had once probably numbered in the hundreds.

Periodic disease epidemics continued to ravage the pueblo and the decrease in population compounded the effects of the Comanche hostilities. Spanish burial records from the Pecos mission record population losses correlating with ten epidemics in the period from Vargas’s reconquest in the 1690s up to 1821. The books first show an epidemic in 1695, some type of fever that claimed older Pecos in particular. Eight years later, in 1704, another epidemic struck, taking eighteen members of the pueblo. A 1728 epidemic claimed fifty-six lives. Scarcely over a year later, in 1730, another outbreak, possibly smallpox, took another fifteen. Epidemics followed at ten year intervals, in 1738, 1748, and a possible outbreak in 1759. A 1780 epidemic of smallpox occurred throughout New Mexico, taking over 5,000 Pueblos, including some at Pecos.⁴²

The cumulative effects of these epidemics were devastating. The loss of adults depleted the Pecos’ ability to farm and hunt. The deaths of children, which increased in later epidemics, prohibited population recovery. A detailed census of the pueblo was completed in 1750 and

1790. In 1750, 449 people lived at Pecos Pueblo. By 1790, only 152 were left.⁴³ The Pecos had little defense against these outbreaks. Although the Spanish introduced a smallpox vaccine to New Mexico in 1804, it was already too late.⁴⁴

The Pecos had few weapons against disease, but they did often take up arms and join the Spanish in fighting the Comanches. Spanish forces always consisted of both soldiers and native auxiliaries and sometimes other allied warriors such as Apaches or Utes. Spanish policy prohibited providing guns to Pueblo subjects, but officials often ignored the regulations. Still, the expeditions could hardly mount a serious attack on the formidable Comanche empire. The Spanish scored occasional victories, but these were counterbalanced by frequent defeats or inaction. As the continuing deaths and attacks at Pecos Pueblo attest, Spanish attempts at defending New Mexico failed miserably. Indeed, despite numerous attempts to fortify their frontier, the Spanish military never had a hope of defending the vast borders of the province with the inadequate forces allotted to them.⁴⁵

The intensified Comanche raiding and depopulation at Pecos in the two decades following 1767 reduced the effects of humans and domesticated animals on the Pecos environment. The accounts of Comanche raiding reveal that in 1769 the Pecos had about 42 horses and an unidentified number of cattle.⁴⁶ All of these livestock were concentrated in the area around the pueblo, extending down to Glorieta Creek and perhaps on the other side of the arroyo. As Comanche raids worsened, the Pecos probably kept the livestock close to the pueblo to avoid losing them during attacks. This contributed to continuing erosion along Glorieta Creek and on the mesilla. The number of livestock diminished, however, as the Comanches drove off animals. Fray Dominguez's detailed 1776 account reveals that the Pecos had only twenty cows and twelve horses. The decreased numbers correlated with a subsequent reduction in the effects of those animals on the landscape.

One consequence of the swift decline in livestock numbers may have been the infill or regrowth of piñon and juniper into heavily grazed areas, such as the immediate vicinity of the pueblo. Research into the effects of grazing has often connected increased livestock numbers with subsequent increases in tree density. Other evidence, though, suggests that a sudden decrease in livestock following heavy grazing may catalyze tree expansion. In a study of the effects of grazing in the Valle del Mezquital, Mexico in the sixteenth century, Elinor Melville argues that an "abrupt drop in numbers and density of grazing animals" caused trees and shrubs to spread further into the valley. Changing fire regimes also influenced vegetation. Melville suggests that "the sudden relief from intense grazing pressure, and probably from fire as well allowed for a rapid increase of mesquite-dominated desert vegetation" in the Valle del Mezquital.⁴⁷ At Pecos Pueblo the decline of livestock provided an opportunity for piñon and juniper infill in formerly grazed areas, which has been observed in the twentieth century in the post-ranching period. Piñon and juniper may have been reclaiming areas where they once had grown prior to human clearing activities, or the range of the species may have expanded.

The Pecos also abandoned numerous fields due to the persistent raiding, which allowed invasive species to establish in the disturbed soil. Although at the beginning of the eighteenth century the Pecos still farmed in their milpas by the Pecos River, Dominguez revealed that Comanche raiding forced them to abandon these. Obtaining sufficient water also became a problem. Dominguez commented that "along the small plain between the sierra and the pueblo a very good river of good water and many delicious trout runs from north to south, but the water is not taken for use in the pueblo because it is about half a league away and there is very great

danger from the Comanches. Therefore they have opened some wells of reasonably good water below the rock, and that is used for drinking and other purposes.”⁴⁸

The Pecos continued to farm nearer to the pueblo, however. Dominguez provided a detailed description of the various milpas near the pueblo that he observed in 1776:

There are five plots, some larger than the others, distributed as follows: There is a beautiful kitchen garden for green vegetables below the cemetery to the west. It is dependent on rain, and has a good wall attached to and entered from the cemetery. North of this kitchen garden are two separate large milpas. The one near the kitchen garden is dependent on rain, and the one beyond it gets irrigation from a river we shall soon see. There is another large milpa dependent on rain beyond the kitchen garden to the west. To the south, another like the aforesaid, also dependent on rain. Located in this way in the directions mentioned, they are about a quarter of a league from the pueblo, and I give no account of their crops because the Indians give me none. Indeed, they do say uproariously that wheat, maize, etc., are sown, except for chile, and that a sufficient amount is harvested. For the present the aforesaid plant them for themselves, and when there is a father, they do the work for him.⁴⁹

Human population, too, declined steadily at Pecos Pueblo. The amount of resources needed to support human settlement and livestock—including timber and grass—would not have been as substantial as during the first decades following Spanish conquest when Pecos Pueblo was near the height of its population and the Franciscan friars introduced large livestock herds. Other pueblos in the region also failed—the inhabitants of Galisteo Pueblo abandoned it at this time.⁵⁰ Spanish settlement of the Pecos valley, which later brought higher numbers of people and livestock to the area once again, remained out of the question. Men such as Juan Peña did not care to risk their lives by settling in an area preyed on by Comanches. Although some Apache bands came to live in the area, they concentrated on hunting and gathering and did not establish any permanent settlements. Overall, the second half of the eighteenth century witnessed a diminished human presence in the Pecos valley. If any of Hobe-wagi’s children survived, they experienced a landscape that bore the evidence of decades of Comanche raiding—abandoned fields, only a few cattle and horses, the constant fear of wondering when Comanches might appear out of the trees or come galloping along the banks of the river.

“They Know Now More Than Ever the Truth of Our Peace”: The Comanche peace of 1786

Just when it appeared that Pecos Pueblo might collapse entirely, the situation began to improve. Realizing that they could not defeat the Comanches, the Spanish attempted to build a strong trade relationship with them instead. Through trade, the Spanish hoped to make the Comanches reliant on Spanish goods and thus unlikely to threaten their suppliers—a policy often employed by the French and British, termed “peace by deceit.”⁵¹ The victory of Juan Bautista de Anza in 1779 over Cuerno Verde, a Comanche war leader, gave the Spanish a starting point for negotiations. The Comanches suffered reversals at this time that also made them more amenable to peace. They had renewed war with tribes to the east and several smallpox epidemics had raged throughout Comanchería. In addition, the American Revolutionary War drew French and British traders to the east and away from their trade with the Comanches. Although the process took almost a decade, in 1786 Ecuera Capa, a prominent Comanche political figure, arrived in Santa Fe as the spokesperson for the Comanches, charged with negotiating a peace. Shortly before his

arrival, Comanches had once again raided Pecos Pueblo. Ecueraçapa executed the leaders of the raid to demonstrate Comanche goodwill.⁵²

The Comanches entered the negotiations as the stronger party. Among a series of demands that gave the Comanches license to trade when and where they wanted in eastern New Mexico, Ecueraçapa requested, once again, “the establishment of fairs and free trade with Pecos.” He also required safe passage through Pecos to Santa Fe and the termination of Spain’s peaceful relations with the Apaches. After their first meeting, Anza moved the treaty negotiations to Pecos Pueblo. While the leaders discussed the terms of the peace, Pecos, Comanches, and Spanish mingled in the meadow east of the pueblo. Numerous Comanche bands had arrived and camped in the vicinity. Anza formally opened a trade fair upon the conclusion of negotiations, admonishing all parties to behave themselves. After a successful afternoon of trading, Anza commented that the Comanches “proclaimed publicly that they know now more than ever the truth of our peace.”⁵³

The Comanche peace ushered in a brief period of prosperity for Pecos Pueblo. Seasonal trade fairs occurred once more. Along with Taos, Pecos became the primary point of contact with the Comanches. Traders sought out horses in particular. The Comanches “traded so many horses that Taos and Pecos were soon reported having ‘a considerable number.’” Pecos Pueblo also served as a meeting place for Comanche and Spanish emissaries. Jupes and Yamparikas, two divisions of the Comanches, came to the pueblo in 1787, also seeking a treaty with the Spanish as the first had primarily been negotiated with the Kotsotekas. Various intermediaries who could translate for the Spanish and Comanches took up residence at the pueblo, including José Mares, a plains explorer, who appeared in the 1790 Pecos census.⁵⁴ Peace did bring an end to Pecos Pueblo’s friendly relations with the Apaches. The Comanches demanded that the Spanish join them in making war on the Apaches, who became the common enemy of Spanish, Pueblos, Utes, and Comanches alike.⁵⁵

The 1786 peace brought some changes to Pecos Pueblo and the surrounding environment, but it did not inaugurate a revival of the pueblo. Although the number of livestock increased due to trade fairs, the numbers never reached seventeenth and early eighteenth century numbers. A few Pecos families resumed farming in the ciénega, but much of the land was not returned to agricultural production. The small number of inhabitants remaining in the pueblo—only 152 by 1790—no longer needed as many fields or livestock. The diminishing presence of Franciscans at Pecos also contributed to the decline in agricultural and livestock production. Despite the physical presence of the church, friars came to Pecos irregularly during the eighteenth century and never stayed long. Although they were supposed to live at the pueblo, the friars often remained in Santa Fe, visiting the pueblo at infrequent intervals. After the peace, the growing Hispanic population in the area captured the friars’ attention. In 1782 the Franciscans formally declared Pecos Pueblo a *visita* of Santa Fe, meriting only the occasional services of a visiting friar.⁵⁶

“We Have Registered a Place that Today is Barren and Unsettled”: Hispanic settlement in the Upper Pecos valley

With the Comanche threat removed, Hispanos moved beyond established Spanish towns, forming new communities on the northern and eastern borders of the province. Men like Juan de Dios Peña looked to these regions and envisioned the possibility of forming prosperous farming and ranching communities. With the abandonment of pueblos and the reduced population, land the Pecos had formerly worked or inhabited lay unclaimed. The diminished power of the

Franciscans also opened areas to settlers who no longer had to compete with the friars' monopoly of arable lands or their large livestock herds. Hispanic population expansion proved to have more lasting consequences for Pecos Pueblo and its environment than the brief resumption of trade with the Comanches. In the final years of the eighteenth century, a new system of land ownership and use arrived in the Pecos valley with the Hispanic settlers.

Pecos and Spanish conceptions of land ownership had born no resemblance to each other when contact first occurred in the sixteenth century. Over the succeeding years, a system ascribing ownership to the Pueblos evolved based on a conglomeration of Spanish legal traditions that became locally accepted practice in New Mexico by the mid-1700s. Technically, the Spanish Crown never stated that the Pueblos owned any land—a 1689 document allegedly granting land to the Pueblos later was proved a forgery. However, as vassals of the Spanish Crown, the Pueblos theoretically could possess land, and the Spanish were obligated to protect their wards from disposing of that land to their own detriment. The initial Spanish policy of keeping settlers and Pueblos separated resulted in the notion that the four leagues surrounding a pueblo could not be settled or used for grazing.⁵⁷ By the 1700s everyone in New Mexico—including the Pueblos themselves—had come to believe that these four leagues were the land that a pueblo actually owned. Whether or not the Spanish Crown had ever intentionally granted the leagues, they became Pueblo property in the minds of everyone concerned. As historian Emlen G. Hall says, “ironically, in Hispanic eyes New Mexico pueblos came to own only what non-Indians could not acquire.”⁵⁸

The concept of the pueblo league, or grant, instituted foreign ideas of land ownership to Puebloan society. Although certain people or families may have controlled land, and the pueblos probably occupied recognized territories, formal, legal measures of that land did not exist, nor the idea that the pueblo as a whole “owned” a piece of property. Hispanic land practice, however, did make such distinctions through a mix of communal and individual ownership. The Spanish Crown awarded grants to settlers and within each grant, officials parceled out individual pieces of property. The grants also included large pieces of communal land for grazing, hunting, and foraging activities. Some Spanish land grants were expressly for grazing purposes while others were community grants, meant for the establishment of a permanent village.⁵⁹

Discussion circulated in Spanish circles about the usefulness of communal land as concepts of individualism gained greater prominence in the nineteenth century. Hispanic settlers believed in the necessity of communal lands to successful settlement, particularly in an arid, marginal environment like New Mexico. Peña and the other settlers who began moving to the Pecos valley expected to make full use of the land—in their own individual, irrigated fields and also by grazing their animals in the surrounding meadows and forests, which also provided ample timber and firewood. By the beginning of the nineteenth century, the Pecos no longer used all the arable land available to them, particularly the fertile fields by the Pecos River. Hispanos began using the term *sobrantes*, meaning “extra” or “surplus” for these “unused Pueblo Indian lands” in 1731. Because these lands often were the best in any given area, they were tempting to incoming settlers. Settlers argued that if a pueblo was not using the land, it should be given to someone who would.⁶⁰

The Pecos ciénega was not in immediate danger from the first Hispanic settlers who came to the valley. The San Miguel del Vado grant, awarded to a group of colonists in 1794 who quickly founded a village of the same name, was about twenty miles to the southeast of the pueblo. Although the settlers did not threaten Pecos lands, they did threaten its status as the gateway to the plains. Located slightly closer to the plains, the village replaced Pecos Pueblo as

the primary eastern point of call for Comanches and other traders. Not only its location, but the people who inhabited San Miguel made it attractive. Composed primarily of people with mixed Spanish and Indian heritage, many of whom had lived as slaves among the Comanches before being bought by New Mexicans, the town's population understood the Comanche language and perhaps even possessed kinship ties with the Comanches.⁶¹

The resident Pecos friar began spending most of his time at San Miguel and by the early 1800s had moved there permanently. Although it attracted many traders and settlers, San Miguel remained a fairly primitive outpost. Fray Merino, the resident priest in 1801, described his district in a report, presumably encompassing both the remaining inhabitants of Pecos Pueblo and the residents of San Miguel. The friar depicted a settlement with a bare, subsistence economy. As historian John Kessell relates the friar's report, "Hispanos and Indians grew maize, wheat, and a few vegetables in fields irrigated by the Río Pecos, but only enough to subsist. They ran only a few head of cattle and no sheep or goats 'because the enemies do not let them increase.'... There were no industries or commerce worth mentioning, no bridges over the river, and no good timber for the royal navy."⁶² The enemies mentioned by the friar were the Apaches who, in the wake of the peace accords, had become the common adversary of Comanches and Hispanos alike.⁶³ Although San Miguel may not have been prosperous according to the friar's criteria, it did grow steadily, and its presence encouraged more settlers to come to the Upper Pecos valley.

In 1813 three men, Francisco Trujillo, Diego Padilla, and Bartólome Márquez, applied for a grant between San Miguel and Pecos Pueblo, which became known as the Los Trigos grant. The application gave vague boundaries for the grant, but the applicants claimed the grant did not overlap with the Pecos league. However, the settlers eventually encroached on the league's southern border. To the north of the pueblo, in 1815, Juan de Dios Peña and several others petitioned for land. They submitted a statement to the governor, recording that "we have registered a place that today is barren and unsettled... outside of the property of [Pecos Pueblo]." Originally called the Cañon de Pecos grant, it became known as the Alejandro (or Alexander) Valle grant later in the nineteenth century. The Crown awarded both grants in 1815. Settlers at Los Trigos began building and planting in October. On the northern grant, settlers immediately started eyeing the Pecos ciénega and its abandoned fields a short distance downstream.⁶⁴

The local alcalde constitucional, Matías Ortiz, measured both grants when he formally placed the settlers in possession. Both measurements favored the Hispanos over the residents of Pecos Pueblo. Although the applicants had claimed otherwise, both grants overlapped the northern and southern boundaries of the league. The Pecos understood that the new grants threatened their territory. In 1818 they lodged a formal protest with the alcalde mayor at San Miguel, Vicente Villanueva. They accused a settler, Juan de Aguilar, of going beyond the boundaries of the northern grant and building on pueblo land. Villanueva came upriver to the pueblo and conducted a survey himself. He found that indeed, Aguilar was on the Pecos grant. Aguilar protested in turn, claiming that Villanueva had used faulty survey methods.⁶⁵

The process of surveying reveals both the desires of the Hispanos to claim the land legally and also the arbitrariness of their claims. Surveys of Pueblo leagues were supposed to start at the church, which usually stood in the center of the pueblo. At Pecos Pueblo the church stood a distance to the south. Some surveyors started at the church anyway or in the cemetery adjacent to it. Villanueva actually altered the rule to fit the situation at Pecos by beginning at the north corner of the pueblo complex. Hispanos and Pecos also debated the proper length of a rope and whether the surveyor stretched it tightly. Villanueva argued that the Pecos survey should go

above depressions in the ground, such as arroyos, which would give the pueblo more land than if a surveyor did not stretch the rope over such features. Other surveyors merely went down into such depressions, considerably shortening the league measurement.⁶⁶

Despite the protests of the Pecos, Hispanic settlement in the valley continued. It proceeded slowly at first. The three original families of the Los Trigos grant may have constructed temporary summer homes and had gardens and livestock on the grant by 1821. These were located approximately “ten miles below the Pecos ciénaga.”⁶⁷ An epidemic in 1800 struck not only Pecos but also the Hispanic community downriver at San Miguel del Vado and perhaps other settlers closer to the pueblo. Subsequent disease outbreaks appeared to strike Hispanos and pueblo inhabitants with varying force. An 1802 epidemic among the Hispanos did not seem to affect the Pecos. An 1816 outbreak also affected the Hispanos more severely, although it took Pecos lives as well.⁶⁸ Despite disease and the difficulties of starting over in a new place, Hispanic settlement continued to increase while the pueblo population declined. By 1821 only fifty-four people remained at the pueblo. In contrast, around 170 Hispanos lived in the area in 1800, and their numbers increased to 738 by 1821.⁶⁹

As more settlers came to the region and peace allowed for easy movement between communities, traffic between Pecos, Santa Fe, and San Miguel del Vado intensified. In the late eighteenth century the Cañada de los Alamos grant lying near what later became Cañoncito was awarded to Hispanic settlers. These settlers, or others moving eastward from Santa Fe, began grazing their livestock around Cañoncito. With settlers north of the Pecos grant as well, on the Cañon de Pecos grant, livestock grazed in far more areas than in any previous period, with the possible exception of the mid-1600s. Although livestock numbers grew steadily in New Mexico after 1786, their effects were localized.⁷⁰ Around Hispanic settlements, such as San Miguel, or pueblos like Pecos, and along trade routes, the environment probably did become degraded to some extent. Because animals were usually kept close to settlements, the region as a whole and the watersheds of the Pecos River and Glorieta Creek were not damaged. Other activities, too, did not foster large-scale resource exploitation. Although Juan Peña no doubt hoped to prosper, he and the other settlers only managed to maintain a subsistence lifestyle. Tools remained primitive—wooden hoes and perhaps rudimentary plows for breaking the soil.⁷¹

Despite the simple existence of Pecos valley residents, the decades following the Comanche peace did bring many changes to the environment. The landscape of the valley changed. Individual homes; long, rectangular fields supplied by acequias; the distinctive “coyote fences” of thin, vertical juniper poles pressed tightly together—these visual manifestations of Hispanic land use created a new cultural landscape. Grazing from the livestock owned by the Pecos and later by the Hispanic settlers who began to move into the area may also have affected the fire regime. In their study of a piñon-juniper woodland near Albuquerque, Christopher Baisan and T. W. Swetnam found that following the Pueblo Revolt, the fire interval decreased and fires became more intense. Following 1784, fires abruptly disappeared for around forty years—a date that coincides with the Comanche peace and an increase in Spanish settlement.⁷² Historian David Weber states that the Spanish discouraged the use of fire by Indians, but the only specific evidence he mentions is for California. No evidence exists on how the Spanish may have changed the use of fire by the Pecos.⁷³

Evidence for how the Spanish themselves may have used fire is also limited. In a dispute between the Suma Indians and the Hispanic residents of El Paso in 1764, the Suma accused Hispanic shepherders “of grazing their flocks on Suma land and . . . setting fire to trees and shrubs to produce better grazing ranges.”⁷⁴ In her study of the Valle del Mezquital, Elinor

Melville found that in Central America, burning vegetation in valley bottoms before the rainy season to improve pasturage was a common practice.⁷⁵ Some of the new settlers in the Pecos valley may have employed fire, perhaps continuing practices of the Pecos. Or they may have suppressed fire, either deliberately or through a decrease in fuel due to timber harvesting and grazing.

Climate also played a role in the fire regime. Periods of high moisture followed by a dry year often lead to higher fire frequency. Baisan and Swetnam found evidence of a severe fire in 1748, recorded as a dry year throughout the Southwest; rainfall had been high the two years before.⁷⁶ Tree ring data from Arroyo Hondo shows 1740 as an extremely dry year. From 1745 to 1760, however, rainfall was higher than normal.⁷⁷ An increase in vegetation, coupled with fewer livestock and human effects on the landscape, may have resulted in more frequent fires in the Pecos area for a few years. This situation possibly reversed itself following 1786 as once again, higher numbers of livestock and people returned to the Pecos valley.

“Don Pedro Pino Fue, Don Pedro Pino Vino”: Spanish territorial policy

Although nominal subjects of the Spanish empire, the Hispanos who settled in the Upper Pecos valley and elsewhere in northern and eastern New Mexico may have felt deeper ties to the Comanche empire. As San Miguel del Vado replaced Pecos Pueblo as New Mexico’s eastern entry point, many Hispanos began venturing out onto the plains to trade with the Comanches rather than waiting for the Comanches to come to them. Known as *comancheros*, they met with Comanche rancherías far from Spanish officials and their taxes and regulations. *Ciboleros*, Hispanic bison hunters, also took to the plains during the long peace with the Comanches. The *cibolero* became an important cultural figure in eastern New Mexico where Hispanic villages began to resemble their Comanche counterparts. Bison meat became a food source for villagers who consequently devoted less time and energy to farming. The Comanche language, too, became almost universal in eastern New Mexico.⁷⁸

Spanish officials were none too pleased with the direction of affairs in their northern province. Spanish elites did not approve of the cultural ties between Hispanic settlers and the Comanches. Spanish officials had also deluded themselves into believing that peace with the Comanches had given their empire a nation of subject Indians between its northern provinces and the encroaching United States. The United States had purchased the Louisiana Territory in 1803, and Spain was alarmed at the expansionist ambitions of the new country. The Americans made it clear that they believed the Louisiana Territory extended far to the west—much farther than Spain was willing to admit. Spain hoped that the Comanches would serve as a buffer, preventing American expansion. It became apparent, however, that the Comanches did not consider themselves subjects of Spain. They accepted Spanish gifts—a heavy burden for the poor provinces of New Mexico and Texas—but did not deem themselves bound to Spanish politics. They were happy to cultivate trade relationships with the Americans to obtain the manufactured goods that New Mexico and Texas could not provide.⁷⁹

Although New Mexico was pulled eastward, away from the center of Spanish power to the south, Spain did not relinquish its northernmost colonies. In the late 1700s, under the Bourbon emperor Carlos III, Spain attempted to rejuvenate its foreign policy and solve the problems plaguing New Mexico. Part of the reforms involved strengthening frontier defenses, which, although not too successful, did lead to Juan Bautista de Anza’s victory over the Comanche chief Cuerno Verde. More important were new economic policies that at last began to improve a stagnant frontier economy.

For many years, Spain had employed restrictive commercial policies that inhibited the growth of provinces like New Mexico. Worried about the possibility of smuggling, Spain refused to allow New Mexico to export goods to the Gulf of Mexico and establish a port there. Instead, the long, dusty *Camino Real* from Mexico City to Chihuahua and the Chihuahua Trail from there to Santa Fe remained the only connection between New Mexico and Spanish markets—a route that incurred high transportation costs and carried the almost constant threat of Apache or other Indian raiding. Products from Spain could only enter the colonies at Veracruz, and economic conditions in Spain meant that these goods were often overpriced.⁸⁰ In order to protect domestic producers, Spain never promoted the development of manufacturing in its colonies.⁸¹ New Mexico also suffered from a deficiency of hard currency, and its colonists protested any imposition of taxes or regulations, claiming they would only stifle the economy further.⁸²

The restrictive commercial policies translated into less stress on the environment. New Mexico remained locked in a subsistence economy where people eked out a living from the land but did not exploit it for capital gain. For example, although Spain imported hides and skins from New Mexico, the numbers never approached what the French and British took from eastern North America. The different strategies reflected changes in imperial policy. As historian David Weber explains, Spain began its empire in the sixteenth century when “European kingdoms put primacy on territorial acquisition through political and religious domination.” England and France “entered North America in an era of commercial expansion, when control of trade had become more important than control of territory.”⁸³ By the end of the eighteenth century, Spain was attempting to bolster the commercial potential of its North American colonies.

Increased numbers of presidial troops as well as the construction of barracks and posts brought jobs and money to New Mexico. Spanish officials tried to increase the amount of hard currency possessed by the soldiers so that more would circulate in the local economy but never took the most basic step of increasing the soldiers’ incomes. The Spanish government also financed numerous expeditions from New Mexico to its other North American provinces, particularly Alta California. Although New Mexicans found feasible trade routes, they had little incentive to transport goods over long distances to colonies as poor as their own. Trade with Mexico remained the most important outlet for New Mexican exports, although gifts to the Comanches also provided local farmers and artisans with a market.⁸⁴

Despite the middling success of Bourbon reform efforts, New Mexico did experience economic growth beginning in the late 1780s, continuing until the Mexican revolt shattered commercial networks. Higher numbers of goods left the colony, and Hispanos started their own weaving industry that began to supplant the market for Puebloan cloth. Livestock remained the colony’s biggest export. The numbers of sheep in New Mexico grew, and by the end of the eighteenth century more than 20,000 were exported each year. Peace in New Mexico, demand for exports in the growing province of Nueva Vizcaya to the south, and the growth of the Hispanic population in New Mexico probably accounted for the economic prosperity far more than Spanish policies.⁸⁵

Further political developments in Spain during the early 1800s did have a significant effect on New Mexico. Napoleon’s rampage through Europe displaced the Spanish king from his throne for a few years. The Cortes, a parliament that met from 1810 to 1814, stepped into the vacuum. The Cortes encouraged local participation in government. Pedro Bautista Pino, a prominent New Mexican, traveled the thousands of miles between New Mexico and Spain to serve as the province’s representative.⁸⁶ When the king resumed power, he abolished most of the laws passed by the Cortes. Although residents of New Mexico ridiculed Pino’s seemingly futile

journey to Spain, saying “don Pedro Pino fue, don Pedro Pino vino” (don Pedro Pino went, don Pedro Pino came), several laws passed by the Cortes remained in practice in New Mexico or were reinstated when Mexico gained its independence. The Constitution of Cadiz, ratified in 1812 by the Cortes, allowed for the formation of *ayuntamientos*, or town councils, on the frontier as well as the formation of an elected body of representatives termed the *diputación*. In addition, the Constitution proclaimed as citizens the majority of male Spanish subjects, including Pueblos. Following the urging of representatives like Pino, who knew the hunger for land that plagued settlers on the frontier, the Cortes passed a *sobrantes* (surplus) act in 1812, which allowed for the distribution of unused pueblo land. The *diputación* ruled on all such cases.⁸⁷ Juan Peña could expect support from local officials if he decided to move into the Pecos ciénega.

The eagerness with which the province adopted the Cortes’ policies demonstrated the determination of settlers to obtain land in New Mexico and to achieve a more autonomous government. *Ayuntamientos* and the *diputación* gave New Mexican settlers the ability to make their own policy decisions rather than waiting for months to hear from Mexico City. The Spanish government had done little to inculcate loyalty in New Mexicans—despite reform efforts the province remained defensively undermanned and choked by economic restrictions. Culturally, the people grew further away from Spanish Mexico. Ties to the Comanches and the large population of captive Indians who became incorporated into society helped to develop a distinct Hispanic identity. By the early nineteenth century New Mexicans divided themselves into two groups—Pueblo Indians and Hispanos.⁸⁸ The Pueblos had few reasons to support the Spanish and the Hispanos had many reasons for wanting greater independence. When Mexico declared its independence from Spain in 1821, few in New Mexico actively supported the rebellion, but nor did they protest their new status as republican citizens.

By 1821, the landscape near the Pecos Pueblo had assumed a new form, quite different from the patterns of the previous centuries. Following the decrease in human alterations to the environment caused by Comanche raiding through much of the eighteenth century, the peace of 1786 allowed Hispanic settlement near the pueblo to begin. The few remaining Pecos watched helplessly as settlers began moving onto their old lands. The boundaries of land grants placed new borders on the landscape, and Hispanic land use practices changed the environment as well. Although the numbers of settlers remained small, and their effects localized, their presence heralded the beginning of a new period in the region’s history. Bourbon reforms had started to open the province to commercial expansion while local governments began to play a larger role in land distribution. Juan Peña, planting his first crops along the Pecos River, believed the new settlements would prosper. The peace with the Comanches continued to hold, and the new republican government in Mexico promised to consider the province’s needs and desires more carefully than the distant Spanish Crown ever had. But although the Upper Pecos valley’s future may have appeared secure, it would continue to be a contested borderland in coming decades.

Chapter Four

The Expanding American Empire, 1821-1861

Helen Kozlowski dismounted from the wagon, tired and dusty, and surveyed the adobe house in front of her. Six thick posts buried in the ground supported the roof of a porch, but otherwise the structure was simple and plain. Inside, she found three rooms—enough space to house her family and also accommodate travelers passing by on the Santa Fe Trail, still an important trade route in 1858. Her husband, Martin Kozlowski, had recently retired from the army, purchased the ranch and hostelry from James Gray, and fetched his family from Missouri to their new home in the Upper Pecos valley.¹



Figure 3. The Kozlowskis' home as it appeared circa 1900. The man posing in foreground is possibly Martin Kozlowski. Source: Park Files—original negative at Colorado Historical Society, Negative No. F4548.

Helen probably had heard tales of New Mexico from the merchants who embarked on the Santa Fe Trail from Franklin or Independence, Missouri. But Pecos must have appeared strange and foreign to Helen when she arrived. In Missouri most of her neighbors had been other Euro-Americans like Helen and her husband. Here, the majority of the settlers in the valley were Hispanos who had been citizens of Mexico just ten years before her arrival. The dry air, piñons, and cacti protruding from the ground seemed exotic to someone accustomed to the verdant, humid valleys of Missouri.

Although Pecos was an alien environment to Helen in many respects, there were comfortingly familiar elements as well. Many of the traders and travelers who passed by on the Santa Fe Trail and stopped at Helen's house were English-speaking American citizens. They brought items, such as clothing and newspapers, that allowed Helen to remain in touch with the cultural pulse of the United States. Soldiers also traveled along the Santa Fe Trail, going to and from posts in the region. Even if it took Helen awhile to feel at home in the Upper Pecos valley, to learn the shapes of the surrounding mesas and the names of her neighbors, the landscape itself reflected the growing connections to the United States. The wide, overlapping tracks of the Santa Fe Trail, worn into the trampled grass and dirt; the increasing numbers of private homes and ranches in the area; the growing commercial herds of sheep and cattle—all represented the

effects of a new cultural system entering the valley behind the footsteps of traders, immigrants, and soldiers.

Pecos, 1821-1861

When Mexico wrested its independence from Spain in 1821, New Mexico remained a borderland. Claimed by Mexico, the province still stood on the outskirts of the Comanche empire, and the Comanches continued to exert control over New Mexican inhabitants and resources. In the 1840s a new player entered the picture—the United States, full of expansionist ambitions. At Pecos, the competing desires of Comanches, Mexico, and the United States intersected, once again turning the valley into a place of conflict and change.

Like Spain before it, the Republic of Mexico failed to establish a strong presence in New Mexico. Mexican officials provided little military aid to the province and sent outsiders to act as governors, angering Hispanic inhabitants who desired greater autonomy. Mexican policies, however, did open New Mexico to foreign trade and settlement. Americans intent on trading with Mexico established the international trade route known as the Santa Fe Trail. Trade with the United States stimulated the New Mexican economy but also drew wealth and resources away from the province. Mexican officials tried to control the trade and other American ventures in the province, such as fur trapping, but lacked the power to enforce laws. Mexico also failed to maintain peace with the Comanches, and raiding once again devastated the northern and eastern provinces. Comanche assaults weakened the region and left it vulnerable when Colonel Stephen W. Kearney's Army of the West advanced, intent on taking over the land for the United States. The Mexican War, fought between the United States and Mexico from 1846 to 1848 after the American annexation of Texas, ended Mexico's claims to territory north of the Rio Grande. The 1848 Treaty of Guadalupe Hidalgo enclosed New Mexico—and Pecos—within the borders of the United States, whose leaders intended to strengthen the trade connections on the Santa Fe Trail and draw the region into the rapidly expanding nation.

Some immigrants from the United States, drawn by the opportunities offered by the Santa Fe Trail, had entered New Mexico before the Mexican War. Civilian immigration increased after the war, but the permanent presence of the United States army in forts along the trail had far greater implications for the region. The army's demand for supplies fueled growth in the local economy and expansion of livestock herds, agriculture, and the timber business. Soldiers, traders, immigrants like Martin and Helen Kozlowski—all of them came from a cultural system rooted in capitalism and an emphasis on private property. The privatization of land and the transition to capitalism in New Mexico had already begun in the late Spanish and Mexican period, but the arrival of the Americans intensified the process. During the early nineteenth century, the United States rapidly industrialized and extended its commercial ties around the globe. As New Mexicans found themselves incorporated into the United States, they also discovered a wealth of new markets eager to consume the resources New Mexico offered.

In the Pecos area the environment now reflected the effects of the transition to United States control. The Santa Fe Trail and new homesteads such as the Kozlowskis' appeared in the valley—physical manifestations of the deepening connections to the east. Other signs told a similar story—eroded, barren land filled with exotic weeds on either side of the Trail, created by the thousands of livestock traveling it each year. The increasing numbers of sheep and cattle owned by settlers in the valley, who now had ready markets for the animals, also denuded vegetation and caused erosion. Fur trappers hunted out the beaver in Glorieta Creek and the Pecos River. The increasing human population of the valley put pressure on other species, such

as mule deer and elk, through hunting. Ponderosa pine and fir for timber, piñon and juniper for firewood—all succumbed to axes as people extended the cleared areas around settlements in their search for wood.

The quest to prosper—or at least survive—in the Pecos valley engendered conflicts as people fought for control of the timber, grazing lands, and cultivated fields. Hispanic settlers and the last Pecos Indians struggled for possession of land. Immigrants like Martin Kozlowski, although subject to local land ownership patterns, also imported ideas of private property quite distinct from Hispanic conceptions of communal land grants. By the eve of the Civil War, the Pecos landscape once again reflected the presence of a sizeable human population, but one that utilized resources and land in a different way than the Pecos Pueblo residents centuries before.

“Consider the Extent of the Pain that We Suffer”: Pecos in the Mexican Republic

When Agustín de Iturbide led Mexico to declare its independence from Spain in 1821, New Mexicans cautiously embraced the new government. They did not want to appear too enthusiastic in case Spain managed to reassert control, and also harbored doubts over whether the Mexican government would be an improvement over the Spanish. As the weeks following independence stretched into months, some New Mexicans expressed hope for the future. Donaciano Vigil, a prominent New Mexican landowner, remembered that “we expected to enter a new era of happiness and this word, and the word ‘liberty,’ were those that were most used and most repeated in those days.”² However, it soon became apparent that, like Spain before them, Mexico would leave its northern frontier—New Mexico, Texas, and California—to fend for itself with only sporadic and limited aid from the central government. Some New Mexicans advocated provincial independence, culminating in a brief rebellion in 1837. Although the rebellion failed, New Mexicans continued to strive for greater autonomy.³

The destabilized Mexican government worsened the situation on the frontier. Under the First Federalist Republic, the Mexican Congress never managed to formulate a government for New Mexico, which struggled along using the ayuntamientos and diputaciones of the Spanish period. These governmental bodies tried to adjudicate over a confused situation where opponents could draw from both Spanish and Mexican laws to prove their case. When the Centralists gained power in Mexico in 1836, they imposed a territorial governor who had no experience with life on the northern frontier. Neither system satisfied the New Mexicans.⁴

Events in their northern provinces made it even harder for Mexican officials to assert control and gain the loyalty of their citizens. The Comanches remained the dominant power in the Southwest through the 1840s, and although Spain had maintained peace with the Comanches, the Mexican government did not. The gifts and money that had placated the Comanches ceased as Mexican officials were swept up in the internal disruption that followed the revolution. Even when conditions stabilized, the Mexican government remained impecunious and failed to renew the annually expected gifts. The Comanches swiftly returned to raiding.⁵ Comanche raiding drove off the original settlers of the Los Trigos grant near Pecos Pueblo. Although in 1821 there may have been some limited development along the river—summer shacks and gardens—by 1826 the Comanches had forced settlers Diego Padilla, Francisco Trujillo, and Bartólome Márquez off the land. No new settlers returned to the Los Trigos grant until 1842.⁶ Like the Spanish, the Mexican military failed to adequately protect the territory, and New Mexicans relied on their own militia, often supplemented with Indian allies.⁷

As Comanche and Mexican relations worsened, New Mexico pursued its own policies of peace. New Mexican officials managed to convince the Comanches that trading offered more

advantages than continued raiding. Often, New Mexicans kept the peace at the expense of other Mexicans. Because of their close ties to the Comanches, New Mexicans often received intelligence of raids the Comanches were planning into Chihuahua or other northern Mexican states. New Mexicans usually refrained from notifying Mexican officials of such raids and did nothing to stop the Comanches from pursuing their southern raiding expeditions.⁸

Although Mexico failed to protect its northern provinces, some of the regulations passed by the new government did meet with the approval of Hispanic New Mexicans. Even before independence, Spanish Mexico had begun restoring the Constitution of 1812, passed by the Spanish Cortes. The Constitution contained the provision to make all males Mexican citizens—including Pueblos—and also, through the local governmental bodies of ayuntamientos and diputaciones, to distribute the unused land of pueblos, called sobrantes.⁹ Citizenship did not improve the situation of the Pueblos, as they lost all the protections afforded them under the Spanish Crown in regards to their lands. The renewal of the 1812 Constitution and the revitalization of local governments in New Mexico opened the door for settlers in Pecos to begin requesting land in the ciénega and elsewhere along the Pecos River. Although Comanches drove off the settlers on the Los Trigos grant for a time, the settlers north of the Pecos grant remained and sought to increase their holdings. In February 1821, just before independence, a group of settlers petitioned Governor Melgares for the unused land of Pecos Pueblo in the ciénega, claiming that the few families who still lived in the pueblo did not need all the land. The petitioners argued that they would be able to cultivate the land, turning an economic liability into a profitable enterprise.¹⁰

The grant application was never carried through, but in his report the alcalde constitucional, Juan Rafael Ortiz, questioned not whether the residents of Pecos Pueblo owned the land but whether they needed the land. A new group of petitioners used the same tactic when they applied for a grant of the Pecos sobrantes in 1823. The Pecos resisted these attempts to seize pueblo lands, firmly stating that the land was theirs, and they needed it to raise irrigated crops. Probably reflecting years of intermarriage and social ties, the local government at San Miguel del Vado supported the Pecos. Vicente Villanueva, the alcalde mayor who had previously surveyed the Pecos Pueblo league to the benefit of the Pecos, determined that the Pecos did indeed own the land. Accepting this conclusion, the diputación denied the petitioners.¹¹

Undaunted by the ruling, many settlers began to move into the land around the ciénega through a variety of illegal means. Diego Padilla, one of the Los Trigos grantees, finagled a promise of farmland from the diputación secretary and supposedly bribed the Pecos with a few cattle. The Hispanic settlers quickly began improving the land. By 1826, “non-Indians had under cultivation 8,459 varas of land in Pecos, using almost five miles of new irrigation ditch.”¹² Others continued to apply for land grants. In 1825 the diputación granted more of the ciénega to Miguel Rivera, Domingo Fernández, Luis Benavidez, and a variety of co-applicants.¹³ More petitions followed, and soon the majority of the communal pueblo lands had been granted to Hispanic settlers.

The Pecos tried to reverse the continuing usurpation of their lands. In 1826 and 1829, they petitioned the governor directly, asking for the removal of the settlers. “Consider the extent of the pain that we suffer when we see ourselves violently despoiled of our lawful possessions,” the Pecos pleaded.¹⁴ The diputación had no right to allot a pueblo’s land, they claimed. The diputación waffled back and forth on the issue. No matter what the government ruled, no one forced the settlers to relinquish their claims. The settlers claimed that a Pecos sold them the rights to the ciénega in 1830. Although they still retained the legal rights to the rest of the grant,

the Pecos had lost the most valuable land along the Pecos River. The Pecos maintained that they suffered harassment from the settlers, preventing them from growing crops and herding livestock. The inability to support themselves also inhibited population growth, which would have strengthened the Pecos' claims to the *ciénega*. In 1838 the remaining Pecos chose to leave the pueblo and moved to Jemez Pueblo. According to local tradition in the Pecos village, the Hispanic settlers promised to continue observing the feast-day mass of *Nuestra Señora de los Ángeles de Porciúncula* (Our Lady of the Angels), the patron saint of the Pecos mission, at the mission church each year. Yet with the Pecos gone, the pueblo and church on the *mesilla* began slowly crumbling, the natural effects of wind and rain hastened by settlers scavenging the structures for usable timber and stone.¹⁵

The Hispanic settlers who replaced the Pecos eagerly cultivated and ranched the lands in the area—the most intense land use since the seventeenth century. The majority of the settlers lived in the area around the *ciénega*, in what became the center of the village of Pecos. Some scattered further down the river. Archaeological evidence records the presence of five homesteads along the Pecos River within current park boundaries, which settlers established at various times in the nineteenth century. The homestead farthest south directly along the river (PECO 540, Figure 4) may represent the return of the Los Trigos settlers in 1842, as the earliest artifacts found at the site date to that time. Some surveys have suggested that the site can be connected to Diego Padilla, one of the Los Trigos grantees, but by the 1840s the original grantees had sold their titles to others. When the *alcalde mayor* of San Miguel placed the new settlers on the grant, they claimed that their land extended all the way to the Arroyo de Pecos (Glorieta Creek), a definite imposition on the Pecos Pueblo grant.¹⁶

A second homestead stood slightly to the southwest and farther away from the Pecos River (PECO 367). Deed records show that in 1839, Gregorio Calabaza, a Pecos, sold the land to José Mariano Ruíz. Although the Pecos had moved to Jemez, they had not forgotten their home or their interest in the land itself. Artifact dates begin around 1890, suggesting that Ruíz owned the land for fifty years before it was occupied, probably by a descendant.¹⁷ Another homestead (PECO 175) stood on land that probably belonged to Anicieto Rivera. Can dates found on this site ended by 1879, but glass and ceramic artifacts suggest a longer period of occupation. The Benigo Quintana homestead stood on land that Quintana bought from Martin Kozlowski near the junction of Glorieta Creek and the Pecos River (PECO 270). Quintana purchased the land in the 1850s, but occupation probably didn't begin until the 1870s. The remaining homestead was not settled until the 1890s. Settlers may have seized the opportunity to purchase land even if they did not have the resources to immediately occupy it, which would explain the gap between purchase and occupation for several of the homesteads.¹⁸

Hispanic settlers asserted their control over the land by both physically occupying it and also connecting their new home to their culture and religion. Just as the Franciscan friars had built churches, said prayers, and planted wheat in New Mexico in order to incorporate the landscape into the Spanish culture, Hispanic settlers also found ways to turn New Mexico into a homeland. The process began when the first settlers arrived in the seventeenth century and accelerated in the late eighteenth and nineteenth centuries as more *Hispanos* migrated to northern New Mexico. Like the Pueblos, *Hispanos* found religious meaning in specific landforms and places. A legend developed about the *Sangre de Cristo* Mountains, for example. In the story, a young Spanish man dedicated his life to God after his lover died, and he sailed for the Americas to help convert Indians. Upon reaching New Mexico, Indians attacked his party. The young man was mortally wounded, and as he lay dying he asked for a sign from God. The distant mountains

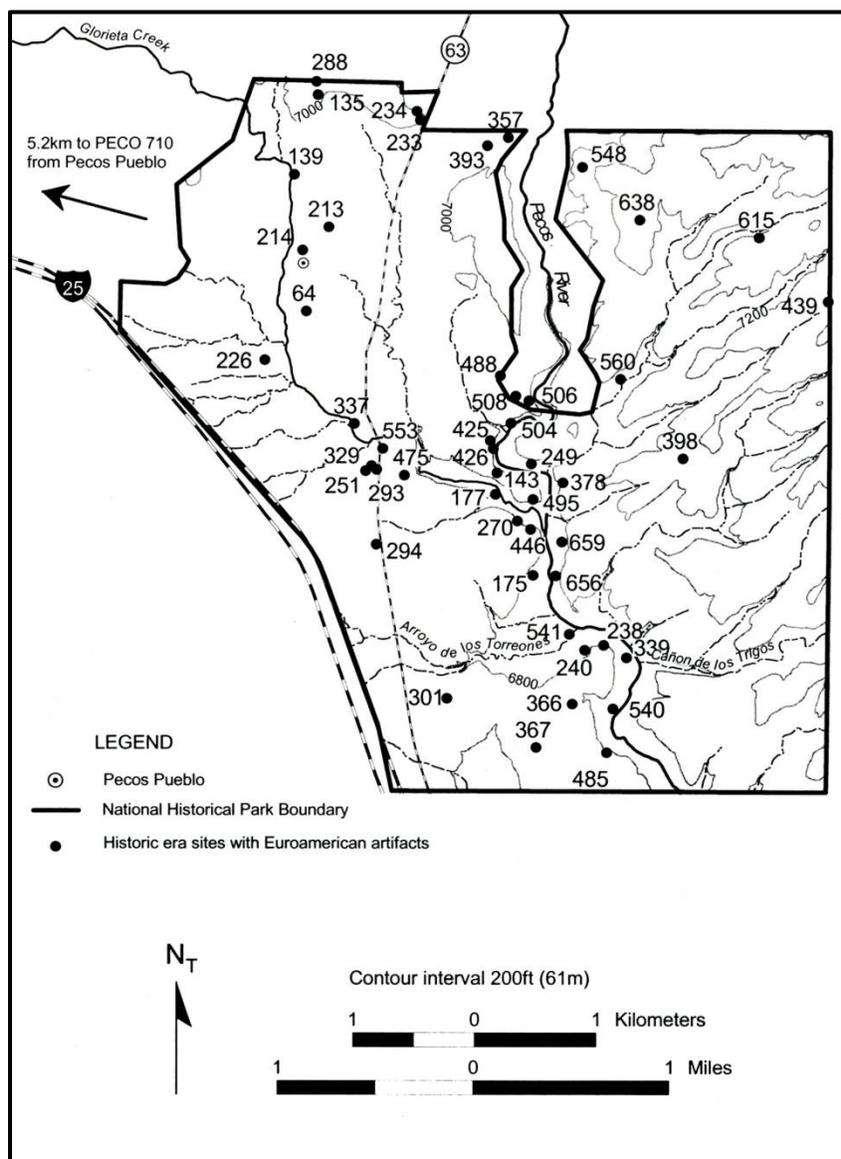


Figure 4. Sites with Euro-American artifact assemblages. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 2:368.)

turned gold and then crimson. The man cried out “Sangre de Cristo! Sangre de Cristo!” before dying. Hispanos also created many shrines in the New Mexican landscape where miracles had occurred, such as saints appearing to people and healing them. By imbuing the landscape with religious significance, Hispanos “created a new kind of indigenous identity.” New Mexico became their homeland, and they defined themselves as natives.¹⁹

If Mexican independence did not bring all the changes New Mexicans initially hoped for, it did offer local governments the opportunity to assert greater control over land distribution. The Hispanic settlers of Pecos seized the moment and took over the fertile lands along the Pecos River. Despite the protests of the Pecos, Mexican officials never tried to force the settlers off the land. By the time Helen Kozlowski arrived in the Pecos valley, numerous settlers lived along the

river, and the pueblo itself had been abandoned for twenty years. Although the Pecos did not forget their homeland, the Hispanic settlers now governed the uses of that land.

“The Sounds of Thousands of Animals’ Voices Was Mingled with the Tinkling of Many Bells”: Hispanic land use patterns

The nineteenth-century Hispanic settlers in the Upper Pecos valley carried out a distinctive set of subsistence practices on their land. For them, the environment was a place to be manipulated and controlled to produce a livelihood for themselves and their families. When an alcalde mayor formally granted settlers their land, “the alcalde took the grantee by the hand and walked him over the land, while the grantee plucked up grass, threw stones to signify his dominion over the land, and shouted ‘Long live the King!’” Under Mexican rule the President took the place of the monarch. Beginning their occupation in this way signaled the settlers’ right and intention to utilize the resources of their land.²⁰

The land use system employed by Hispanos had its roots in Spain and had evolved over the centuries. Ideas about communal land arose during Spain’s tribulations with the Moors. Communities on the border of Moorish land acted as outposts for colonization and thus the Crown allotted them land for farming and grazing, as well as water rights sufficient for their needs. The system also worked well in New Mexico where settlers needed access to limited resources spread over a large expanse of territory. Upon the settlement of a land grant, each settler received several separate pieces of land. The division of a land grant in Mexico, for example, awarded each family “a building lot (*solar de casa*, usually 50 square varas), a garden plot (*suerte*) and one or two *caballerías* of land for field crops (a *caballería* contained approximately 105 acres).” Each family also had access to the communal land that constituted the rest of the grant and allowed for grazing, firewood and timber harvesting, and other activities. During the planting season, animals were pastured away from the settlement. During the winter months the irrigated fields were opened to grazing. This practice also originated in Spain where it was called *derrota de mieses*, or stubble grazing.²¹

Individuals owned livestock herds, but the land for grazing those animals was shared communally. The community also cooperated to irrigate their agricultural fields. Acequias, or irrigation ditches, distributed water throughout the settlement. Together, the community cleaned and maintained the ditches every spring. Smaller ditches, called *sangrias* which means “veins,” led off from the main acequias to water individual fields. Watering occurred on a rotating basis, ensuring that all users received water, although small kitchen gardens could take water at any time. In a place with limited water, this system made the most of the resource for the benefit of the community.²² In the *ciénega* of the Pecos River, Hispanos probably refurbished and expanded irrigation ditches that had been created by the Pecos. “A long irrigation ditch, arising in the Allejandro Valle grant and then running along the north and northeast side of the river” was in use by 1826. Settlers also constructed a new ditch on the west side of the river.²³

Settlers quickly claimed irrigable land, such as the Pecos *ciénega*. They also began putting marginal lands into production just as the Pecos had done during the pueblo’s greatest population growth in the fifteenth century. Once the original settlers had claimed the best land in the valley, poorer families began to settle on the remainder, trying to wrest a living from the land. The homesteads around the Pecos Pueblo, if substantial farming was carried out, were probably of this type. Like the Pecos, the settlers depended on rain and probably employed many of the same techniques to utilize moisture to its fullest potential. Unlike the Pecos, who had the entire valley at their disposal, the Hispanic settlers who lived farther away from the river only

owned small plots of temporal land and thus had a poorer chance of bringing in a good crop. On larger farms, wheat and corn were the most common temporal crops, whereas irrigated land was reserved for hay and vegetables.²⁴

Well into the nineteenth century, the type of farming carried out by settlers remained primitive, scarcely changed from that of their ancestors. Tools, including plows, were often wood. Although traders on the Santa Fe Trail brought iron tools to New Mexico in greater numbers, many could not afford such luxuries. Only those with draft animals could utilize plows, and only the wealthy owned livestock in great numbers. Antonio Barreiro, a Mexican official serving as the legal advisor to the territories in the 1830s, and an advocate for the economic development of those territories, recorded that “in New Mexico, agriculture is completely neglected. The inhabitants of this country do not engage in large scale farming, from which they would doubtless derive much profit.” Even the communal grazing lands were usually used most extensively by the richest members of a community who owned large herds of sheep and cattle.²⁵

The consolidation of resources within the hands of a few became increasingly common during the early nineteenth century. A stratified society developed where the merchant and landowning class grew rich off the opportunities presented by the distribution of land grants and the Santa Fe Trail trade.²⁶ In 1836 the Mexican government instituted a provision requiring men to earn an annual income of at least 100 pesos to qualify for citizenship. In 1843 the amount was raised to 200 pesos.²⁷ Sheep ranching proved to be especially beneficial for a small number of Hispanos. Beginning in the 1700s, the *partido* system became common practice in New Mexico. Under this system, *partidarios* entered into three- to five-year contracts with owners of large herds. The owner gave ewes to the partidario, who gave annual payments of lambs and wool in return. At the end of the contract, the original number of ewes had to be returned to the owner.²⁸

The system put the risk on the partidario. Agustín Armijo, who lived in or near Pecos village, and another settler from Alameda entered into a contract in 1833 with Juan Estevan Pino, one of the wealthy landholders of the area. Armijo agreed to take care of around 1,100 ewes, paying twenty percent of the profits to Pino each year. “To guarantee that Pino would not lose a single hoof, the partidarios pledged not only their possessions, but their persons as well, so that default could easily lead to peonage.”²⁹ Many other settlers faced the same choices as Armijo, risking debt in an attempt to better their situation.

As the account of the partido contract shows, Pino’s sheep herds were quite large. Pino lived in Santa Fe but owned interests in several land grants in the area on which he pastured his livestock. By 1835 Pino and his two sons, Manuel Doroteo and Justo Pastor, owned nine hundred cattle and eighty thousand sheep. At first, Pino pastured these animals on another tract of land that he owned on the Juan Bautista Valdez grant in northeastern New Mexico. However, after 1837 his livestock on that grant became the favored target of Indian, perhaps Comanche, raids. Pino moved both herds to Pecos.³⁰ During the summer, herders may have pastured the animals in the higher mountains, but the animals also grazed close to villages. Lieutenant J. W. Aberts, on a reconnaissance for the U.S. army in 1846 “found no pasture around the village of San Miguel and was forced to buy feed for his livestock.”³¹ Baldwin Mollhausen, acting as topographer on an army expedition to chart a wagon road through the Southwest in 1852, left a description of a herd of sheep near Anton Chico pastured about twelve miles from the village and numbering around 5,000 to 6,000. Mollhausen recorded that:

The closely cropped grass now told us, almost as plainly as the sight of the flocks and herds at a distance that we were approaching a settlement... The air seemed filled with a

confused murmur, that became louder as we advanced and the sounds of thousands of animals [sic] voices was mingled with the tinkling of many bells from an enormous flock grazing in the valley.³²

Pino probably moved his herds throughout the Pecos area, but in the winter most of the animals returned to Pino's land by the Pecos River, taking advantage of the custom that allowed for grazing on stubble fields. Other wealthy ranchers in Pecos followed the same practice. As in most Hispanic settlements, lots in Pecos consisted of long, vertical fields stretching down to the river. During the summer fences enclosed the lots, but they were removed after harvest to allow for livestock passage.³³

Pino was one of several large landowners in the area. Donaciano Vigil owned a substantial ranch on the east side of the river. The Valencia family received a section of land to the south of Vigil in the 1825 grant partitioning and built a ranch house around 1850. Manuel Varela was also a prominent landowner. These families planted some corn and vegetables, but hay for their substantial livestock herds constituted the primary crop.³⁴ Although the acequia system utilized water resources effectively, ranching practices were not gentle on the land. Allowing cows and sheep to graze fields in the winter gave the land no respite. The large herds probably wandered throughout the area, including further downriver.³⁵ Grazing reduced both the extent of ground cover and the height of grasses, which in turn reduced the ground's ability to retain water. Flooding became more severe and erosion increased. If the introduction of sheep and cattle had occurred independently of human influence, available forage, water, and predation would have stabilized their number. Humans continued to keep livestock herds at artificially high levels; indeed, cattle and sheep numbers increased through the nineteenth century. Even when erosion did begin, vegetation often remained for a time, encouraging people to keep putting livestock on overgrazed land.³⁶ As historian David Hornbeck says, the system of land use was "based on satisfying current needs."³⁷ To prosper in New Mexico, people had to make use of every available resource. The addition of large livestock herds, however, taxed the long-term viability of those resources.

Martin and Helen Kozlowski readily adopted local practices when they arrived in Pecos. Although Martin did not own large herds of cattle or sheep, he certainly allowed the animals he did own to wander freely, grazing on the communal lands surrounding the valley. He did not own any land by the Pecos River, but may have built a small acequia to utilize water from Glorieta Creek. Helen doubtless gathered piñon nuts each fall with her neighbors. The Kozlowskis also adopted Hispanic ideas of land ownership, which centered on use and occupation as opposed to legal title. Martin did not have a legal claim to his ranch property, but he built on it and farmed on it, which was enough for his neighbors, many of whom rested their own claims to land ownership on the same principles.

"This Intrepid Little Band...Realized a Very Handsome Profit": The Santa Fe Trail

New Mexicans had long resented the restrictive commercial policies that Spanish officials forced on them. In 1821 the Mexican government lifted the restrictions and opened the province to foreign trade.³⁸ American traders, who already had cultivated contacts with the Comanches, immediately took advantage of the new situation. In November 1821, William Becknell and four others arrived in Santa Fe with a load of goods from Missouri. Josiah Gregg, who later traded and traveled on the Trail, recorded that "this intrepid little band...notwithstanding the trifling amount of merchandise they were possessed of, realized a

very handsome profit.”³⁹ The arrival of Becknell’s party officially opened the Santa Fe Trail.⁴⁰ The Trail not only served as a passageway for consumer items but also encouraged other people to come to New Mexico. American settlers arrived—willing to become Mexican citizens if it allowed them to profit off the growing trade and start their own farms and ranches. Fur trappers also arrived in New Mexico seeking beaver pelts. Although the influx of traders, trappers, and settlers did bring benefits to the province, the newcomers also had no qualms about pursuing their fortunes at the expense of New Mexicans.

Becknell returned to Missouri with Mexican money and reports of the rich trade opportunities. Hundreds of merchants followed his example, carrying American manufactured items to eager customers. The limited New Mexican population could only buy so much, and soon traders hurried through Santa Fe on their way further south. The American trade offered both opportunities and dangers to the Mexican government. On the one hand, it brought needed items and stimulated growth as well as maintaining friendly relations between Mexico and a potentially belligerent neighbor. However, the Mexican government could do little to actually control the trade, particularly in the territories. American merchants expected substantial sums of money in return for their goods but created few economic opportunities for Mexican citizens. As historian David Weber comments, Mexico faced the classic problem of developing countries—how to manage foreign trade for the benefit, not the detriment, of its people.⁴¹

In the end, Mexico failed to solve the problem. It became more and more dependent upon American manufactured items. In America the economy was expanding rapidly in this period, but in New Mexico people remained in a subsistence economy based on agriculture and ranching. No manufacturing grew in the territory to replace what the Americans brought. In New Mexico the government often lacked the funds to pay the salaries of military or civilian officials. The government relied on the annual trade caravans and tariff payments to ward off bankruptcy.⁴² Even then, American merchants tried to avoid paying duties and began smuggling their goods through the mountains around Santa Fe.⁴³

All travelers on the Trail passed through the Pecos area. Unlike in earlier times, Pecos Pueblo itself did not play a substantial role in the trade. The pueblo became a curiosity, a landmark on the Trail, and travelers concocted fantastical stories about its previous inhabitants. The pueblo and mission church still stood on the mesilla but began to crumble into ruin now that they were no longer occupied by the Pecos. Locals still made use of the pueblo and the land around it—one account from 1839 mentioned an old man who pastured a herd of goats at the pueblo and kept them in the crumbling church at night.⁴⁴ Although travelers might shelter for a night in the pueblo, far more preferable accommodations existed in San Miguel del Vado, and other entrepreneurs quickly realized the potential for profits. The people and animals traveling to Santa Fe needed places to stay and food to eat along the route. In or near the Pecos area, three establishments were built alongside the Trail offering lodging and meals for travelers.

The largest of the hostleries was known as Pigeon’s Ranch, owned and managed by Alexander Valle. Valle came to Pecos in 1851, when he purchased the Cañon de Pecos grant, to the north of the Pecos Pueblo league, from the heirs of Juan Estevan Pino, Manuel and Justo Pastor. Pino had acquired the grant from the original grantees in the 1820s.⁴⁵ Alexander Valle was a native of St. Louis and possessed both American and French ancestry. Alexander’s original last name was probably Valle, but when his mother married a man named Hyacinth Pigeon, Alexander adopted the name as well. Valle did not immediately settle on the grant land, instead starting a business on the Santa Fe Trail that soon became known as “Pigeon’s Ranch”

and acquired a favorable reputation. Valle did not own the land, but claimed it through use and occupation.⁴⁶

Located between the pueblo ruins and Glorieta Pass, Pigeon's Ranch stood a short distance from the Santa Fe Trail. The complex included numerous buildings and corrals. Merchants traveling to and from Santa Fe, army personnel, and other sundry visitors could find accommodations and food for themselves and their animals at the ranch. Valle himself owned stock, including a herd of sheep. In 1865 Comanches attacked the shepherds tending Valle's sheep twelve miles east of the ranch.⁴⁷ Valle continued his operation until 1865 when he sold the ranch to George Hebert and moved onto his Cañon de Pecos grant land.⁴⁸

In the 1850s, James Gray established a second hostelry, "Roseville," in close proximity to the Pecos ruins.⁴⁹ By 1858 Gray had sold the property to Martin Kozlowski. Kozlowski came to America in 1853 from Warsaw, Poland and served briefly with the United States cavalry in campaigns against Indians.⁵⁰ The hostelry property stood well within the Pecos Pueblo grant. Neither Gray or Kozlowski possessed legal title to the land. Gray simply chose a promising and apparently unoccupied location, as many settlers did, and Kozlowski purchased the ranch from Gray without obtaining a legal title. Kozlowski's was not a large operation—in the 1860 census he reported owning one horse, four oxen, and eight pigs. Kozlowski had fifty improved acres by the banks of Glorieta Creek from which he harvested around eighty bushels of corn annually.⁵¹

A third ranch/hostelry complex was located at the southern egress of Glorieta Pass. Anthony P. Johnson, also from St. Louis, bought the established ranch in 1858, probably from a Hispanic settler. Johnson's Ranch, as it was known, was modest in scale like Kozlowski's. Although Johnson sold the ranch in 1869, it continued to serve as a hostelry.⁵² Although neither Kozlowski nor Johnson owned many animals, their ranches hosted the large livestock herds that carried the substantial wagon caravans over the Santa Fe Trail. A trade caravan could include over two dozen freight wagons and hundreds of oxen and mules. The passage of these caravans had severe environmental consequences for the landscape on either side of the Trail. The livestock trampled and overgrazed vegetation, both the animals and wagons contributed to erosion, and many watercourses grew polluted and barren.⁵³ Wagoneers created overlapping sets of tracks on the Trail over the years. In the Pecos area, numerous remnants of Santa Fe Trail ruts occur from Kozlowski's to the far bank of Glorieta Creek west of the pueblo. Large numbers of livestock and the heavy travel on the Santa Fe Trail denuded vegetation around Pigeon's, Kozlowski's, and Johnson's ranches and increased erosion along creek beds, arroyos, and the Trail itself during the fifty years that it remained the primary travel and trade route through the area.

Other environmental effects followed the opening of the Santa Fe Trail. The Sangre de Cristo Mountains, directly to the north of Pecos, drew fur trappers to the region. The trappers hunted beavers, a keystone species that provides many benefits to riparian ecosystems. Their dams create wetlands, prolong stream flow, and check the power of floods. Beavers prefer certain tree species to make their dams, and by removing trees selectively they increase diversity along stream banks. Although Pueblos and Hispanos trapped and killed fur-bearing mammals with primitive traps, they never had access to markets that encouraged overexploitation of the animals. American trappers, connected to a ready market in the eastern United States and Europe where beaver hats were in fashion, made Taos their base of operations in the southern Rockies. In 1822 William Wolfskill and Ewing Young trapped beaver on the Upper Pecos River. Others followed, and soon fur trappers hunted throughout the Sangre de Cristos, efficiently killing beavers with newly invented steel traps. By 1825 the southern Sangres, including the Pecos

River, had been trapped out, and the beaver exterminated from the region. The sudden removal of beavers did not immediately erase their effects, as ponds only slowly revert back to forests, but over time the ecology of the Pecos River changed. Diversity decreased and as dams disintegrated, floods became increasingly hazardous to the human settlements along the river.⁵⁴

New Mexicans understood that the fur trade did little to benefit the local economy... The New Mexican government ordered trappers to obtain licenses and requested that foreign trappers hire local apprentices. Although too late to prevent extinction of beavers in the Sangres, in 1838 the government in Chihuahua ordered a six-year moratorium on the trapping of beaver and otter in the Rio Grande valley. New Mexicans were also concerned about the over-exploitation of other resources. In 1832 New Mexican officials “considered imposing a ‘prudent quota’ on use of wood and water by foreigners in the mountains above Santa Fe.” The New Mexicans may have recognized some of the environmental consequences of resource exploitation, and they certainly realized that their resources were being consumed to the advantage of foreigners.⁵⁵ These laws, however, had force on paper only—the Mexican government lacked officials in sufficient numbers to enforce them. Like the traders who avoided paying trade duties, it was an easy matter for fur trappers, who usually operated individually in New Mexico, to slip into the mountains, trap beavers, and quickly dispose of the furs in Santa Fe or Taos.⁵⁶ The fur trappers thus removed a crucial species from the streams of the Upper Pecos.

By the time the Kozlowskis arrived, the beaver were long gone and the Santa Fe Trail had been a route of trade and commerce for more than thirty years. It is reasonable to assume that when the Santa Fe Trail opened the settlers of the Pecos valley welcomed traders just as the Kozlowskis did decades later. Neglected by Mexico City, New Mexicans negotiated their own relationships with the various people who came to their province, whether Comanches or American fur trappers. Relations with the Americans were not always smooth, but denying them entrance to the province was never an option for the ranchers, farmers, and officials who sought to improve their situations and needed commercial outlets to do so.

“Under the ‘Star-spangled Banner’”: New Mexico becomes a United States Territory

New Mexicans’ pragmatic view of affairs allowed them to maintain their own separate peace with the Comanches even as Comanche and Mexican relations deteriorated. By the 1840s the Comanches were in severe trouble—many of their trade networks had been disrupted, and the bison herds, faced with intense competition for food, shelter, and water from the immense Comanche horse herds, were failing. As a result, the Comanches, concerned about the diminishing bison herds and unwilling to share the precious resource with others, forced the ciboleros from the plains. The Comanches also began raiding on an unprecedented scale in Texas and far south into Mexico.⁵⁷

Although New Mexico remained free from much of the violence, the renewed hostility of the Comanches had long term effects for the province. The threat of raiding discouraged settlement, a necessity if Mexico was to succeed in gaining a greater hold on its frontier.⁵⁸ Mexico recognized the importance of population growth in New Mexico and Texas and encouraged American settlers to come—with the understanding that they would become loyal citizens and comply with Mexican law, which included a prohibition against slavery. In Texas, which received the highest numbers of new immigrants, the policy backfired.⁵⁹ Internal rebellion flared, and Texas declared itself an independent republic in 1836. In 1845 the United States annexed Texas. Mexico refused to acknowledge the loss of its province and also refused to recognize the Rio Grande as the state’s new southern border. President James K. Polk, an ardent

expansionist, sent U.S. troops south to Texas to protect U.S. claims. Polk also hoped to force Mexico to sell New Mexico and California. When U.S. and Mexican troops skirmished along the Rio Grande, Polk asked Congress to declare war on Mexico.⁶⁰

Despite such tropes as Manifest Destiny, the belief that the United States was ordained to expand westward, Americans disagreed sharply about how that expansion should occur. The Whig Party, in particular, opposed both the annexation of Texas and the war with Mexico. They worried that territorial acquisition would raise the troubling question of slavery expansion. Many antislavery proponents in the northern states feared the addition of one slave state—and possibly more—to the Union, which would give the South additional power in the House and Senate. To overcome opposition, expansionists used a number of arguments, including the economic opportunities that awaited Americans in the substantial lands and resources of the West. Although many northerners continued to fear the spread of slavery westward, public support for war with Mexico was strong. Congress approved funding and troops, and in August of 1846, Stephen Watts Kearney arrived in New Mexico at the head of an army.⁶¹

To reach Santa Fe, Kearney's army passed through the Upper Pecos valley. Near the Pecos settlements, at the southern outlet of Glorieta Pass where the Santa Fe Trail emerged from a narrow defile, Governor Manuel Armijo initially prepared a force to contest the American invasion. The position was excellent—the New Mexicans had the high ground and would be firing down on the Americans as they emerged from the pass. For a moment, the Pecos landscape once again became a defensive one, imbued with latent violence. Yet at the last minute, Armijo ordered the troops to abandon their posts and surrendered Santa Fe to Kearney without a fight. James Magoffin, a prominent merchant, served as the American liaison in Santa Fe and may have bribed Armijo to let U.S. forces in unscathed. Whether this theory is correct or not, New Mexico possessed little loyalty to Mexico. Some New Mexicans did resist the American invasion, but New Mexico had long been oriented eastward. The Comanches had been the most important force in the region for decades, and New Mexico's ties to the U.S. had strengthened since 1821.⁶² Many New Mexicans might have preferred to form their own independent republic, but pragmatism won out once again.

As U.S. forces pushed further southward into Mexico, they proceeded practically unchallenged. The depredations of the Comanches had left much of northern Mexico abandoned and desolate. No one was there to resist. Although the war lasted another year and a half, Mexico finally surrendered. The Treaty of Guadalupe Hidalgo, signed in 1848, transferred Texas, New Mexico, and California to the United States for fifteen million dollars.⁶³ New Mexico now stood within the borders of the United States.

James Magoffin's brother, Samuel, also a merchant, traveled west in the vanguard of Kearney's army with his wife, Susan Shelby Magoffin, who kept a diary of the trip. Upon reaching Santa Fe she wrote, "I have entered the city in a year that will always be remembered by my countrymen; and under the 'Star-spangled banner' too." Magoffin spent a pleasant time in Santa Fe, visiting prestigious families and dining on local delicacies, including purple grapes, squashes, and a dish of boiled rice topped with hard-boiled eggs. Magoffin and other citizens of Santa Fe found their pursuits disturbed by the "everlasting noise these soldiers keep up—from early dawn till late at night they are blowing their trumpets, whooping like Indians, or making some unheard of sounds, *quite shocking to my delicate nerves.*"⁶⁴ The presence of the United States army had significant consequences for New Mexico—consequences far beyond fleeting disturbances of the public peace. After New Mexico became a United States territory, the army became a permanent presence in the region, protecting merchants and settlers from Comanches,

Apaches, and other Indians who contested American control. The army built a string of forts in New Mexico, including Fort Union, northeast of Pecos, and Fort Marcy, in Santa Fe.

The army required prodigious amounts of supplies—food for the soldiers, fodder for animals, timber for construction. At first, the army tried to transport needed items over the plains from Fort Leavenworth in Kansas—thousands of cattle arrived with Kearney in 1846, for example. But transport over the plains was expensive and time consuming. Almost immediately, the army began buying corn, wheat, sheep, and many other goods from local New Mexicans. New Mexicans were happy to sell what they could to the army, but they had never enjoyed such high demand for their products, and consequently, supplies ran short. Kearney arrived in Santa Fe in August and “by the end of October it was impossible to buy feed for cattle within fifty miles of Santa Fe.” Now that they had an expanded market, New Mexicans quickly began increasing their tilled acreage and livestock herds.⁶⁵

Although the army preferred to feed its troops beef, sheep were far more prolific and easy to acquire in New Mexico. Grudgingly, the army bought sheep and fed mutton to the soldiers. Soon cattle herds began increasing—many of them owned by American settlers who came to New Mexico in greater numbers after U.S. annexation. But sheep remained in demand. The California gold rush of 1848 brought gold seekers stampeding through New Mexico. The miners needed supplies both on the way and when they arrived. Some enterprising New Mexicans drove their herds to California and the mining camps. Sheep increased in New Mexico from around 377,000 in 1850 to roughly 830,000 in 1860. Cattle numbers grew from 33,000 to 89,000 in the same period. All of these livestock needed forage—as did the horses and mules owned by the army. The army established grazing camps, which “were maintained almost continuously in the Galisteo Valley and less frequently in the vicinity of San Miguel and Las Vegas.”⁶⁶

The army also encouraged local entrepreneurs to begin new businesses. No sawmills existed in New Mexico prior to the army’s arrival. Kearney immediately ordered the construction of one, which began production in 1847. Army demand also stimulated the growth of the flour milling industry. Wheat production rose from 197,000 bushels in 1850 to 434,000 bushels in 1860. The army also purchased large amounts of corn to feed its livestock—production increased from around 365,000 bushels in 1850 to 709,000 in 1860. The army often contracted with an individual who supplied them with agricultural products. The contractor usually purchased smaller amounts of corn, wheat, and other items from farmers in the area and consolidated the purchases into one shipment.⁶⁷ Alexander Valle, the operator of Pigeon’s Ranch, acted in this capacity. Valle may have cultivated fields himself, and many other farmers around Pecos were looking for a market as well.⁶⁸ In August 1862 Valle sold “6,000 pounds of corn and 11,072 pounds of fodder” to the army, paid for by Captain J. C. McFerran, Assistant Quartermaster. In December 1862 Valle “was paid for 15,496 pounds of corn and 29,015 pounds of fodder,” and in March of the following year the army bought “35,536 pounds of corn and . . . 50,477 pounds of fodder to be fed to the public animals.”⁶⁹ The market provided by the U.S. army afforded valuable opportunities to the inhabitants of the Pecos valley.

The army not only bought supplies from farmers and ranchers but also improved local infrastructure. The army needed to move between its forts quickly and easily. Congress provided \$32,000 in 1857 alone to improve roads in New Mexico. In the vicinity of Pecos village, Captain John N. Macomb of the Topographical Engineers widened the road (the Santa Fe Trail) from Santa Fe to Fort Union and reduced steep grades. Enjoying the benefits of improved roads, immigrants to New Mexico increased after 1848. Immigrants such as Kozlowski, Valle, and Johnson came to Pecos to profit off the Santa Fe Trail trade, but the safety and economic

Chapter Four, 1821-1861

opportunities afforded by the army also factored into their decision. New Mexico grew from a population of 61,547 in 1850 to 93,516 in 1860 (although the numbers did not accurately reflect the population of Pueblos). The Anglo population alone went from 1,600 to 6,300—3,100 of whom were in the military.⁷⁰

The growing village of Pecos and the farms and ranches in the vicinity were near Santa Fe, several army posts, and along the Santa Fe Trail—a location that allowed many to reap substantial profits. The 1860 census for San Miguel County, designated in 1852, showed that the majority of men in the county were farmers or farm laborers. The largest crop for most of the farmers was corn, although wheat was grown in a few areas. In the county, Anglo farms were almost always wealthier than Hispanic ones. Valle, for example, claimed 2,000 improved acres in the 1860 census, valued at \$6,000. The large landholders, such as Varela, Pino, Vigil, and Valle, also made free use of the land around Pecos to graze their substantial livestock herds.⁷¹

Lawyer and land grant expert G. Emlen Hall provides a description of the major landholders around Pecos in 1862:

By late 1862 Manuel Varela lived in West Pecos, near the first church, at the site of the present St. Anthony's on the Pecos. He resided just west of the ancient West Pecos acequia, in a large, fortress-like house built around an open quadrangle... Just to the north of his house he would have seen Juan Estevan Pino's church and the few, scattered houses of Hispano families that had left the hidden rincón area and moved with Manuel Varela into the open fields of west Pecos. To the east he would have been able to look across the irrigated fields and the river and see scattered shacks and the more substantial structures of Donaciano Vigil, to the north, and the Valencia family, to the south. South along the river, there would have been only open space. Kozlowski's ranch lay two miles away, across an intervening ridge.⁷²

A few other homesteads stood south and east of Kozlowski's, with Pigeon's Ranch a short way northwest on the Santa Fe Trail.

At the Kozlowskis' ranch and hostelry, Helen led a busy life. She cooked meals for guests and washed clothes and made beds for those who spent the night. Her duties attached to her husband's business came in addition to her family responsibilities—caring for her children, sewing and mending, cleaning. The Kozlowskis eventually had six children and two, Juana and Carlos, bore names that Helen may never have heard before coming to Pecos.⁷³ The fact that they chose the names suggests that Helen and Martin had integrated into the local Hispanic culture to some extent. Their Polish and Irish background probably meant that the Kozlowskis were also Catholic, which would have helped them fit into the culture of the Pecos valley. Yet the 1860 census results, revealing that Anglo farms were usually the most prosperous, demonstrate how American culture, rooted in capitalism and private property, was becoming a stronger force in the Pecos valley.

Pecos already reflected the influence of the United States when Helen Kozlowski arrived there in 1858. The U.S. army had been there for over ten years, and the Santa Fe Trail in existence for over thirty. The wagon ruts engraved on the soil represented the growing incorporation into the United States market economy as much as the disappearance of beaver from the Pecos River. After New Mexico became a U.S. territory in 1848, the effects of those connections intensified. The Pecos environment reflected the growing human and livestock population that resulted from the strengthening commercial and cultural ties to the expanding

Crossroads of Change

United States. Erosion and heavily grazed areas increased around settlements and alongside the Santa Fe Trail. River banks on Glorieta Creek and the Pecos River suffered as well. People needed timber for firewood and construction and so cleared areas became increasingly extensive around settlements.

Through the 1860s, Pecos remained overwhelmingly Hispanic, and land use continued to incorporate both communal and individual ownership. Much of the land in the valley was still considered a communal resource—open to everyone’s livestock, available for all to cut timber and gather piñon nuts on. The inhabitants also owned individual plots of land—Martin Kozlowski, Manuel Varela, and Alexander Valle all possessed their own fields and homes. The Hispanic and Anglo inhabitants of Pecos in the 1860s had succeeded in taking over control of the land from the last residents of Pecos Pueblo. For the moment, their own control went unchallenged. But the future of the Pecos valley was not assured. Americans believed strongly in private property—property that had been surveyed and properly claimed. Hispanic land ownership, which rested on use and occupancy far more than legal niceties, might not meet such standards. Use of the resources of the Pecos valley—particularly timber and grass—depended on control of that land. The intensified resource use due to the presence of the U.S. army and the commercial appetite of eastern states and Western Europe foreshadowed intensified local disputes over land ownership. First, though, Pecos became embroiled in a national conflict over control of the new western territories.

Chapter Five

Contesting the Future of the West, 1861-1880

Alfred Brown Peticolas crossed the lower Pecos River in west Texas in mid-November of 1861 along with the other members of Company C, Fourth Regiment of Texas Mounted Volunteers. He was heading northward with the advance units of a Confederate invasion of New Mexico commanded by Brigadier General Henry Hopkins Sibley. Peticolas possessed a horse, sufficient food, and optimism—he would lose all three in the coming months. Peticolas never splashed through the Pecos River by Kozlowski's ranch or gazed curiously on the ruins of Pecos Pueblo. He did become intimately acquainted with Pigeon's Ranch and Johnson's Ranch during a two day battle at the end of March 1862, but Union forces halted the Confederate advance, and Peticolas began a long, weary retreat back to Texas.¹

Peticolas kept a journal recording the events of Sibley's invasion and also commented on the new people and environments he encountered. Peticolas grew up in Virginia, but had lived in Victoria, Texas, since 1859. He was accustomed to an arid, sparsely vegetated environment, but the mountainous areas of northern New Mexico both intrigued and discomfited him. As his company approached Santa Fe and Glorieta Pass in late March, Peticolas recorded that "the mountain scenery in places is picturesque and interesting, but an air of desolate lonesomeness reigns over the whole country." The cold, snowy weather he encountered did not improve Peticolas's impressions of the New Mexican high country. On March 13, for example, Peticolas awoke to find his bed "covered an inch deep in snow," with more falling. "It was amusing to see the men as they woke and looked around with bewildered expressions, raking snow out of their hats and shoes," Peticolas wrote, "but it was not very pleasant."²

In his diary, Peticolas did not explain why he joined Sibley's Brigade or his feelings on secession and slavery. Yet as a Confederate soldier, Peticolas represented a power that desired to extend slavery through control of the new western territories. Peticolas marched through the snow and mud in order to bring New Mexico under Confederate control. At the same time, Union forces marched southward, determined to keep New Mexico under Federal dominion. Once again, Pecos became contested land. The two forces encountered each other in the Pecos valley and fought for the power to determine the future of the territory. The Union victory at Glorieta Pass ensured that the land and resources of New Mexico would remain under federal control. Peticolas never returned to the Upper Pecos valley, but his actions, and those of the men who fought with and against him, bequeathed lasting consequences to the Pecos environment.

Pecos, 1860-1880

The annexation of Texas in 1845 and the acquisition of the New Mexico, California, and Oregon territories from Mexico and Britain a few years later instigated an increasingly bitter dispute over whether or not slavery would be allowed to expand into the United States' new possessions. Whereas prior disputes over the political and social future of America divided along party lines, the conflict over the western territories became sectional. The "Free-Soilers" predominantly lived in the northern states, but many had migrated westward to nascent states, such as Illinois. Represented by northern Whigs and Democrats and, after 1854, the Republican Party, the Free-Soilers shared a cultural system centered on private ownership of land and a man's ability to improve his situation through hard work and the accumulation of capital, a belief

rooted in the Jeffersonian philosophy that small farmers preserved the virtue of the American republic. Southern whites, however, championed a cultural system that depended on the accumulation of wealth through the ownership of slaves and control of their labor. Represented by the Democratic Party after the Whigs collapsed, advocates of slavery also lived in many of the new western states, such as Texas and Missouri. Each ideology created a unique landscape. Slavery existed primarily in agrarian landscapes, in particular cotton agriculture. The free labor ideology of the Republicans idealized small farms, but also created urban and industrial landscapes. Although this explanation oversimplifies the division between the physical manifestation of the two cultural systems, there were distinct differences in how each thought of land and resources and altered their environments.³

The Pecos valley, with its landscape of small farms and ranches and distinct Hispanic heritage, appears far removed from a cotton plantation in Virginia or a textile mill in Massachusetts. It seems even farther apart from the acrimonious debates over slavery between men such as Stephen Douglas, Jefferson Davis, and others in the halls of Congress. Yet New Mexico and the other western territories stood at the center of the debate. Each side believed that obtaining control of the territories was crucial for success. As historian Mark Fiege explains, “The side that dominated and defined space . . . was the side that would prevail.” Achieving uncontested control of territory like New Mexico carried ramifications for the entire nation. Union victory ensured that their vision of land and resource development triumphed. After the Civil War, the federal government extended its power westwards with the intent of spreading free labor ideology, which carried with it many environmental effects.⁴

Some of those effects already had reached Pecos—the growing herds of livestock and increased settlement stemming from new connections to markets. The U.S. government also had begun the process of surveying the new territories. After surveying the land and dividing it into neat parcels within a rational grid system, the government could easily sell the land to private individuals and tax them as property owners. Several surveyors already had measured the Pecos area, but after the Civil War, the true effects of those surveys on the land and its inhabitants began to emerge. The irregular boundaries of Spanish land grants disintegrated as the geometric squares of Anglos superseded them. Surveys paved the way for future settlement and for railroads, which would alter Pecos even more. The free labor ideology of Republicans also left little room for New Mexico’s Hispanic and Pueblo inhabitants. Although New Mexico possessed the required population to request statehood, many officials stereotyped its people as “Mexican”—a term that carried racist connotations—and unfit to govern themselves. Thus, New Mexico did not achieve statehood until 1912. With their political power threatened, Hispanos faced losing control of their lands. In Pecos, even as Hispanos profited from the livestock trade and the environment began to suffer from overgrazing, the triumph of the Union and its free labor ideology presaged an even greater change on the horizon. The growing Anglo dominance of land in the area, achieved through surveys and legal control, opened the door to a new economy and intensified land use championed by an industrializing nation.⁵

Alfred Peticolas probably held his own opinions about land control. Perhaps as he tramped through New Mexico, he pictured a future when the landscape of adobe homes gave way to the landscape he remembered from his youth in Virginia or even the Anglo town of Victoria in Texas. Broader concerns about the ultimate effect of the war and debates over politics and society quickly became of secondary importance to battle and survival for Peticolas and the other soldiers—both Union and Confederate. The environment of Pecos took on a more immediate reality. Would there be snow? How cold would it be? Would that tree or rock provide

enough cover from bullets? These questions consumed Peticolas and the other soldiers. For the permanent residents of the Pecos area, the presence of the soldiers also upset their familiar landscape. Helen Kozlowski talked to and perhaps nursed the Union soldiers camped around her family's ranch. Alexander Valle's hostelry was commandeered as a hospital and later became a defensive position for the Union. For a brief time, cannon fire and the crackle of rifles resounded from the mesas and canyons near Pecos. The Civil War had long term consequences for Pecos, but also affected the valley's residents personally and violently.

“Within the Pale of the United States, I Claim that All is Freedom”: Debates over slavery

In 1848 Alfred Peticolas was a ten-year-old school boy in Petersburg, Virginia. The Mexican War had just ended, and Peticolas probably found the tales of battles and adventure reported by the newspapers quite thrilling. Not all Americans supported the Mexican War, however. Many Whigs, in particular, opposed war and expansion. They feared the consequences of territorial acquisition, especially because it brought the question of slavery to the forefront of political debate. The Louisiana Purchase had raised the question of slavery expansion once before. Although it had been settled through the Missouri Compromise of 1820, which allowed slavery below the 36° 30' line and prohibited slavery above it, the Mexican War revived the problem. When Senator David Wilmot, a Pennsylvanian Free-Soiler, attached a proviso prohibiting slavery in any territory acquired from Mexico to a bill authorizing funds for the war, the question flared into heated and bitter debate. Antislavery Whigs charged that the entire war had been a ploy by slaveholders to extend their institution westwards. Southern Whigs retorted that under Constitutional protections of property, slaveholders had the right to take their slaves wherever they desired. Meanwhile, Democrats also began to split along sectional lines—those who supported free territories versus those who wanted slavery extended.⁶

Proponents of slavery supported the institution through a variety of arguments. They pointed to the impoverished wage workers in the North as proof that a system of free labor was in fact worse for whites than living in a slaveholding society. Southern Democrats and Whigs, as historian Michael Morrison states their viewpoint, argued that slavery “ensured liberty by making exploitation of white workers and independent agriculturists unnecessary.” Despite the gross differences in wealth, many non-slaveholding southern whites accepted the system as well. In a society steeped in racism, slavery gave power even to the poorest white Southerners based on legally enforced racial superiority. Southern Whigs and Democrats turned to the Constitution to support their argument of absolute state sovereignty—arguing that the federal government did not have the power to prohibit slavery in existing states or future ones. They also found inspiration in the American Revolution, seeing it as a struggle by a minority against an oppressor; a struggle they were now repeating.⁷

Antislavery Whigs and Free-Soil Democrats also looked to the Constitution and the country's revolutionary heritage for guidance. They argued that the Revolution centered on ideas of freedom and that freedom should be extended westwards. Free-Soil Democrats advocated a strictly constructionist view of the Constitution, which held that Congress did not have the power to extend slavery to territories that were already free (Mexico had prohibited slavery, including in its northern territories). Whigs, meanwhile, argued that Congress did have the power to restrict slavery and that it should. Both antislavery Whigs and Free-Soil Democrats viewed slavery as an unmitigated evil. Slavery “retarded the progress of the nation, degraded white workers, and contravened the fundamental republican principles of liberty and equality.”⁸ Allowing slavery to enter the territories was unthinkable.

Although both sides used political and ideological rhetoric to support their positions, at the most fundamental level they disagreed about the control of resources and land. Human labor was the primary resource at the center of that debate. As historian James Huston argues, “Southern secession grew out of the irreconcilability of two regimes of property rights: one in the South that recognized property in humans and one in the North that did not.” Despite moral protestation and ideological differences, slavery had brought substantial economic rewards to the country as a whole—in 1860, the market value of the slave population in the United States was \$3 billion, while the combined value of manufacturing and railroads was only \$2 billion. In economic terms, the legal system considered slaves property, but in reality they were human beings who possessed the will to resist enslavement. The continued wealth and prosperity of slaveholders thus rested on their ability to retain power, granted through governmental authority, to coerce slaves to submit to bondage. The support of southern state governments for the institution of slavery was never in doubt, but the support of the federal government was.⁹

The institution of slavery depressed wages for free laborers because slave-owners forced their slaves to work for nothing. As railroad and canal networks grew in the early 1800s, many northerners began to fear the effect that slavery would have on the northern wage labor economy. How could white workers compete with slaves? There was nothing to prevent the South from developing manufacturing industries, utilizing slave labor, and out-competing northern interests. Antislavery Whigs and Free-Soil Democrats argued that if the United States allowed slavery in the territories, it would discourage free white men from emigrating west. The free labor ideology held that through acquiring private property and working hard, white males could achieve prosperity—yet their route to advancement would be blocked if slaveholders won control of western lands. Slaveholders sought to control western territory through a cultural system that rested on intensive agrarianism and coerced human labor. Free-Soilers desired to transform western environments through private property ownership and unfettered resource exploitation.¹⁰

Senator Stephen Douglas managed to patch together a compromise over the Mexican situation that briefly halted the growing sectional discord. The Compromise of 1850 admitted California to the union as a free state, mandated that the federal government would not become involved over the slavery debate in New Mexico and Utah, and tried to evade future disputes over slavery by turning any appeals on the question over to the Supreme Court. The Compromise was a temporary measure. The question of slavery expansion quickly arose once again in conjunction with the pending statehood of Kansas and Nebraska in 1854. Stephen Douglas championed the idea of popular sovereignty—allowing the white male citizens of new states to decide for themselves if they would exclude slavery or not. The limits of the idea became apparent as slaveholders from Missouri temporarily flooded into Kansas to vote on a pro-slavery constitution, and anti-slavery adherents set up a rival government. As the Whig Party collapsed under the strain, a new party, the Republicans, formed. The Republicans were unabashedly sectional and against slavery expansion. Benjamin Wade, a Republican Congressman from Ohio, proudly proclaimed that his party’s ideals reflected the true spirit of the Constitution and that “within the pale of the United States, I claim that all is freedom.”¹¹

Although far from the increasingly violent fighting in Kansas, New Mexico was also affected by the debate over slavery expansion. In 1849, before the Kansas and Nebraska imbroglio, New Mexicans had met to develop a state constitution. The constitution prohibited slavery in the state, but Congress never ratified the document or recognized New Mexico as a state. To placate proponents of slavery, the Compromise of 1850 kept New Mexico as a territory and erased the territory’s former free status that it had possessed under Mexico. The

Compromise left the slavery question open. Too, Congress doubted the ability of New Mexico's predominantly Hispanic inhabitants to govern themselves. Despite the rhetoric of Free-Soilers, their ideology was still based on the belief that self-government was reserved for white male citizens. Although it might not permit slavery, it did not guarantee equality for Hispanics, blacks, Indians, and other ethnic groups.¹²

By the 1850s, Hispanics and Pueblos were familiar with the racial stereotypes and discrimination employed by Anglos. Although economic ties between New Mexico and the United States had formed long before New Mexico became a U.S. territory, by 1860 New Mexicans had been U.S. citizens for only twelve years. Most New Mexicans, with the exception of recent Anglo immigrants, possessed few strong feelings of loyalty to the Union. Further south along the Rio Grande valley, southern sympathies increased, but in northern New Mexico little support for the Confederacy or Union existed among Hispanics. Northern New Mexicans did, however, share a dislike of Texans. Texas had launched a failed takeover attempt in 1841 that left bitter memories among the populace. When southern states began to secede in December of 1860, following the election of Republican Abraham Lincoln, northern New Mexicans showed no interest in joining them, especially when the closest embodiments of that cause were Texans.¹³

“New Mexico is Literally Opposed to Us, and Will Have to Be Coerced”: The Confederate invasion of New Mexico

Shortly after the Mexican War, the United States government had established a military presence in New Mexico. Fort Union along the Santa Fe Trail and Fort Craig along the Rio Grande, both built in the 1850s, were the primary posts in northern New Mexico. Troops were stationed at Albuquerque and Santa Fe as well. Fort Bliss and Fort Fillmore stood farther to the south. When the Civil War began in March 1861, some Confederates considered the Union's tenuous presence in the West a golden opportunity to seize territory and supplies and prove their viability as an independent nation.

Lieutenant Colonel John R. Baylor seized the initiative and invaded southern New Mexican territory in the summer of 1861. Easily capturing Fort Fillmore, Baylor formed the Confederate Territory of Arizona, encompassing all of New Mexico below the 34th parallel. Baylor settled in at Fillmore, skirmishing with General Edward R. S. Canby at Fort Craig to the north. In a letter dated September 28, Baylor stated that his troops were barely enough to hold back the Federals, pleading that “until reinforcements arrive, I beg that my strength here may not be diminished, for obvious reasons. New Mexico is literally opposed to us, and will have to be coerced.”¹⁴ Baylor's letter indicated that extending Confederate control northwards would not be an easy task. Such cautions went unheeded by many, particularly Henry Hopkins Sibley, a former army officer, who proposed to Jefferson Davis a Confederate invasion of the rest of New Mexico. Privately, Sibley planned to capture the rich mines of Colorado for the Confederacy once the conquest of New Mexico was complete and perhaps even continue to the coast and take California and its ports.¹⁵

Alfred Peticolas was swept up in the enthusiasm that Baylor's and Sibley's plans engendered among Southern sympathizers. Peticolas and many other men in Victoria, Texas, volunteered in May 1861, forming a company they called the “Victoria Blues” (later renaming themselves the “Victoria Invincibles”). The Blues elected Peticolas as their Fifth Sergeant. After a few months of inactivity, the Blues joined the brigade Sibley was putting together to invade New Mexico. Now known as Company C, Fourth Regiment of Texas Mounted Volunteers,

Peticolas and his comrades prepared to embark from San Antonio for the long march to New Mexico—630 miles to Fort Bliss alone. The men felt optimistic, buoyed by the success of Baylor and expecting equally great things from Sibley.¹⁶

Their hopes were misplaced. Sibley's plans for New Mexico stood a slim chance of succeeding. Sibley thought that Union resistance in New Mexico would be easily overcome. When Sibley joined the troops he raised in Texas with the men already under Baylor's command, his invasion force totaled 2,500. 3,800 Federals awaited him at Fort Craig, bolstered by regiments of Colorado volunteers. The garrison at Fort Union prepared to march to Canby's aid if necessary and they, too, anticipated adding volunteers to their numbers. Defeating the Federals in battle would not be as easy as Sibley hoped.¹⁷

Sibley also assumed that many New Mexicans and Coloradoans would support the Confederacy. The enthusiastic response of Coloradoan miners who answered Canby's call for troops revealed the flaw in his reasoning. Confederate sympathies were stronger in southern New Mexico, closer to Texas cotton culture, but these diminished rapidly as one went north. Many New Mexicans also volunteered to fight with the Union. The recent Anglo-American immigrants were strong unionists, many of them coming west in expectations of fulfilling the "free labor, free men" promise of the North. Many Hispanos volunteered, too. Sibley failed to consider the history of animosity between Texans and New Mexicans. With a force comprised entirely of Texans, Sibley could expect no help in New Mexico.¹⁸

Sibley also failed to consider the implications of the New Mexican environment. His troops would have to travel hundreds of miles, much of it through a country devoid of easy sustenance. Upon reaching New Mexico, Sibley planned to subsist off captured Union supplies. This premise rested on the uncertain conclusion that he would defeat the Federal garrisons at Fort Craig and Fort Union. Indeed, when Sibley failed to overcome Union forces, his men resorted to the same tactics employed by the Spanish of Coronado and Oñate's invasions—they took food and shelter wherever and however they could get it. The timing of the invasion was poor as well. Sibley's troops arrived in northern New Mexico in early spring, a time of cold temperatures and snow, which must have been a rude shock to the majority of the Texas men. The Confederates also had to cope with the high altitude of northern New Mexico, including the Pecos valley. Possessing only a small store of supplies that diminished every day, the Confederates were not prepared to survive a long campaign.¹⁹

These factors, which ultimately brought Sibley to defeat, were not apparent when Peticolas and the other Texans began marching northwards up the Rio Grande in December 1862. By this time, Peticolas was riding a mule, having replaced his horse which had become exhausted on the long journey. He was still optimistic about the Confederates' chances. Sibley planned to attack Fort Craig, commanded by Colonel Canby. After a few skirmishes, Peticolas experienced his first pitched battle on February 21, 1862 when Federals and Confederates faced off at the Battle of Valverde. The Confederates succeeded in driving the Federals from the field. Peticolas's company captured a battery. "I thought that I had experienced a good many moments of exquisite pleasure," Peticolas remarked, "but never before have I felt such perfect happiness as I did when we took the battery from our enemy." Peticolas was not injured, but his mule was killed and several of his friends were killed or wounded. "I felt extremely sad today," Peticolas recorded the day after the battle as he wandered the field strewn with dead men and horses. "My feelings have undergone another change, another wave has come over me; the usual reaction, however, after any great excitement." Back in camp, "the whole talk... was about the fight, of course, and every man was recounting his individual exploits with great zest."²⁰

Yet although the Confederates had succeeded in the field, the Union troops did not abandon Fort Craig. Sibley decided to skirt Fort Craig and head north, choosing to leave a dangerous Federal force behind him. Sibley also was not able to replenish his supplies as he had expected. As the Confederates proceeded north, Union troops abandoned the supply depot at Albuquerque, burning much of the supplies before they left. Now on foot, Peticolas marched northwards, commenting that “afoot and without bread, the regiment is more depressed than it has been for months, but they are willing to live on beef, poor as it is, to accomplish our object.” Sibley stopped in Albuquerque and sent a force under Major Charles L. Pyron ahead to take Santa Fe. Pyron’s troops arrived in Santa Fe on March 10 and once again found that the Federals had left.²¹

The Union was not simply fleeing before Sibley, however. Troops at Fort Union were preparing to meet the Confederate invaders. Under the command of Colonel John P. Slough, who a short time before had been arguing the law in the courts of Denver, a combined force of volunteers and regular army troops left Fort Union and started south to meet the Confederates. The volunteers included men from both Colorado and New Mexico. Many Hispanos joined and Captain Rafael Chacon, who served in numerous military campaigns in the Southwest, led Companies I and K of the First Regiment New Mexican Foot Volunteers. A list of family names of New Mexico volunteers records several names common to the Pecos area, such as Vigil, Valencia, and Peña. If some men from Pecos did enlist at Fort Union, they quickly found themselves returning to the Pecos valley. Marching from Fort Union, the Federals arrived at Bernal Springs on March 24, where the Santa Fe Trail turned westward to Glorieta Pass and Pecos. Slough sent an advance guard ahead under Major John Chivington, a Colorado volunteer. Chivington reached Kozlowski’s ranch on March 25. The same reasons that had made Kozlowski’s an excellent stopping place on the Santa Fe Trail—a spring of fresh water, corrals, plenty of grass and wood—made it a perfect camp for Chivington’s men. Commandeering Kozlowski’s as their headquarters, the entire Federal force encamped there when they arrived, and the location became known as Camp Lewis after Captain William H. Lewis, who was commanding a detachment of regulars. John Miller, a volunteer from Pueblo, Colorado, wrote a letter to his father describing the terrain he had just marched through. “The face of the country is very rough and rocky and covered with stunted pines and cedars. What soil there is, is very light and easily washed, and consequently full of deep washed ravines and gullies.”²²

Meanwhile, the Confederates had heard of Slough’s advance. Major Pyron’s troops, reinforced with another four companies from Sibley, left Santa Fe. Arriving at Glorieta Pass on March 25, the Confederates chose another of the Santa Fe Trail hostelries for their camp, settling down at Johnson’s Ranch in Apache Canyon at the southern end of Glorieta Pass. Johnson and his family had fled the area, probably heading north towards Las Vegas and Fort Union, along with many other Santa Fe residents. The weather was cold and snowy. One of the Confederates, William Lott Davidson, recalled spending a chilly night at Johnson’s Ranch. Davidson later wrote that “the weather was so cold and our covering so light that we could not sleep much at night.”²³

The accounts of soldiers such as Davidson or Miller, whether written at the time in letters, diaries, or reports, or written many years later as reminiscences, provide some of the best evidence for what the environment around Glorieta Pass and Pecos was like in the 1860s. The landscape around Johnson’s Ranch looked considerably different in 1862 than it does today. The Santa Fe Trail and a road extending north from Galisteo were the only substantial transportation routes in the area and followed the natural contours of the land. Johnson may have cultivated

some fields, and other Hispanic settlers may have had homesteads in the vicinity. The northeast corners of the Cañada de los Alamos grant, awarded in the late 1700s, and the Bishop John Lamy grant, awarded in 1820, met near Johnson's Ranch. By the mid-1800s, a few settlers may have been in the vicinity, although Johnson had probably claimed the land in Apache Canyon.

The Santa Fe Trail branched at the summit of Glorieta Pass, with one branch looping northward and the other crossing directly across the foot of Glorieta Mesa. The two branches rejoined at Galisteo Creek.²⁴ The Trail then continued along Apache Canyon, paralleling Galisteo Creek, until the Trail exited the canyon where Apache Creek joined Galisteo Creek. A wooden bridge allowed the Santa Fe Trail to cross Galisteo Creek.²⁵ Further down, the Trail crossed Apache Creek flowing down from the north, also by a short wooden bridge. In 1846, following Kearny's army, Lieutenant J. W. Abert had visited New Mexico on a reconnaissance mission. Abert left a description of what he termed "Armijo's cañon," named for the aborted defense attempt Mexican soldiers had made at Glorieta Pass as the American army advanced in 1846. Abert passed through in September and wrote that "here we found plenty of cool water." He followed the course of a stream, a "tributary of 'Rio de Galisteo.'" Both Galisteo Creek and Apache Creek ran through arroyos, but the arroyos were probably not as deeply eroded as they are today. Heavy grazing later in the nineteenth century, natural erosion, and road building activities in the area increased the depth of both creek beds over time.²⁶ Johnson and perhaps others were grazing livestock in the area by the time of the Civil War but not in large numbers. This landscape, familiar to Johnson, Kozlowski, and other Pecos residents, was abruptly and violently disrupted by the sudden arrival of Union and Confederate troops.

"Our Boys Were All Anxious for a Fight": The Apache Canyon battle

On the night of March 25 neither the Confederates, camped at Johnson's Ranch, nor the Federals at Kozlowski's knew that they were within eleven miles of each other. They did not remain ignorant for long. Both commanders—Pyron and Chivington—sent out pickets to scout ahead. John Miller was one of the scouts and recalled arriving at Pigeon's Ranch early in the morning of the twenty-sixth. "Here we searched the premises," Miller remembered, "and after old Pigeon found out who we were, after we told him we were Pike's Peakers or Colorado boys, he fairly danced, he was so delighted." Pigeon informed the Federals that four Texans had been at his ranch the night before. Now aware that their enemy was close at hand, Miller and the other scouts set forth more cautiously. Suddenly, they came upon the four Texan scouts who mistook them for fellow Confederates. Miller recalled that "they asked us if we came to relieve them. . . . Our lieutenant told them yes, we came to relieve you of your arms." The Confederates surrendered and Miller helped bring them back to Chivington at Kozlowski's ranch. Chivington's forces immediately set out for the enemy camp, following the Santa Fe Trail. He passed Pigeon's Ranch and entered Apache Canyon.²⁷

Despite—or perhaps because of—the failure of his scouts to report back, Major Pyron's forces also started off along the Santa Fe Trail, heading for the Union troops he knew were somewhere ahead. Just past noon, in the winding corridor of Apache Canyon, the two forces met. "Our boys were all anxious for a fight," Miller remembered.²⁸ The following battle, which lasted several hours, involved a series of retreats and holding actions by the Confederates. The Texans had two 6-pounders, whereas Chivington had no supporting artillery. In the first skirmish, however, the Confederate artillery moved forward of the main force with only a small contingent. Quickly realizing the untenable nature of their position, the Texans retreated and

formed another line with the rest of their comrades further down the canyon. Major Chivington's Coloradoans advanced cautiously.

The terrain of Apache Canyon both constricted the troops and offered opportunities. One Texan later described the canyon as "a rugged pass between the mountains. Thermopylae was nothing compared to its steep cliffs of rocks with cedar brush on each side of the road. Cliffs were so steep that a man had to get down and crawl up them."²⁹ Some Federal troops did manage to scramble up the canyon walls and fire down on the flanks of the enemy. The narrowness of the defile prevented either side from spreading out into a horizontal line of battle. Facing fire on their flanks and in front, the Texans retreated once more. After a false start, Chivington organized a cavalry charge. The cavalry attacked the Texans from the front while others once more went up the canyon sides to engage the enemy. Confusion and disorder reigned among the Confederates. Many fled down the canyon to their camp at Johnson's Ranch, where defensive lines were being set up at the egress of the canyon. The Union troops took forty to fifty Texans prisoner—a substantial victory. By then it was around five o'clock and Chivington, worried about meeting a larger enemy force further ahead, chose to withdraw. Each side had suffered about the same number of killed and wounded—five Coloradoans dead and fourteen wounded, four Confederates dead and twenty wounded.

Pyron had sent word back to the reinforcements marching northwards under Lieutenant William R. Scurry, alerting them of the battle and telling them to hurry. Peticolas and Company C were among the reinforcements. Peticolas recorded that "every man marched bravely along and did not complain at the length of the road, the coldness of the weather, or the necessity of the compelled march." Arriving at Johnson's Ranch late at night, he found that a makeshift hospital had been set up to care for the wounded from the Apache Canyon fight. Peticolas sought shelter in one of the ranch buildings. He and a friend "slept together on the floor with no bedding, and only a few articles of women's wearing apparel which we found scattered around the house" to provide a modicum of warmth.³⁰

Chivington, meanwhile, retired first to Pigeon's Ranch, where he left his most critically wounded men, and then back to Kozlowski's. The next day, March 27, the nervous Confederates fully expected another attack. They fortified their position at Johnson's ranch and waited anxiously through the long day. No attack materialized, however. Chivington had chosen to wait at Kozlowski's for the rest of the troops under Colonel Slough. Slough arrived on the morning of March 28 and immediately made plans to move forward and attack the Confederates again. Scurry, who had relieved Major Pyron of the Confederate command, became impatient and decided to advance as well. Once again, both sides were headed towards a confrontation.

"The Firing Now Became Very Brisk on Both Sides": The battle at Pigeon's Ranch

Alfred Peticolas, John Miller, William Davidson, and the many other soldiers on both sides awoke on the twenty-eighth prepared for a fight. Colonel Slough did not intend, however, to simply proceed down the Santa Fe Trail and hope that when he encountered the Confederates, his side would prevail, as Chivington had done two days before. Now that he knew the general territory, Slough decided on a more complicated plan and sent Chivington's command up the slopes of Glorieta Mesa on a road that led to the small village of Galisteo. Slough instructed Chivington to swing around and hit the Texans on the flank while his command engaged them in a frontal assault. The maneuver, which sounded feasible, was in reality difficult to execute, particularly in heavily wooded, unfamiliar terrain. Chivington never did connect with Slough, although that proved advantageous for the Union cause. While Chivington and his men headed

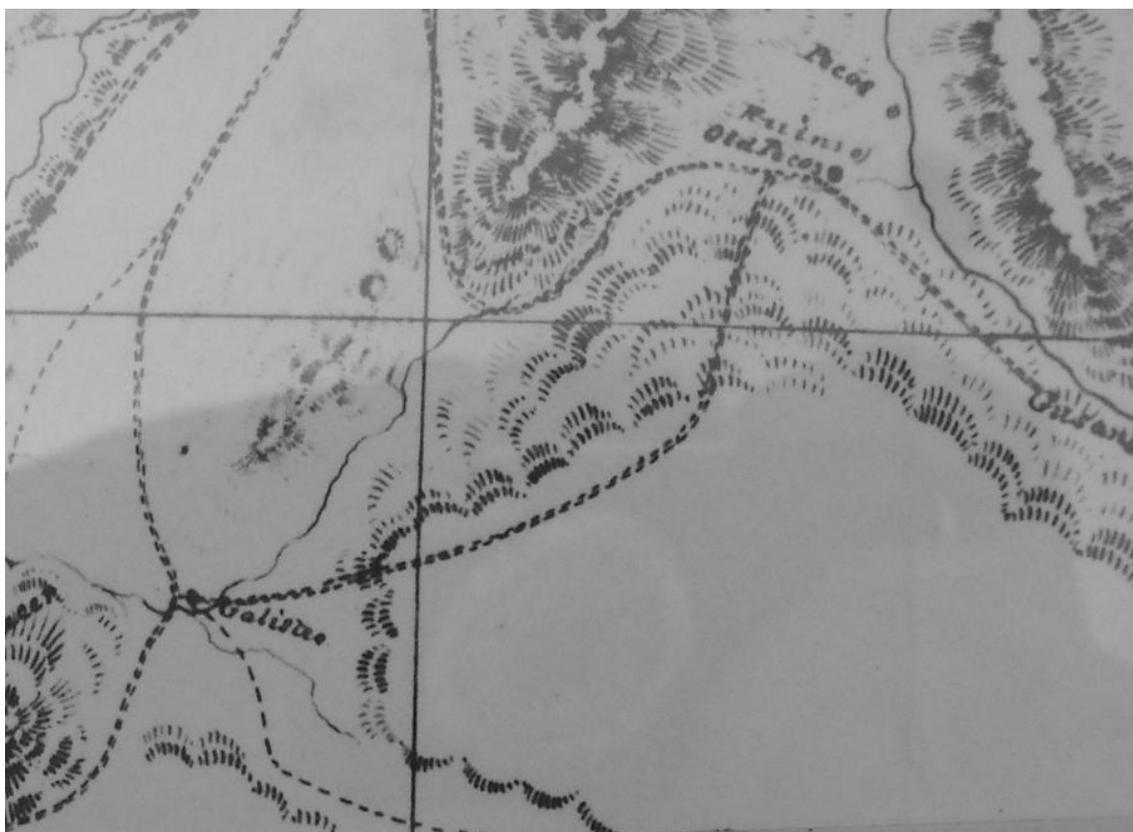


Figure 5. Section of 1850 map showing road over Glorieta Mesa to Galisteo. Source: “Map of a Military Reconnaissance of the Rio Pecos, 1850” Box M-3-13, Collection 1982-033, Albert H. Schroeder Papers, New Mexico State Archives, Santa Fe, NM.

up Glorieta Mesa, Slough continued to Pigeon’s Ranch where he discovered his pickets eating breakfast. Sent forth once more, the scouts had gone only a short distance before they met Scurry’s pickets.

The following battle repeated the previous day’s events in reverse. This time the Union formed successive lines of defense, dropping back under the determined advance of the Confederates. Two hills west of Pigeon’s Ranch, which became known as Windmill Hill and Artillery Hill, offered attractive positions for artillery. A rocky ridge leading northwest of the ranch, although too steep for cannon to easily surmount, served as a roost for sharpshooters. These hills were heavily wooded. One soldier recalled that “we were fighting down a canyon, gullies running across it, and heavy timber thick on each side of the road.”³¹ Another Confederate soldier remembered that “the country was so rough, the pine and cedar so thick, that the companies and men all got mixed up before we had been fighting very long.... We could not see anything in the world to shoot at, but Scurry must have seen them.”³² Numerous buildings at Pigeon’s Ranch itself offered additional cover for troops. Besides the main ranch building, which could house thirty to forty people a night, stables, granaries, corrals, and outhouses also stood on the property.³³

As the Santa Fe Trail proceeded onward from Pigeon’s it passed through an area of cleared fields. Historian Don Alberts determined that “open fields surrounding Windmill Hill on the south, east, and north, had been cultivated and were surrounded by fences.”³⁴ These fences were constructed in the Hispanic “coyote fence” style of vertical juniper poles closely tied

together.³⁵ The cultivated field belonged to Alexander Valle. Photos from the 1880s show a similar landscape with open fields to the north and west of Pigeon's Ranch, although it is unclear if they were still cultivated. Heavy grazing and travel had denuded the landscape immediately around the ranch and Glorieta Creek. An 1859 map called Glorieta Creek "Cottonwood Creek," and 1880s photos of the ranch show several large cottonwoods growing around the buildings. Other riparian vegetation appears scarce. The scene probably looked similar in the 1860s.³⁶

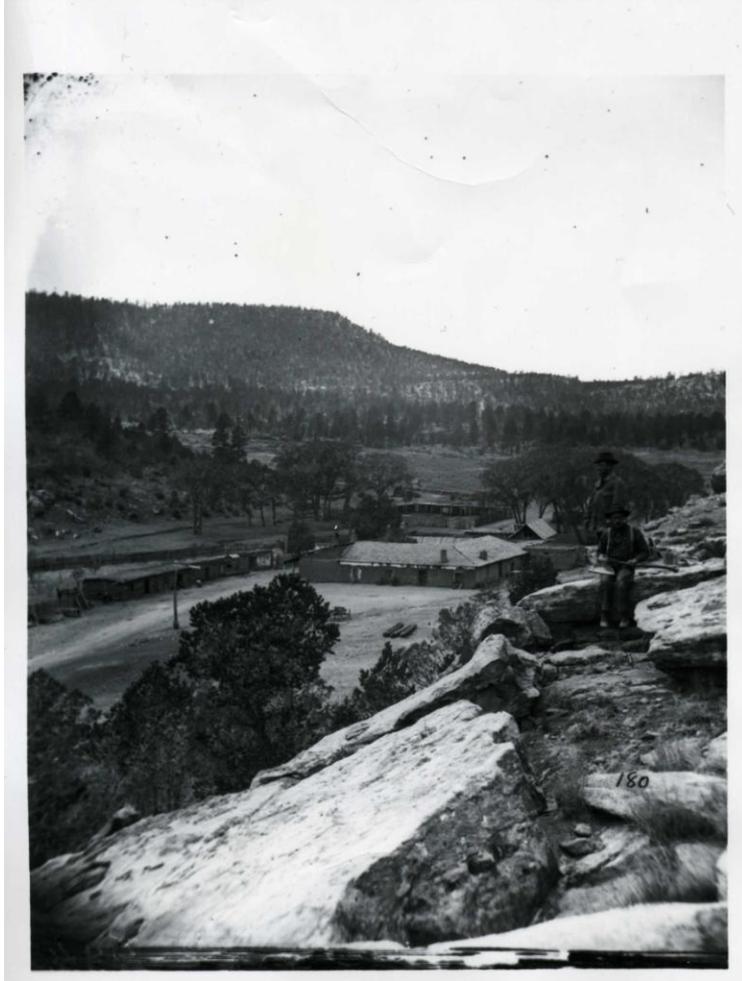


Figure 6. Pigeon's Ranch, June 1880, looking north from Sharpshooter's Ridge. Photo by Ben Wittick. Note the barren banks of Glorieta Creek on the left and the large open field to the north of the ranch complex. Source: Park Files, original negative at Museum of New Mexico, Negative No. 15782.



Figure 7. Pigeon's Ranch, circa late 1800s, looking northeast. Note the open fields leading up to the ranch and Sharpshooter's Ridge. Source: Park Files, original negative at Colorado Historical Society, Negative No. F34, 223.

The Santa Fe Trail and fields in front of Pigeon's Ranch provided a stretch of open terrain for the main Texan force to charge across. The fences around the fields obstructed the Union artillery trying to move into position at the base of the hill, but provided cover for the Texans as they advanced. Sergeant Peticolas recalled "as usual, Co. C was directly in the rear of the cannon. On our right was an old field fenced in with pine poles. To this field a good many of us repaired when the firing grew hot."³⁷ The initial lines held only briefly. In the second phase of the battle, the Federal forces repaired to Windmill Hill, with the artillery concentrated on the Santa Fe Trail. The Confederates attacked on all sides. "The firing now became very brisk," Union Captain Herbert M. Enos later reported.³⁸ With the absence of Chivington's men, Slough was outnumbered. As the danger of the Confederates flanking his men on Windmill Hill increased, Slough withdrew to Pigeon's Ranch. Here, a long adobe wall, which stretched from the ranch buildings across to the lower slopes of Artillery Hill, provided cover. The Union artillery took up position on Artillery Hill, following a logging road to the upper slopes. Other soldiers climbed the ridge to the northeast of the ranch, which quickly earned the sobriquet "Sharpshooter's Ridge."³⁹

Scurry charged the men at Pigeon's Ranch multiple times, but the line held. Confederate artillery fired down the Santa Fe Trail at the Federals. Once again, the Texans pressured the right and left flanks of the Federal line. Sergeant Peticolas wrote that his company "charged up a hill [Artillery Hill] with a wide seam of fair open ground to cross on, towards an enemy who were hidden and invisible and who waited patiently for us to approach to shoot us down." Peticolas wrote that "the undergrowth was thick," and he became separated from his comrades, wandering into the Union line by accident. The Federals mistook him for one of their own, however, and Peticolas returned to his lines safely.⁴⁰ The wooded terrain obscured everyone's vision, but Lieutenant Tappan, in charge of the Federal cannons, realized his position was untenable. When

Slough withdrew from Pigeon's Ranch after a concerted attack on his right and center, Tappan's men were left stranded. A precarious retreat succeeded, and the Federals regrouped further down the road. The final Federal position offered a rocky and wooded slope to the north, a position for the artillery in the center, and the ravine of Glorieta Creek on the left for shelter. Although the Texans attacked once more, by this time both sides were exhausted. After failing to break the Union line, the Confederates withdrew to Pigeon's Ranch.

There, Scurry received word of the disaster that had befallen the Confederate's camp in his absence. Wandering over Glorieta Mesa, unable to hear the ongoing fighting due to an acoustic shadow, Chivington appeared on the slopes above the Confederate camp. Scurry, who apparently believed the surrounding mesas more impregnable than they actually were, had left only a few soldiers behind with the wounded. Descending down the steep, seven-hundred-foot slope with ropes and halters, Chivington's force quickly overpowered the small Texan rearguard. As the afternoon wore on, and aware that Scurry's force could return at any time, Chivington ordered the wagons of supplies burned, and his men retreated back up Glorieta Mesa. He finally rejoined Slough at Kozlowski's, bringing word of his triumphant raid.

The battle of Glorieta Pass, although bloody and protracted, had brought victory to neither side. Scurry had taken a few miles of ground, advancing to Pigeon's Ranch, but Slough was not defeated. He could easily retreat back to Fort Union if necessary—an imposing obstacle for the Confederates, particularly with the Federal force at Fort Craig still waiting behind them. The destruction of Scurry's supplies tipped the balance in the Union's favor. Sibley had relied on obtaining supplies from captured Union forts or from New Mexican inhabitants. But Union troops had burned their supplies and the locals either fled, taking supplies with them, or possessed little themselves. Already suffering from low provisions, now Scurry's command had nothing. Although Slough did return to Fort Union, as his orders had been to harass the enemy and nothing more, Scurry could not follow.

The Confederates scavenged what they could from Pigeon's and Johnson's ranches. Both Valle and Johnson submitted claims after the war for damages sustained. Alexander Valle complained that he had suffered “wear, breakage and destruction of inclosures [sic], fences, walls, doors, gates, water tanks, cisterns or wells, timbers, furniture, clothing, relics, Jewelry, money, carriages, etc.,...”⁴¹ He also requested reimbursement for 31,000 pounds of shelled corn, 14,200 pounds of fodder and hay, and 120 dozen bundles of sheaf oats.⁴² Anthony Johnson requested reimbursement for “a stolen horse and two oxen, twenty bushels of corn, forty gallons of molasses, miscellaneous clothing, and one barrel of whiskey.”⁴³ At Johnson's Ranch, the Confederates killed and roasted some sheep they discovered. “We got mutton today for dinner,” Peticolas recorded, “a flock of sheep belonging to some one in the Canion.”⁴⁴ Cold and exhausted, the Confederates left Glorieta Pass on March 30 and walked back to Santa Fe.

Sibley and the Fifth Texas Regiment, which had remained behind with the general in Albuquerque, arrived in Santa Fe on April 3. Scarcely had Sibley arrived before he and the entire army were forced to return to Albuquerque. Colonel Canby had left Fort Craig and was proceeding northwards, intending to try and reoccupy Albuquerque, the Confederates' only remaining supply depot in northern New Mexico. Although Canby reached Albuquerque before Sibley, the few troops left in the town put up a stiff resistance, and Canby drew off, intending to rendezvous with reinforcements coming from Fort Union. These were the same Federal units who had just fought at Glorieta. After resting briefly at Fort Union, they were ordered southwards again, this time under the command of Colonel Gabriel R. Paul. They arrived at their old camp at Kozlowski's on April 9 but instead of proceeding down the Santa Fe Trail, they took

the cutoff road to Galisteo that Chivington had used to such great effect. Colonel Paul joined Colonel Canby, and they prepared to pursue the Confederates once more.⁴⁵

Sibley arrived in Albuquerque to find the town still in his possession. The provisions, though, would last little more than a week. Sibley had no choice but to retreat down the Rio Grande towards Mesilla, the southernmost supply depot. A brief battle occurred at Peralta when Paul and Canby caught up with the Confederates, but the Confederates escaped over the Rio Grande and hurried southwards. Canby let them go—he did not have the means to care for hundreds of prisoners; forcing the Texans to leave New Mexico was his primary goal. Arriving at Mesilla, Sibley learned that more Federal troops were marching eastward from southern California. Defeated, the Confederates turned back to Texas.⁴⁶

The six-hundred mile trip back to San Antonio was torturous for the men. This time they were on foot and traveling in June and July, the middle of summer. They no longer had thoughts of victory and triumph to accompany them. One soldier bitterly stated “It seems too bad that after enduring so much in [New Mexico] that we will be obliged to leave it—starved out—not run out. . . . It can never be said that the unfortunate result of this campaign was caused by any *failure* on the part of *the soldiers*.”⁴⁷ Peticolas reached the last page in his journal just before beginning the journey. He wrote that “as I approach the end of another volume of my journal, and find the wish that I had written on the last page of my 1st book (that before I finished this one the war would be over) so far from being realized. . . . I cannot suppress a feeling of profound sadness.”⁴⁸ Meanwhile, and far removed from Peticolas’s life once more, the residents of the Pecos valley slowly returned to their dwellings and routines, the trampled ground and the fresh graves vivid reminders of recent events.

“Certain Title to the Land Is the Foundation of All Values”: From land grants to private property

Alfred Peticolas continued to serve with the Confederate army for the remainder of the war, fighting in campaigns in Louisiana before becoming ill and returning to Texas to work with the Quartermaster Department in Houston. After the war, he returned to his law practice in Victoria, Texas and prospered as a successful lawyer and judge. Peticolas probably handled cases involving land claims and titles, a lucrative business for western lawyers. Had he returned to the Pecos valley, he would have found plenty of work. Disputes over land ownership troubled Pecos in the decades after the Civil War as the triumphant practitioners of the free labor ideology moved westwards and began to influence the environment of the valley.⁴⁹

The Confederacy’s defeat ensured that the economy of the north, which was becoming increasingly industrial and dependent on wage labor, would become the economy of the nation. As historian Richard White says, western migrants “left their old local worlds, but they did not leave the national world. They left behind local economies, but they did not leave the national economy.” Already, pockets of that economy were springing up in the West—the mining industries of the California gold rush, growing urban centers such as Chicago. After the Civil War, these economic endeavors, complete with the cultural system that accompanied them, flourished with support from the federal government.

Even during the Civil War, the federal government began opening western lands for development. In ten years, between 1862 and 1872, 125 million acres of land had been granted to railroad companies such as the Union Pacific. Soon, railroad tracks began inching closer and closer to New Mexico and Pecos. The federal government also opened lands to settlers. The

1862 Homestead Act provided 160 acres of western land to anyone who improved that land, with the option of purchasing the land cheaply if the settler desired.⁵⁰

In order to distribute lands to railroads and settlers, the government first needed to control that land. Although agreements with foreign nations, like the Louisiana Purchase or Treaty of Guadalupe Hidalgo, gave the United States the land on paper, such agreements did not grant control in actual reality. Many Indian tribes who lived in the western territories had taken no part in treaties and did not recognize federal authority. The Comanches, who had played such an important role in Pecos history, were one of these tribes. The Comanches tried to prevent New Mexican settlers—many of them American cattle and sheep ranchers—from expanding onto the eastern plains of New Mexico. Once the pressing demands of the Civil War ceased, the United States turned its attention to the west and the task of pacifying or removing the Comanches. One of the army's first targets was the comanchero trade that relied on stolen cattle from Texas. The trade disintegrated, removing one of the Comanches' means of obtaining needed supplies. By 1875 the Comanches had been overwhelmed by the United States and removed to the Fort Sill reservation in Oklahoma, leaving the plains—and the mountains and valleys of New Mexico—open to American migrants and railroads.⁵¹

In order to defeat the Comanches and exercise control over land distribution, the federal government needed information. The government financed a number of surveys and explorations following 1848 to investigate the topography and resources of the new western territories. Historian William Robbins argues that these expeditions “were less significant as disinterested exercises in scientific curiosity than as the means for providing real and practical information for an expanding American empire, for potential investors in western enterprise, and for those interested in the prospects for settlement.” Several surveys explored the west before the Civil War, but after, when the potential for development with federal support became certain, four other surveys charted the western territories. “Those last reconnaissance missions reflected the new requirements of the modern industrial state: the need for detailed information about the western landscape, its topography, and its mineral, timber, and water resources.” Through laissez-faire economics and subsidizing surveys and railroads, the federal government supported the exploitation of the western environment.⁵²

Quelling violent dissent and funding surveys were only the first steps in obtaining control of western lands. Land title also had to be proved legally, in accordance with decades of American land practices. After the Treaty of Guadalupe Hidalgo, signed in 1848, the U.S. government set about determining exactly what sorts of lands it had acquired, who owned them, and how they could be put into the hands of American citizens. In the negotiations over the treaty, Nicolas Trist, the U.S. ambassador, originally inserted an article that validated all land grants under U.S. law that had been valid under Mexican law. During ratification, Congress removed the article. As historian Malcolm Elbright described Congress's intent, “the United States looked at the treaty as an enormous real estate deal; it expected to get clear title to most of the land it was paying for regardless of the property rights of Mexicans.” Hispanic settlers who lived on land grants would have to prove their claims to the land in U.S. courts. For many Hispanos, who lacked any knowledge of the American legal system and often did not possess a clear paper trail proving their ownership, this was a heavy burden indeed.⁵³

Congress established the Office of the Surveyor General of New Mexico in 1854. The surveyor-general was charged with determining the validity of land claims. William Pelham, the first to hold the position, entered a confusing situation that only became more perplexing. Pelham, along with his miniscule staff, was expected to research and confirm the claims of all

those who came to his office to request recognition of their title to land. The process bogged down in the Spanish archives and legal wrangling over grant titles. In attempting to figure out the boundaries of land grants, Pelham confronted a system of surveying completely different from American practices. Basic ideas about land ownership also differed between the two cultures. Each cultural system approached the environment in a unique way and created distinctive landscapes. Anglos had no intention of adopting Hispanic practices. As the territorial government began adjudicating land claims, Hispanos lost more and more land to Anglos who controlled the government and legal systems.⁵⁴

When Pelham studied maps of Spanish land grants, he confronted irregular outlines that conformed to the available resources of the land and the needs of settlers. Spanish surveys usually recorded only the main boundary markers of a grant, leaving the rest of the grant vaguely defined. Ownership came through use and occupation as much as legal title, and in many grants, much of the land was communal. Americans practiced a different system of land control that centered on the concept of private property. As historian Andro Linklater says, "While most Western nations had land laws restricting individual property rights in favor of social needs, the United States had the opposite....To a degree unknown in the rest of the world, Americans were monarchs of their property." Anglo surveying methods used precise, standardized measurements and strove to create an orderly system of grids on the land. For example, when an American surveyor, John Garretson, surveyed the Pecos Pueblo grant in 1859, the result was a perfectly formed square plopped down upon the landscape without regard to any of the actual uses the Pecos had made of the land. Precise measurements allowed land to be treated as a commodity. It could be sold and traded by people who never set foot on the actual land itself because they owned a piece of paper giving the exact location and measurements of the property.⁵⁵

Although government officials usually deigned to grant Hispanos ownership of the small parcels of land that contained a home and irrigated fields, officials balked at recognizing the substantial tracts of communal land. Eventually, in the 1897 case *United States v. Sandoval*, the Supreme Court ruled that communal lands belonged to the U.S. government and thus could be made available for purchase. Often, the Anglos who acquired large land holdings in New Mexico were the very lawyers who had been hired by Hispanic settlers hoping to retain control of their land grants. The lawyers either received title to land as payment or were in the ideal position to quickly buy communal lands when the courts ruled against Hispanos. The settlers at Pecos, however, did not occupy a communal grant. Although the land surrounding the valley, which Pecos settlers used for grazing and timber cutting, passed into federal control, the Pecos Pueblo grant itself could not be dismissed so easily.⁵⁶

The Pecos, although they now lived in Jemez Pueblo, still thought of the Pecos valley as their homeland and felt they had been driven off the land involuntarily. They had certainly never received payment for the grant, and in the 1850s and 1860s, the Pecos sought to obtain a patent to the grant from the U.S. government so they could sell the land. Congress confirmed the Pecos grant in 1858, before the legal standing of Pueblo leagues and land grants had grown so confusing.⁵⁷ Recognition of the Pecos league as a valid land grant did not mean that the Pecos and their descendants possessed clear title to the land, could demand the land back, or sell the land themselves. Previous legislation prohibited the distribution or sale of Indian land except under a treaty, and Congress became mired in debates over the question of whether or not the Pueblos could be called "Indian tribes." John M. Slough, the leader of the Federal troops at Glorieta who later became a territorial judge, issued a decision in 1867. Slough ruled that

because the Pueblos were “civilized,” they could not be called “Indian tribes” and thus the Hispanic and Anglo settlers who had taken their land had done so legally.⁵⁸

Pueblo Indian agents protested the Supreme Court decision. In 1873 the commissioner of Indian affairs ordered Thomas B. Catron, U.S. attorney in Santa Fe, to bring suit against settlers who had encroached on Pueblo lands. For reasons that remain obscure, Catron chose the Pecos Pueblo grant as his first test case and filed suit against Martin Kozlowski. The case made its way to the Supreme Court, although by that time Kozlowski had been dropped and other defendants put in place. Now known as *United States v. Joseph*, the case resulted in a decision similar to John Slough’s several decades earlier. Like Slough, the Supreme Court ruled that the Pueblos were not tribes and thus the settlement of their lands by Hispanos and Anglos was legal. The Court did not consider whether the Pueblos were United States citizens or not.⁵⁹

Despite the fact that Congress still had not decided whether Pueblos possessed the authority to sell their own lands, the Pecos at Jemez, with the patent issued by the government in 1858, had been disposing of the land around their old pueblo. John N. Ward, who had served as an interpreter, clerk, and agent for the Office of Indian Affairs since 1850, had worked with the Pecos and knew about the valuable tracts of land in the Pecos valley. In 1868 Ward purchased a northern quarter of the Pecos Pueblo grant from the Pecos and also obtained the power of attorney to sell the rest of the grant. By 1872 the remaining portion of the grant became consolidated under the ownership of Frank Chapman, who purchased Ward’s quarter. Chapman, a Las Vegas merchant and land speculator, also bought the remaining 14,000 acres from the Pecos for \$4,000—Ward’s quarter cost Chapman significantly more. Chapman posted signs around the grant warning against trespassing, but the fact remained that the entire Pecos settlement as well as Kozlowski’s ranch were located on the land Chapman had just purchased.⁶⁰

Although Chapman did nothing to try and evict the settlers, his purchase of the land halted further expansion of the town of Pecos downriver. The precise survey of the Pecos grant and the creation of a paper title under the federal government allowed for the land to be sold and bought by people who might never have set foot in Pecos and certainly had no intention of actually living there. Despite the physical absence of men like Ward or Chapman, the absorption of Pecos into an Anglo system of land ownership changed the landscape. As G. Emlen Hall describes it, after Chapman purchased the land “the northern seven thousand acres of the Pecos Pueblo grant belonged to the Hispanos and the southern eleven thousand acres belonged to the succession of speculators who followed Frank Chapman.”⁶¹ Settlers like Donaciano Vigil or Martin Kozlowski possessed dubious claims to the land at best. Arriving at Pecos at a time when land control rested on use and occupancy, they could do little as surveyors, lawyers, and government officials divvied up the land in the valley with little or no regard as to how Pecos inhabitants actually used that land.

In 1890 the surveyor-general of New Mexico remarked, “Certain title to the land is the foundation of all values.”⁶² Alfred Peticolas would probably have agreed with him. Although Peticolas and his fellow Confederates failed to win control of New Mexico, they understood that control of the land afforded a society the power to decide what to do with that land. Under the American government, land control came through military prowess, scientific knowledge, and legal title. Before, during, and after the Civil War, the federal government worked diligently to exercise all three methods in the western territories. The government strove to gain control of the land so that the land could be passed to U.S. citizens and profitably developed—the foundation of the free labor ideology. Defeating the Confederacy gave proponents of that ideology the unquestioned authority to extend their cultural system to the west. At Pecos, the effects of the

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Civil War could be seen not only in the temporary displacement of residents as the Union and Confederate armies battled at Glorieta Pass, but in the surveys that measured the land in preparation for railroads and homesteaders and in the new borders that separated Hispanic residents from land controlled by wealthy Anglos or the federal government. With control of the land came control of its resources. As a triumphant federal government extended its power westward after the Civil War, it sanctioned the unfettered development of western resources. The effects of that development transformed the Pecos environment. Had Alfred Peticolas ever returned to the valley, he would have discovered a completely different landscape from the one he and his comrades crawled, ran, and fought over on those cold March days in 1862.

Introduction

¹ Frances Levine, *Our Prayers Are in This Place: Pecos Pueblo Identity Over the Centuries* (Albuquerque: University of New Mexico Press, 1999), 150. Hobe-wagi (also spelled Hobewagi) was the name of one of the last residents of Pecos Pueblo, who emigrated to Jemez Pueblo in 1838. She was also known as Rosa Vigil.

² John L. Kessell and Rick Hendricks, eds., *By Force of Arms: The Journals of Don Diego de Vargas, 1691-1693* (Albuquerque: University of New Mexico Press, 1992), 424-433.

³ Genevieve N. Head and Janet D. Orcutt, eds., *From Folsom to Fogelson: The Cultural Resources Inventory Survey of Pecos National Historical Park*, vol. 2 (N.p.: National Park Service, 2002), 403-404; A. F. Bandelier, *Historical Introduction to Studies Among the Sedentary Indians of New Mexico; Report on the Ruins of the Pueblo of Pecos* (Boston: A. Williams and Co., 1881; Millwood, NY: Kraus Reprint Co., 1976), 42. Citations are to the Kraus edition.

⁴ Genevieve N. Head and Janet D. Orcutt, eds., *From Folsom to Fogelson: The Cultural Resources Inventory Survey of Pecos National Historical Park*, vol. 1 (N.p.: National Park Service, 2002), 13-17.

⁵ Head and Orcutt, *From Folsom to Fogelson*, 13-17.

⁶ Carolyn Merchant, in *The Columbia Guide to American Environmental History* (New York: Columbia University Press, 2002), xiii-xvii, discusses how environmental history brings both nature and humans into the historical narrative.

⁷ William Cronon, "Modes of Prophecy and Production: Placing Nature in History," *The Journal of American History* 76, no. 4 (March 1990): 1122-1131; William Cronon, "The Uses of Environmental History," *Environmental History Review* 17, no. 3 (Autumn 1993): 1-22.

Chapter One

¹ David J. Weber, *The Spanish Frontier in North America* (New Haven: Yale University Press, 1992), 45-49.

² John L. Kessell, *Kiva, Cross, and Crown: The Pecos Indians and New Mexico, 1540-1840* (Albuquerque: University of New Mexico Press, 1987), 6-8.

³ George P. Hammond and Agapito Rey, eds., *Narratives of the Coronado Expedition, 1540-1542* (Albuquerque: University of New Mexico Press, 1940), 256-57, 289.

⁴ Hammond and Rey, *Narratives of the Coronado Expedition*, 258.

⁵ James F. Brooks, *Captives and Cousins: Slavery, Kinship, and Community in the Southwest Borderlands* (Chapel Hill: University of North Carolina Press, 2002), 26-29.

⁶ Quoted in Kessell, *Kiva, Cross, and Crown*, 29. Kessell questions the inclusion of cotton as little evidence exists to suggest that the Pecos grew cotton themselves. Note: a league is equal to approximately three miles.

⁷ George P. Hammond and Agapito Rey, eds., *The Rediscovery of New Mexico, 1580-1594: The Explorations of Chamuscado, Espejo, Castaño de Sosa, Morlete, and Leyva de Bonilla and Humaña* (Albuquerque: University of New Mexico Press, 1966), 278. A fanega equals approximately 2.6 bushels.

⁸ Head and Orcutt, *From Folsom to Fogelson*, 1:5-6.

⁹ Suzanne K. Fish, "Farming, Foraging, and Gender," in *Women and Men in the Prehispanic Southwest: Labor, Power, and Prestige*, ed. Patricia L. Crown (Santa Fe: School of American Research Press, 2000), 172.

¹⁰ Thomas Joseph Durkin III, "Prehispanic Land-Use Change in Pecos National Historical Park, New Mexico" (master's thesis, Washington State University, 1999), 17.

¹¹ William W. Dunmire and Gail D. Tierney, *Wild Plants of the Pueblo Province: Exploring Ancient and Enduring Uses* (Santa Fe: Museum of New Mexico Press, 1995), 21-23.

¹² Fish, "Farming, Foraging, and Gender," 175-176.

¹³ Debra L. Martin, "Bodies and Lives: Biological Indicators of Health Differentials and Division of Labor by Sex," in Crown, *Women and Men in the Prehispanic Southwest*, 271.

¹⁴ Kurt Frederick Anschuetz, "Not Waiting for the Rain: Integrated Systems of Water Management by Pre-Columbian Pueblo Farmers in North-Central New Mexico" (PhD diss., University of Michigan, 1998), 115.

¹⁵ Anschuetz, "Not Waiting for the Rain," 137, 159; Dunmire and Tierney, *Wild Plants of the Pueblo Province*, 27-28.

¹⁶ Anschuetz, "Not Waiting for the Rain," 90, 137-144.

¹⁷ *Ibid.*, 140, 167-172, 149.

¹⁸ Head and Orcutt, *From Folsom to Fogelson*, 1:123.

¹⁹ *Ibid.*, 155.

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- ²⁰ Ibid., 196.
- ²¹ Ibid., 17.
- ²² Katherine A. Spielmann, *Interdependence in the Prehistoric Southwest: An Ecological Analysis of Plains-Pueblo Interaction* (New York: Garland, 1991), 109-111.
- ²³ Head and Orcutt, *From Folsom to Fogelson*, 1:165-166.
- ²⁴ Ibid., 16-17.
- ²⁵ Durkin, "Prehispanic Land-Use Change," 16-17.
- ²⁶ Head and Orcutt, *From Folsom to Fogelson*, 1:165-166.
- ²⁷ Martin R. Rose, Jeffrey S. Dean, and William J. Robinson, *The Past Climate of Arroyo Hondo New Mexico Reconstructed from Tree Rings* (Santa Fe: School of American Research Press, 1981), 93-100. See Appendix B for a detailed chronology of climate.
- ²⁸ Ibid., 16-17.
- ²⁹ Head and Orcutt, *From Folsom to Fogelson*, 1:6-8; see also Levine, *Our Prayers Are in This Place*, 6-10.
- ³⁰ Head and Orcutt, *From Folsom to Fogelson*, 1:221-36; Frances Levine and Anna LaBauve, "Frontera: A View of Demographic Change in the Upper Pecos Valley from Sacramental Records at Nuestra Señora de los Ángeles, Pecos Pueblo and San Miguel del Vado," report prepared for Pecos National Historical Park, Pecos, New Mexico, 1994, file on copy, Pecos National Historical Park archives (hereafter, PNHP), 10-12.
- ³¹ Spielmann, *Interdependence in the Prehistoric Southwest*, 104.
- ³² Head and Orcutt, *From Folsom to Fogelson*, 1:229-235.
- ³³ Ibid., 225.
- ³⁴ Alfred Vincent Kidder, *Pecos, New Mexico: Archaeological Notes*, (Andover, MA: Phillips Academy, Robert S. Peabody Foundation for Archaeology, 1958), 133-136; Head and Orcutt, *From Folsom to Fogelson*, 1:223-226.
- ³⁵ Head and Orcutt, *From Folsom to Fogelson*, 1:226.
- ³⁶ Spielmann, *Interdependence in the Prehistoric Southwest*, 104.
- ³⁷ Head and Orcutt, *From Folsom to Fogelson*, 1:227.
- ³⁸ Kessell, *Kiva, Cross, and Crown*, 489-492.
- ³⁹ Katherine A. Spielmann, Margaret J. Schoeninger, and Katherine Moore, "Plains-Pueblo Interdependence and Human Diet at Pecos Pueblo, New Mexico," *American Antiquity* 55, no. 4 (October 1990): 755, 759.
- ⁴⁰ Head and Orcutt, *From Folsom to Fogelson*, 1:166.
- ⁴¹ Spielmann, Schoeninger, and Moore, "Pueblo-Plains Interdependence and Human Diet," 760; Durkin, "Prehispanic Land-Use Change," 130.
- ⁴² Frances Levine, Marilyn Norcini, Morris Foster, "An Ethnographic Overview of Pecos National Historical Park," 1994, report on file, PNHP, 5-31 to 5-32; Spielmann, Schoeninger, and Moore, "Pueblo-Plains Interdependence and Human Diet," 755.
- ⁴³ Richard W. Lang and Arthur H. Harris, *The Faunal Remains from Arroyo Hondo Pueblo, New Mexico: A Study in Short-Term Subsistence Change* (Santa Fe: School of American Research Press, 1984), 8.
- ⁴⁴ Hammond and Rey, eds., *The Rediscovery of New Mexico, 1580-1594*, 278.
- ⁴⁵ Kidder, *Pecos, New Mexico*, 81.
- ⁴⁶ Laura Victoria Meszaros, "Vegetation and Land Use in the Upper Pecos Area, New Mexico" (master's thesis, University of New Mexico, 1989), 12; Suzanne K. Fish, "Pollen Results from Adobe and Mortar of the Pecos Mission," 1994, report on file, PNHP; Mollie S. Toll, "Plant Parts Found in Adobe Bricks at an 18th Century Spanish Mission, Pecos, NM.," 1995, report on file, PNHP.
- ⁴⁷ Lang and Harris, *The Faunal Remains of Arroyo Hondo Pueblo*, 11-12, 26-27.
- ⁴⁸ Spielmann, *Interdependence in the Prehistoric Southwest*, 131-32.
- ⁴⁹ Craig D. Allen, "Lots of Lightning and Plenty of People: An Ecological History of Fire in the Upland Southwest," in *Fire, Native Peoples, and the Natural Landscape*, ed. Thomas R. Vale (Washington D.C.: Island Press, 2002), 145-148 provides a thorough argument for the primacy of lightning fires in the southwest. Stephen J. Pyne, in *Fire in America: A Cultural History of Wildland and Rural Fire* (Princeton: Princeton University Press, 1982) argues for a more central human role.
- ⁵⁰ William H. Romme et al., "Historical and Modern Disturbance Regimes, Stand Structures, and Landscape Dynamics in Piñon-Juniper Vegetation of the Western U.S." (Fort Collins: Colorado Forest Restoration Institute, 2008), <http://welcome.warnercnr.colostate.edu/cfri-reports.html> (accessed October 10, 2008), 6-10.
- ⁵¹ Romme et al, 4; Allen, "Lots of Lightning and Plenty of People," 146-148. The literature on piñon juniper woodlands is extensive, see also Earl F. Aldon and Douglas W. Shaw, eds., "Managing Piñon-Juniper Ecosystems for Sustainability and Social Needs," USDA Forest Service, General Technical Report RM-236 (Fort Collins:

USDA, 1993); Thomas W. Swetnam and Christopher H. Baisan, "Historical Fire Regime Patterns in the Southwestern United States since AD 1700," in *Fire Effects in Southwestern Forests, Proceedings of the Second La Mesa Fire Symposium*, ed. Craig D. Allen, RM-GTR-286, 11-32 (Fort Collins: USDA, 1996).

⁵² Gerald J. Gottfried and Rex D. Pieper, "Pinyon-Juniper Rangelands," in *Livestock Management in the American Southwest: Ecology, Society, and Economics*, ed. Roy Jemison and Carol Raish (New York: Elsevier Science B.V., 2000), 158, 175.

⁵³ Dunmire and Tierney, *Wild Plants of the Pueblo Province*, 164, 186, 190.

⁵⁴ Spielmann, *Interdependence in the Prehistoric Southwest*, 125.

⁵⁵ Lang and Harris, *The Faunal Remains of Arroyo Hondo Pueblo*, 10-12.

⁵⁶ *Ibid.*, 87, 100-101.

⁵⁷ Spielmann, *Interdependence in the Prehistoric Southwest*, 126-28.

⁵⁸ Lang and Harris, *The Faunal Remains of Arroyo Hondo Pueblo*, 55-56, 63.

⁵⁹ Katherine A. Spielmann, "Colonists, Hunters, and Farmers: Plains-Pueblo Interaction in the Seventeenth Century," in *Columbian Consequences: Archeological and Historical Perspectives on the Spanish Borderlands West*, vol. 1, ed. David Hurst Thomas (Washington D.C.: Smithsonian Institution Press, 1989), 103.

⁶⁰ Spielmann, *Interdependence in the Prehistoric Southwest*, 131-32, 182.

⁶¹ *Ibid.*, 126.

⁶² Lang and Harris, *The Faunal Remains of Arroyo Hondo Pueblo*, 69.

⁶³ Hammond and Rey, *Narratives of the Coronado Expedition*, 258.

⁶⁴ National Park Service (NPS), "Water Resource Management Plan: Pecos National Historical Park," 1995, report on file, PNHP, 15.

⁶⁵ Levine, Norcini, and Foster, "An Ethnographic Overview," 2-11-2-13.

⁶⁶ Durkin, "Prehispanic Land-Use Change," 25-26.

⁶⁷ Fish, "Farming, Foraging, and Gender," 184.

⁶⁸ Joe S. Sando, *Pueblo Nations: Eight Centuries of Pueblo Indian History* (Santa Fe: Clear Light Publishers, 1991), 24-30; Dan Scurlock, "From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin," General Technical Report, RMRS-GTR-5 (Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 1998), 82; Hammond and Rey, *Narratives of the Coronado Expedition*, 184; Levine, Norcini, and Foster, "An Ethnographic Overview," 2-4; Tracy Lynn Brady, "Kivas, Cathedrals, and Energy Seats: The Making of Religious Landscapes in the Upper Rio Grande Valley" (PhD diss., University of Colorado, 2004), 32-33, 49.

⁶⁹ Hammond and Rey, *Narratives of the Coronado Expedition*, 279-280.

⁷⁰ Spielmann, "Colonists, Hunters, and Farmers," 103; Spielmann, *Interdependence in the Prehistoric Southwest*, 217.

⁷¹ Spielmann, "Colonists, Hunters, and Farmers," 103.

⁷² Spielmann, Schoeninger, and Moore, "Plains-Pueblo Interdependence and Human Diet," 753.

⁷³ Lang and Harris, *The Faunal Remains of Arroyo Hondo Pueblo*, 11-12, 26-27.

⁷⁴ Spielmann, *Interdependence in the Prehistoric Southwest*, 189.

⁷⁵ Kessell, *Kiva, Cross, and Crown*, 14-18.

⁷⁶ *Ibid.*, 17-23.

⁷⁷ *Ibid.*, 24-27.

⁷⁸ *Ibid.*, 41-62.

Chapter Two

¹ Kessell, *Kiva, Cross, and Crown*, 115, 152.

² Other European colonists possessed similar aims. For an example of British attempts to recreate European nature in northeastern North America see William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983).

³ David Weber, *The Mexican Frontier, 1821-1846: The American Southwest Under Mexico* (Albuquerque: University of New Mexico Press, 1982), 277.

⁴ Weber, *The Spanish Frontier*, 106.

⁵ Quoted in Kessell, *Kiva, Cross, and Crown*, 131.

⁶ Alfred W. Crosby, Jr., *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (New York: Cambridge University Press, 1986).

- ⁷ Alfred W. Crosby, Jr., *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT: Greenwood Publishing Company, 1972), 74-97.
- ⁸ Kessell, *Kiva, Cross, and Crown*, 21.
- ⁹ *Ibid.*, 25.
- ¹⁰ Weber, *The Spanish Frontier*, 81; Kessell, *Kiva, Cross, and Crown*, 68-71; Andrew L. Knaut, *The Pueblo Revolt of 1680: Conquest and Resistance in Seventeenth-Century New Mexico* (Norman: University of Oklahoma Press, 1995), 18.
- ¹¹ Weber, *The Spanish Frontier*, 78.
- ¹² *Ibid.*, 79; Kessell, *Kiva, Cross, and Crown*, 42.
- ¹³ Weber, *The Spanish Frontier*, 79-80; Kessell, *Kiva, Cross, and Crown*, 51.
- ¹⁴ Weber, *The Spanish Frontier*, 81; Kessell, *Kiva, Cross, and Crown*, 68-71; Knaut, *The Pueblo Revolt*, 18.
- ¹⁵ Weber, *The Spanish Frontier*, 309.
- ¹⁶ Crosby, *The Columbian Exchange*, 67.
- ¹⁷ Scurlock, "From the Rio to the Sierra," 293.
- ¹⁸ Weber, *The Spanish Frontier*, 57.
- ¹⁹ *Ibid.*; Crosby, *The Columbian Exchange*, 5-15.
- ²⁰ Kessell, *Kiva, Cross, and Crown*, 90.
- ²¹ Anschuetz, "Not Waiting for the Rain," 170.
- ²² Kessell, *Kiva, Cross, and Crown*, 89-90.
- ²³ *Ibid.*, 90-97; Weber, *The Spanish Frontier*, 88.
- ²⁴ Crosby, *The Columbian Exchange*, 35-68, 96-97.
- ²⁵ Quoted in John L. Kessell, *Spain in the Southwest: A Narrative History of Colonial New Mexico, Arizona, Texas, and California* (Norman: University of Oklahoma Press, 2002), 128.
- ²⁶ Crosby, *The Columbian Exchange*, 35-68.
- ²⁷ Kessell, *Kiva, Cross, and Crown*, 489-492 provides a summary of the various population estimates over the years.
- ²⁸ *Ibid.*, 489-492.
- ²⁹ Head and Orcutt, *From Folsom to Fogelson*, 1:226.
- ³⁰ Knaut, *The Pueblo Revolt*, 154.
- ³¹ *Ibid.*, 47; Weber, *The Spanish Frontier*, 111.
- ³² Quoted in Kessell, *Kiva, Cross, and Crown*, 129.
- ³³ Kessell, *Kiva, Cross, and Crown*, 170.
- ³⁴ Knaut, *The Pueblo Revolt*, 134.
- ³⁵ *Ibid.*, 49.
- ³⁶ Quoted in Kessell, *Kiva, Cross, and Crown*, 124.
- ³⁷ Kidder, *Pecos, New Mexico*, 106-109; Kessell, *Kiva, Cross, and Crown*, 104.
- ³⁸ Weber, *The Spanish Frontier*, 133.
- ³⁹ Knaut, *The Pueblo Revolt*, 77-79.
- ⁴⁰ Levine and LaBauve, "Frontera," 21.
- ⁴¹ *Ibid.*, 161, 164.
- ⁴² John O. Baxter, *Las Carneradas: Sheep Trade in New Mexico, 1700-1860* (Albuquerque: University of New Mexico Press, 1987), 7-10.
- ⁴³ Alden C. Hayes, *The Four Churches of Pecos* (Albuquerque: University of New Mexico Press, 1974), 26-29.
- ⁴⁴ Kessell, *Kiva, Cross, and Crown*, 219.
- ⁴⁵ Dunmire and Tierney, *Wild Plants of the Pueblo Province*, 38.
- ⁴⁶ Scurlock, "From the Rio to the Sierra," 293.
- ⁴⁷ Christopher H. Baisan and T. W. Swetnam, "Interactions of Fire Regimes and Land Use in the Central Rio Grande Valley," Research Paper RM-RP-330 (Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, 1997), 6, 10-14.
- ⁴⁸ James E. Ivey, "'The Greatest Misfortune of All': Famine in the Province of New Mexico, 1667-1672," *Journal of the Southwest* 36, no. 1 (1994): 77.
- ⁴⁹ Weber, *The Spanish Frontier*, 131-132.
- ⁵⁰ Kessell, *Kiva, Cross, and Crown*, 109.
- ⁵¹ *Ibid.*, 114.
- ⁵² *Ibid.*, 110-112.
- ⁵³ Kessell, *Kiva, Cross, and Crown*, 321.

- ⁵⁴ Weber, *The Spanish Frontier*, 126.
- ⁵⁵ Kessell, *Kiva, Cross, and Crown*, 177-78.
- ⁵⁶ *Ibid.*, 178.
- ⁵⁷ Weber, *The Spanish Frontier*, 125; Knaut, *The Pueblo Revolt*, 157.
- ⁵⁸ Kessell, *Kiva, Cross, and Crown*, 188.
- ⁵⁹ *Ibid.*
- ⁶⁰ *Ibid.*, 147-49.
- ⁶¹ Weber, *The Spanish Frontier*, 10.
- ⁶² Head and Orcutt, *From Folsom to Fogelson*, 1:168.
- ⁶³ Rose, Dean, and Robinson, *The Past Climate of Arroyo Hondo*, 94.
- ⁶⁴ Weber, *The Spanish Frontier*, 107, 116.
- ⁶⁵ Kessell, *Kiva, Cross, and Crown*, 123, 138.
- ⁶⁶ Knaut, *The Pueblo Revolt*, 69.
- ⁶⁷ Kessell, *Kiva, Cross, and Crown*, 120-22.
- ⁶⁸ Knaut, *The Pueblo Revolt*, 68-69.
- ⁶⁹ *Ibid.*, 161.
- ⁷⁰ Spielmann, “Colonists, Hunters, and Farmers,” 107-08.
- ⁷¹ Quoted in Kessell, *Kiva, Cross, and Crown*, 212.
- ⁷² *Ibid.*
- ⁷³ Ivey, “The Greatest Misfortune of All,” quote on page 83.
- ⁷⁴ Spielmann, *Plains Pueblo Interdependence*, 759; Spielmann, “Hunters, Colonists, and Farmers,” 110.
- ⁷⁵ Kessell, *Kiva, Cross, and Crown*, 232-234. See Knaut, *The Pueblo Revolt*, for a full overview of the causes of the revolt.

Chapter Three

- ¹ Kessell, *Kiva, Cross, and Crown*, 239.
- ² Weber, *The Spanish Frontier*, 136.
- ³ In this chapter, we begin referring to the Spanish settlers who came to New Mexico as “Hispanos.” During the eighteenth century, a distinct Hispanic identity arose in New Mexico—see Frank, *From Settler to Citizen* for a full discussion of the development of New Mexican society. We continue to use the term “Spanish” to refer to officials and the government in Mexico City, as they still represented the Spanish empire.
- ⁴ Jeremy Adelman and Stephen Aron, “From Borderlands to Borders: Empires, Nation-States, and the Peoples in Between in North American History,” *The American Historical Review* 104, no. 3 (June 1999): 814-841.
- ⁵ See Pekka Hämäläinen, *The Comanche Empire* (New Haven: Yale University Press, 2008) for a full discussion of the growth and characteristics of the Comanche Empire.
- ⁶ Kessell and Hendricks, *By Force of Arms*, 424-433.
- ⁷ Kessell, *Kiva, Cross, and Crown*, 238.
- ⁸ Weber, *The Spanish Frontier*, 18.
- ⁹ Kessell, *Kiva, Cross, and Crown*, 256-63.
- ¹⁰ Weber, *The Spanish Frontier*, 140.
- ¹¹ Hämäläinen, *The Comanche Empire*, 23. Jack D. Forbes, in *Apache, Navajo, and Spaniard* (Norman: University of Oklahoma Press, 1960), 238-239, also suggests that friendly trade characterized the relationship between the Pueblos and the Plains, stating that “...in 1692 most of the Athapascans and Pueblos were friendly with each other.”
- ¹² Kessell, *Kiva, Cross, and Crown*, 263-266. Ned Blackhawk, in *Violence over the Land* (Cambridge: Harvard University Press, 2006), 32, also says that both Pueblos and Plains tribes “used the Spanish absence to enhance their own fortunes,” with both groups engaging in intensified raiding.
- ¹³ Baxter, *Las Carneradas*, 13-17.
- ¹⁴ Kessell, *Kiva, Cross, and Crown*, 321.
- ¹⁵ Eleanor B. Adams and Fray Angelico Chavez, trans., *The Missions of New Mexico, 1776: A Description by Fray Francisco Atanasio Dominguez with Other Contemporary Documents* (Albuquerque: University of New Mexico Press, 1956), 213.
- ¹⁶ Charles Wilson Hackett, ed., *Historical Documents Relating to New Mexico, Nueva Vizcaya, and Approaches Thereto, to 1773*, vol. 3 (Washington D.C.: Carnegie Institution of Washington, 1937), 465-66.
- ¹⁷ Hayes, *The Four Churches of Pecos*, 9-11.
- ¹⁸ *Ibid.*, 46-50.

- ¹⁹ Ibid., 53-58.
- ²⁰ Hackett, ed., *Historical Documents Relating to New Mexico*, 465-66.
- ²¹ Kessell and Hendricks, *By Force of Arms*, 423; Kessell, *Kiva, Cross, and Crown*, 244-254.
- ²² Adams and Chavez, *The Missions of New Mexico*, 403.
- ²³ Weber, *The Spanish Frontier*, 141, 306; Kessell, *Kiva, Cross, and Crown*, 319-339.
- ²⁴ Hämäläinen, *The Comanche Empire*, 23-30.
- ²⁵ Knaut, *The Pueblo Revolt*, 184-186.
- ²⁶ Hämäläinen, *The Comanche Empire*, 33-36.
- ²⁷ Blackhawk, *Violence over the Land*, 35.
- ²⁸ Hämäläinen, *The Comanche Empire*, 43.
- ²⁹ Kessell, *Kiva, Cross, and Crown*, 371, 372, 376, 359, 334.
- ³⁰ Quoted in Kessell, *Kiva, Cross, and Crown*, 357.
- ³¹ Hayes, *The Four Churches of Pecos*, 53.
- ³² Blackhawk, *Violence over the Land*, 52.
- ³³ Hämäläinen, *The Comanche Empire*, 38.
- ³⁴ Kessell, *Kiva, Cross, and Crown*, 386, 357.
- ³⁵ Ibid., 387-391.
- ³⁶ Hämäläinen, *The Comanche Empire*, 46-74; Blackhawk, *Violence over the Land*, 53-56.
- ³⁷ Hackett, *Historical Documents Relating to New Mexico*, 465-66.
- ³⁸ Kessell, *Kiva, Cross, and Crown*, 371, 392.
- ³⁹ Quoted in Kessell, *Kiva, Cross, and Crown*, 395.
- ⁴⁰ Kessell, *Kiva, Cross, and Crown*, 396.
- ⁴¹ Adams and Chavez, *The Missions of New Mexico*, 213.
- ⁴² Epidemics and evidence for them are summarized in Levine and LaBauve, *Frontera*, 48-49.
- ⁴³ Levine and LaBauve, *Frontera*, 39-43.
- ⁴⁴ Ibid., 61.
- ⁴⁵ Weber, *The Spanish Frontier*, 204-224.
- ⁴⁶ Kessell, *Kiva, Cross, and Crown*, 291, 395.
- ⁴⁷ Elinor G. K. Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* (New York: Cambridge University Press, 1994), 99.
- ⁴⁸ Adams and Chavez, *The Missions of New Mexico*, 213. The fact that Dominguez does not include Glorieta Creek in his list of water sources for Pecos suggests that it may have been an intermittent stream at this time or at least possessed a highly variable water flow.
- ⁴⁹ Ibid.
- ⁵⁰ Hämäläinen, *The Comanche Empire*, 78.
- ⁵¹ Weber, *The Spanish Frontier*, 229.
- ⁵² Hämäläinen, *The Comanche Empire*, 109-120.
- ⁵³ Ibid., 120-123; Kessell, *Kiva, Cross, and Crown*, 403-409, 436.
- ⁵⁴ Kessell, *Kiva, Cross, and Crown*, 409; Hämäläinen, *The Comanche Empire*, 125-127.
- ⁵⁵ Blackhawk, *Violence over the Land*, 104-105.
- ⁵⁶ Kessell, *Kiva, Cross, and Crown*, 349.
- ⁵⁷ A league is equal to approximately three miles.
- ⁵⁸ G. Emlen Hall, *Four Leagues of Pecos: A Legal History of the Pecos Grant, 1800-1933* (Albuquerque: University of New Mexico Press, 1984), 12-13; Kessell, *Kiva, Cross, and Crown*, 439.
- ⁵⁹ Malcolm Elbright, "New Mexican Land Grants: The Legal Background," in *Land, Water, and Culture: New Perspectives on Hispanic Land Grants*, ed. Charles L. Briggs and John R. Van Ness (Albuquerque: University of New Mexico Press, 1987), 15-26.
- ⁶⁰ Hall, *Four Leagues of Pecos*, 11, 15.
- ⁶¹ Kessell, *Kiva, Cross, and Crown*, 415-21; Hämäläinen, *The Comanche Empire*, 204.
- ⁶² Kessell, *Kiva, Cross, and Crown*, 415-421.
- ⁶³ Hämäläinen, *The Comanche Empire*, 124.
- ⁶⁴ Hall, *Four Leagues of Pecos*, 17-22; National Register of Historic Places Inventory-Nomination, "Valencia Ranch Historic/Archaeological District, Pecos, New Mexico," 1981, 6.
- ⁶⁵ Hall, *Four Leagues of Pecos*, 19, 26-27.
- ⁶⁶ Ibid., 24-27.

- ⁶⁷ Ibid., 26.
- ⁶⁸ Epidemics and evidence for them are summarized in Levine and LaBauve, *Frontera*, 48-49.
- ⁶⁹ Levine and LaBauve, *Frontera*, 39-43.
- ⁷⁰ Weber, *The Spanish Frontier*, 310.
- ⁷¹ Ibid., 310-311.
- ⁷² Baisan and Swetnam, "Interactions of Fire Regimes," 11.
- ⁷³ Weber, *The Spanish Frontier*, 311-312.
- ⁷⁴ Scurlock, "From the Rio to the Sierra," 149.
- ⁷⁵ Melville, *A Plague of Sheep*, 119, note 4.
- ⁷⁶ Baisan and Swetnam, "Interactions of Fire Regimes," 11.
- ⁷⁷ Rose, Dean, and Robinson, *The Past Climate of Arroyo Hondo, New Mexico*, 94.
- ⁷⁸ Hämäläinen, *The Comanche Empire*, 171, 182-207; see Charles L. Kenner, *The Comanchero Frontier: A History of New Mexico-Plains Relations* (Norman: University of Oklahoma Press, 1994), for a detailed overview of comancheros and ciboleros.
- ⁷⁹ Hämäläinen, *The Comanche Empire*, 130-137, 206-207.
- ⁸⁰ Weber, *The Spanish Frontier*, 175.
- ⁸¹ Ibid.
- ⁸² Ross Frank, *From Settler to Citizen: New Mexican Economic Development and the Creation of Vecino Society, 1750-1820* (Berkeley: University of California Press, 2000), 77-83.
- ⁸³ Weber, *The Spanish Frontier*, 177.
- ⁸⁴ Frank, *From Settler to Citizen*, 92-156.
- ⁸⁵ Ibid., 119-156, 224.
- ⁸⁶ Weber, *The Mexican Frontier*, 16.
- ⁸⁷ Ibid., 16-18; Hall, *Four Leagues of Pecos*, 15-16.
- ⁸⁸ See Frank, *From Settler to Citizen* for a full discussion of the development of New Mexican society.

Chapter Four

- ¹ D. Sloan, Architects with Cherry/See Architects, "Historic Structures Report: Trading Post, Forked Lightning Ranch House, Forked Lightning Pump House, Pecos National Historical Park, Pecos, NM," 2002, report on file, PNHP, 4-5. Note: Some sources suggest that prior to 1883, when a post office was installed at Pecos, the town was known as "Levy." We did not see this name noted on any period maps that we located, which all called the settlement "Pecos" if it was recorded. Robert Julyan, *The Place Names of New Mexico*, rev. ed. (Albuquerque: University of New Mexico Press, 1998), 260.
- ² Weber, *The Mexican Frontier*, 6-14.
- ³ Ibid., 34.
- ⁴ Ibid., 20-40.
- ⁵ Hämäläinen, *The Comanche Empire*, 209; Weber, *The Mexican Frontier*, 86-95.
- ⁶ Hall, *Four Leagues of Pecos*, 26.
- ⁷ Weber, *The Mexican Frontier*, 243-270.
- ⁸ Hämäläinen, *The Comanche Empire*, 210-211.
- ⁹ Weber, *The Mexican Frontier*, 16-17.
- ¹⁰ Hall, *Four Leagues of Pecos*, 33.
- ¹¹ Ibid., 36-40.
- ¹² Ibid., 40, 84. A vara is equal to approximately 33 and 1/3 inches.
- ¹³ Ibid., 42-45.
- ¹⁴ Ibid., 55.
- ¹⁵ Ibid., 50-61; Levine, *Our Prayers Are in this Place*, 124-125.
- ¹⁶ Head and Orcutt, *From Folsom to Fogelson*, 2: 385-388; Hall, *Four Leagues of Pecos*, 63.
- ¹⁷ Head and Orcutt, *From Folsom to Fogelson*, 2: 393-395.
- ¹⁸ Ibid., 381-398.
- ¹⁹ Brady, "Kivas, Cathedrals, and Energy Seats," 36-38, 120-126.
- ²⁰ Elbright, "The Legal Background," 23.
- ²¹ Ibid., 16-20.
- ²² John R. Van Ness, "Hispanic Land Grants: Ecology and Subsistence in the Uplands of Northern New Mexico and Southern Colorado," in *Land, Water, and Culture: New Perspectives on Hispanic Land Grants*, ed. Charles L.

- Briggs and John R. Van Ness (Albuquerque: University of New Mexico Press, 1987), 187; National Register Nomination, "Valencia Ranch," 8; David Hornbeck, Jr., "Spatial Manifestations of Acculturative Processes in the Upper Pecos Valley, New Mexico, 1840-1880" (PhD diss., University of Nebraska, 1974), 113.
- ²³ Hall, *Four Leagues of Pecos*, 47-48.
- ²⁴ Hornbeck, "Spatial Manifestations," 108-111.
- ²⁵ *Ibid.*, 61, 104-105; William deBuys, *Enchantment and Exploitation: The Life and Hard Times of a New Mexican Mountain Range* (Albuquerque: University of New Mexico Press, 1985), 128.
- ²⁶ Weber, *The Mexican Frontier*, 208-211.
- ²⁷ Charles Montgomery, *The Spanish Redemption: Heritage, Power, and Loss on New Mexico's Upper Rio Grande* (Berkeley and Los Angeles: University of California Press, 2002), 37.
- ²⁸ Throughout the Spanish period and through the mid-nineteenth century sheep were far more important for their mutton than their wool. The Civil War changed the dynamics of the sheep trade. Although it disrupted New Mexico's trade for California, the war created a demand for wool for use in uniforms. Hispanos began crossbreeding the churro with Merinos in order to produce a higher quality wool fiber. Baxter, *Las Carneradas*, 21, 28-29, 109, 112, 148.
- ²⁹ Baxter, *Las Carneradas*, 95.
- ³⁰ Hall, *Four Leagues of Pecos*, 61-62.
- ³¹ Quoted in Hornbeck, "Spatial Manifestations," 119.
- ³² *Ibid.*, 118-119.
- ³³ Hall, *Four Leagues of Pecos*, 167-168
- ³⁴ National Register Nomination, "Valencia Ranch," 9; Hall, *Four Leagues of Pecos*, 124.
- ³⁵ deBuys, *Enchantment and Exploitation*, 195.
- ³⁶ Melville, *A Plague of Sheep*, 9, 72-75, 114.
- ³⁷ Hornbeck, "Spatial Manifestations," 120.
- ³⁸ Weber, *The Mexican Frontier*, 125-129.
- ³⁹ Josiah Gregg, *Commerce of the Prairies*, ed. Max L. Moorhead (Norman: University of Oklahoma Press, 1954), 13.
- ⁴⁰ deBuys, *Enchantment and Exploitation*, 92.
- ⁴¹ Weber, *The Mexican Frontier*, 148.
- ⁴² *Ibid.*, 153.
- ⁴³ deBuys, *Enchantment and Exploitation*, 99-100.
- ⁴⁴ Donald Lee Burtchin, "The Physical Geography of Pecos National Monument," (master's thesis, University of Arizona, 1983), 62.
- ⁴⁵ National Register Nomination, "Valencia Ranch," 6.
- ⁴⁶ Don E. Alberts, *The Battle of Glorietta: Union Victory in the West* (College Station: Texas A&M University Press, 1998), 46; Andrew H. Young, "History of Ranching and Trading at Pecos National Historical Park: Pigeon's Ranch, Kozlowski's Trading Post, and Forked Lightning Ranch," 2001, report on file, PNHP, 21; Robert L. Spude, "Pigeon's Ranch Historic Structure Report," Intermountain Cultural Resource Management Professional Paper No. 74, Santa Fe, NM: National Park Service, Intermountain Region Support Office, 2008, 1, available at http://www.nps.gov/history/history/online_books/pecos/pigeons-hsr/contents.htm (accessed May 25, 2010).
- ⁴⁷ Young, "History of Ranching and Trading," 4-5, 33.
- ⁴⁸ *Ibid.*, 33.
- ⁴⁹ Sloan, "Historic Structures Report," 4.
- ⁵⁰ Young, "History of Ranching and Trading," 7; Hall, *Four Leagues of Pecos*, 122.
- ⁵¹ Head and Orcutt, *From Folsom to Fogelson*, 2: 401-402.
- ⁵² Marc Simmons and Hal Jackson, *Following the Santa Fe Trail: A Guide for Modern Travelers*, 3rd ed. (Santa Fe: Ancient City Press, 2001), 215.
- ⁵³ Hämäläinen, *The Comanche Empire*, 294-296.
- ⁵⁴ Nancy Langston, *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West* (Seattle: University of Washington Press, 1995), 57-59.; deBuys, *Enchantment and Exploitation*, 92-97.
- ⁵⁵ deBuys, *Enchantment and Exploitation*, 98; Weber, *The Spanish Frontier*, 152.
- ⁵⁶ deBuys, *Enchantment and Exploitation*, 96-99.
- ⁵⁷ Hämäläinen, *The Comanche Empire*, 301-318.
- ⁵⁸ *Ibid.*, 232-236.
- ⁵⁹ Weber, *The Mexican Frontier*, 159-183.

- ⁶⁰ Richard White, *“It’s Your Misfortune and None of My Own”*: A New History of the American West (Norman: University of Oklahoma Press, 1991), 75-78.
- ⁶¹ White, *“It’s Your Misfortune and None of My Own,”* 73-76.
- ⁶² Weber, *The Mexican Frontier*, 273-277.
- ⁶³ Hämäläinen, *The Comanche Empire*, 232-236; White, *“It’s Your Misfortune and None of My Own,”* 82.
- ⁶⁴ Susan Shelby Magoffin, *Down the Santa Fe Trail and into Mexico: The Diary of Susan Shelby Magoffin, 1846-1847*, ed. Stella M. Drumm (1962; repr., Lincoln: University of Nebraska Press, 1982), 102, 112-137.
- ⁶⁵ Robert W. Frazer, *Forts and Supplies: The Role of the Army in the Economy of the Southwest, 1846-1861* (Albuquerque: University of New Mexico Press, 1983), 1-11.
- ⁶⁶ Frazer, *Forts and Supplies*, 9, 49, 108, 185-187; Baxter, *Las Carneradas*, 112.
- ⁶⁷ Frazer, *Forts and Supplies*, 11, 102, 185-187.
- ⁶⁸ Surveys completed by Lieutenant George M. Wheeler in 1871 and 1876 show cultivated land extending the length of Glorieta Creek from Pigeon’s Ranch to the pueblo ruins, perhaps remnants of fields first created by Valle. “Economic Features Part of Central New Mexico, Atlas Sheet No. 77 (B); Issued May 7th 1877; Weyss, Herman & Lang Del. Expeditions of 1871 & 1876 Under the Command of 1st. Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army. U.S. Geographical Surveys West Of The 100th Meridian,” available at <http://www.davidrumsey.com/directory/where/New+Mexico/> (accessed September 16, 2009).
- ⁶⁹ Young, “History of Ranching and Trading,” 33.
- ⁷⁰ Frazer, *Forts and Supplies*, 114, 185-186.
- ⁷¹ Head and Orcutt, *From Folsom to Fogelson*, 2: 400-401.
- ⁷² Hall, *Four Leagues of Pecos*, 125-126. The rincón area was another fertile stretch of land located a short way up the Pecos River where it formed an abrupt “I” shape. Today it is the site of the Benedictine Monastery.
- ⁷³ Head and Orcutt, *From Folsom to Fogelson*, 2:403.

Chapter Five

- ¹ Don E. Alberts, ed., *Rebels on the Rio Grande: The Civil War Journal of A. B. Peticolas* (Albuquerque: University of New Mexico Press, 1984), 25.
- ² Alberts, *Rebels on the Rio Grande*, 68, 73.
- ³ James L. Huston, “Property Rights in Slavery and the Coming of the Civil War,” *The Journal of Southern History* 65, no. 2 (May 1999): 249-286; Michael A. Morrison, *Slavery and the American West: The Eclipse of Manifest Destiny and the Coming of the Civil War* (Chapel Hill: The University of North Carolina Press, 1997).
- ⁴ Mark Fiege, “Gettysburg and the Organic Nature of the Civil War,” in *Natural Enemy, Natural Ally: Toward an Environmental History of War*, ed. Richard P. Tucker and Edmund Russell (Corvallis, OR: Oregon State University Press, 2004), 94.
- ⁵ White, *It’s Your Misfortune and None of My Own*, 142-147; Eric Foner, *The Story of American Freedom* (New York: W.W. Norton and Company, 1998), 79.
- ⁶ Alberts, *Rebels on the Rio Grande*, 1-2; Morrison, *Slavery and the American West*, 6-7, 69.
- ⁷ Morrison, *Slavery and the American West*, 6-7, 58-61.
- ⁸ *Ibid.*, 6-7, 56-57, 77-78.
- ⁹ Huston, “Property in Slavery,” 251-261.
- ¹⁰ *Ibid.*, 257, 266-273.
- ¹¹ Morrison, *Slavery and the American West*, 124, 142-168, 170.
- ¹² *Ibid.*, 105-108; Foner, *The Story of American Freedom*, 69-79.
- ¹³ Alberts, *The Battle of Glorieta*, 5; Martin Hardwick Hall, *Sibley’s New Mexico Campaign* (Austin: University of Texas Press, 1960), 13-15.
- ¹⁴ Letter quoted in full in John P. Wilson, *When the Texans Came: Missing Records from the Civil War in the Southwest* (Albuquerque: University of New Mexico Press, 2001), 149-150.
- ¹⁵ Alberts, *The Battle of Glorieta*, 6-7.
- ¹⁶ Alberts, *Rebels on the Rio Grande*, 14-22.
- ¹⁷ Alberts, *The Battle of Glorieta*, 11-13.
- ¹⁸ *Ibid.*, 5, 8.
- ¹⁹ Alberts, *The Battle of Glorieta*, 8.
- ²⁰ *Ibid.*, 13-14; Alberts, *Rebels on the Rio Grande*, 49, 50, 52.
- ²¹ Alberts, *The Battle of Glorieta*, 14-15; Alberts, *Rebels on the Rio Grande*, 55.

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- ²² The following account of the Battle of Glorieta Pass is taken mainly from Alberts, *The Battle of Glorieta*. Thomas S. Edrington and John S. Taylor, *The Battle of Glorieta Pass: A Gettysburg in the West, March 26-28, 1862* (Albuquerque: University of New Mexico Press, 1998) and Hall, *Sibley's New Mexico Campaign* also cover the battle. The list of family names of New Mexican volunteers is given in Aspectos Culturales, ed., *Pecos mi Pecos* (Santa Fe: Aspectos Culturales, 2002), 22; see also Wilson, *When the Texans Came*, 131. Quote from Wilson, *When the Texans Came*, 260.
- ²³ Jerry Thompson, ed., *Civil War in the Southwest: Recollections of the Sibley Brigade* (College Station: Texas A&M University Press, 2001), 81.
- ²⁴ Yvonne R. Oakes, "Pigeon's Ranch and the Glorieta Battlefield: An Archaeological Assessment," *Archaeology Notes* 123, with contributions by Don E. Alberts and Betsy Swanson (Santa Fe: Museum of New Mexico, Office of Archaeological Studies, 1995), 11-12.
- ²⁵ Alberts, *The Battle of Glorieta*, 44.
- ²⁶ *Ibid.*, 57. Alberts states that at the bridge spanning Apache Creek, the creek was a "fairly insignificant dry arroyo, four or five feet deep," in 1862. The quote from Lieutenant Abert is from James W. Abert, *Abert's New Mexico Report, 1846-1847*, foreword by William A. Keleher (Albuquerque: Horn & Wallace, 1962), 45. Abert visited the ruins of Pecos Pueblo and mentioned several of the bird species he encountered around Pecos. These included numerous stellar jays, red shafted flickers, and robins. Some "large night herons" flew over him when he was sketching the ruins. Abert passed through Pecos again in January and "obtained a beautiful yellow finch, which proves to be the 'fringilla vespertina,'" or an evening grosbeak (pages 42-45, 141-142).
- ²⁷ Wilson, *When the Texans Came*, 259-260.
- ²⁸ *Ibid.*, 261.
- ²⁹ Thompson, *Civil War in the Southwest*, 84.
- ³⁰ Quote from Alberts, *Rebels on the Rio Grande*, 76.
- ³¹ Thompson, *Civil War in the Southwest*, 93
- ³² *Ibid.*, 93.
- ³³ Spude, "Pigeon's Ranch Historic Structures Report", 5-7.
- ³⁴ Alberts, *The Battle of Glorieta*, 87.
- ³⁵ *Ibid.*, 89.
- ³⁶ Oakes, "Pigeon's Ranch and the Glorieta Battlefield," 3, 11-12.
- ³⁷ Alberts, *Rebels on the Rio Grande*, 79.
- ³⁸ Wilson, *When the Texans Came*, 265.
- ³⁹ Alberts, *The Battle of Glorieta*, 97-98.
- ⁴⁰ Alberts, *Rebels on the Rio Grande*, 82-83.
- ⁴¹ Quoted in Young, "History of Ranching and Trading," 28-29. The government rejected Valle's claim.
- ⁴² Young, "History of Ranching and Trading," 32.
- ⁴³ Alberts, *The Battle of Glorieta*, 21.
- ⁴⁴ Alberts, *Rebels on the Rio Grande*, 87.
- ⁴⁵ Alberts, *The Battle of Glorieta*, 151-164.
- ⁴⁶ *Ibid.*, 151-164.
- ⁴⁷ Quoted in Alberts, *Rebels on the Rio Grande*, 153.
- ⁴⁸ Alberts, *Rebels on the Rio Grande*, 151.
- ⁴⁹ *Ibid.*, 164-167.
- ⁵⁰ White, *It's Your Misfortune and None of My Own*, 143-145, 182.
- ⁵¹ Hämäläinen, *The Comanche Empire*, 332-341.
- ⁵² William G. Robbins, *Colony and Empire: The Capitalist Transformation of the American West* (Lawrence: University Press of Kansas, 1994), 66-68.
- ⁵³ Elbright, "The Legal Background," 29, 31; Hall, *Four Leagues of Pecos*, 70.
- ⁵⁴ Hall, *Four Leagues of Pecos*, 71-83.
- ⁵⁵ Andro Linklater, *Measuring America: How the United States Was Shaped by the Greatest Land Sale in History* (New York: Plume, 2002), 20, 84, 221, 233; Hall, *Four Leagues of Pecos*, 86-87.
- ⁵⁶ Hall, *Four Leagues of Pecos*, 127, 166; Elbright, "The Legal Background," 37-40.
- ⁵⁷ Hall, *Four Leagues of Pecos*, 71-83.
- ⁵⁸ *Ibid.*, 111-118.
- ⁵⁹ *Ibid.*, 135-137.
- ⁶⁰ *Ibid.*, 93-108.

⁶¹ Ibid., 107.

⁶² Linklater, *Measuring America*, 221.

Crossroads of Change: An Environmental History of Pecos National Historical Park



Volume II

Colorado State University
PUBLIC LANDS HISTORY CENTER

By Cori Knudten

With two chapters by Maren Bzdek

Foreword by Dr. Mark Fiege

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Cover photo clockwise from left: View from the porch of the Forked Lightning Ranch, Mission ruins in 2008, Santa Gertrudis cattle on the Forked Lightning Ranch circa 1960, Aerial view of Pecos Pueblo in 1929, Pecos River in 2008.

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Chapter Six

Railroads, Timber, and Tourists, 1880-1925

Adolph Bandelier rattled across the Pecos River in the comfort of a railroad car, gazing out the window at the landscape that slid past him. While traveling by rail through New Mexico, Bandelier wrote, the tourist becomes “fascinated . . . by the beauty as well as by the novelty of the landscape.” The Atchison, Topeka, & Santa Fe railroad crossed the Pecos River at Bernal, then turned northwest and headed for Glorieta Pass. A few months earlier and Bandelier would have been riding in a wagon or on a horse through the Upper Pecos valley. The railroad had just entered New Mexico—workers crested Raton Pass in 1878 and laid tracks near Glorieta Mesa and over Glorieta Pass in late 1879 and early 1880. Bandelier arrived in the valley in August of 1880, intent on investigating the region’s American Indian cultures and ancient Pueblo ruins.¹

Bandelier could see the ruins of Pecos Pueblo from the train as it chugged past the mesilla. “The red walls of the church stand boldly out on the barren mesilla; and to the north of it there are two low brown ridges, the remnants of the Indian houses.” The train then passed through Apache Canyon, “which overlooks the track in awful proximity,” Bandelier remarked. Bandelier paused for some sightseeing in Santa Fe before taking a wagon back to Pecos to study the ruins that had captured his attention. He did not stay at Pigeon’s Ranch or Kozlowski’s while at Pecos, as so many travelers had before him. Instead, Bandelier found lodging at Baughl’s Sidings just east of Glorieta Mesa, a “switch and storing-place for ties” that had sprung up next to the railroad tracks and boasted a small, temporary community. Bandelier lodged at a boarding house owned by Mrs. Root and remarked that he owed to her “kindness and motherly solicitude . . . a tribute of sincere gratitude.”²

Born in Bern, Switzerland, Bandelier moved with his parents to Illinois in 1848, where he received an extensive education and became interested in archaeology and pre-Columbian Mexican cultures. The anthropologist Lewis Henry Morgan encouraged Bandelier’s pursuits. Morgan traveled to the Southwest in 1878 to conduct archaeological studies of Pueblo ruins and helped Bandelier obtain a contract from the Archaeological Institute of America to do field work in the Southwest as well. Under this contract, Bandelier set off for Santa Fe and Pecos in 1880. He stayed at Pecos for ten days, investigated both the ruins on the mesilla and others in the vicinity, and compiled a brief report on his findings.

Bandelier arrived at Pecos when the valley was on the cusp of a period of immense change, much of it related to the construction of the railroad. Bandelier saw the railroad as a convenient means of transportation, but for the residents of Pecos, the railroad represented a force that transformed their lifestyles and economy. The new community of Baughl’s Sidings, where Bandelier stayed, was just one example of the changes the railroad brought to the Upper Pecos valley. Besides being a railroad passenger, Bandelier was also an academically trained professional who utilized scientific knowledge in his studies of the Pecos landscape. A reliance on science to manage land came to characterize many people’s interactions with the Pecos environment in the twentieth century. As the government set aside forest reserves, professionally trained land managers began transforming the valley. Bandelier also traveled to Pecos as a tourist, interested in experiencing Puebloan culture firsthand. Tourism, too, became an important force in the valley that altered people’s relationship with the environment. Bandelier may have

been interested in the past, but when he wandered over the pueblo ruins in August of 1880, he represented the valley's future.

Pecos, 1880-1925

The Santa Fe Trail had connected Pecos to eastern markets for many years, but only so much trade and transport could occur by wagon train. Although fur trappers had succeeded in exploiting one local resource to its utmost limits, other industries—particularly mining and logging—remained limited by a transportation system that relied on animal power. The arrival of the railroads in New Mexico in the late 1870s and early 1880s removed these limitations. Suddenly, New Mexicans had a means of transporting high volumes of goods both quickly and efficiently. The construction of the railroad consumed local resources and its trains carried commodities to hungry eastern American and western European markets. The arrival of the railroad fully integrated New Mexico into the American capitalist economy, a state it had been slowly developing towards for years. Pecos happened to be one of the communities located close to the Atchison, Topeka, & Santa Fe tracks. The company chose to build the route over Glorieta Pass in part because of the valuable timber located in the valley and the natural pass to the Rio Grande drainage. Pecos's geographical position once more placed it in the path of change.

The arrival of the railroad enabled intensive resource exploitation. The 1880s through the early 1900s witnessed the most intensive use of resources in Pecos history, with attendant environmental effects. The timber industry boomed and loggers exploited the dense forests extending up the Pecos River Canyon into the Sangre de Cristo Mountains. Large livestock herds also proliferated—in the Pecos valley as well as in the southern Sangres where ranchers from the surrounding plains summered their stock. The combined effects of timber cutting and overgrazing denuded the forests around Pecos, increasing erosion and flooding. Human population increased in the Pecos valley as well, as people followed the economic opportunities afforded by the railroad. Those people built homes, cut firewood, and hunted game. Many of the large mammals around Pecos were either hunted to extinction or declined precipitously.

As the resources of Pecos increased in economic value, but also suffered from overuse, control of the land and resources became even more contentious. Hispanic residents of the area, and northern New Mexico as a whole, found themselves marginalized by the increasingly dominant role of Anglo capital and Anglo control of land. Racist ideology forced Hispanos into subordinate roles, stereotyping them as lazy and ignorant, depicting their villages as stagnant backwaters riddled with Catholicism. As a demographic majority, Hispanos managed to maintain a strong base of political control, but most Hispanos found themselves integrated into a migratory, wage labor economy over which they had little influence.

Two cultural systems of land use also collided in the Pecos valley. In response to the exploitation of western resources, the conservation movement, coupled with unprecedented support for federal government regulation, reversed a key trend in American land policy. No longer would the federal government obtain land only to transfer it to private citizens. Instead, with the creation of national parks and forest reserves, the federal government became the permanent owner and manager of a substantial portion of western lands. In the Upper Pecos valley the creation of a federal forest reserve under control of the Forest Service introduced ideas of scientific, professionalized land management into the valley. The management policies of the Forest Service often created resentment among local farmers and ranchers who felt the policies unfairly prevented them from using the land as they had for generations.

New perceptions of the Pecos environment and land use also followed the burgeoning tourism industry. Traveling to scenic destinations, particularly in the West, became a popular pursuit for Americans—first the wealthy, but then growing numbers of the middle class as well. The Southwest became the “Land of Enchantment” with its ancient ruins and stunning landforms. The ruins of the Pecos Pueblo and rustic lifestyles of Pecos residents attracted many Anglos who viewed the environment as timeless and free from the effects of modernity.

Such romantic impulses were a response to rapid industrialization, but the Pecos environment was not untouched by modernizing influences. Adolph Bandelier represented those influences—traveling by railroad, a member of a professional discipline—even as he sought out evidence of ancient cultures in the Pecos valley. Through the effects of industrialization, the Pecos landscape shifted. Railroad tracks bisected the valley and sharp train whistles and smoke filled the air. New communities appeared, and then faded away after the railroad completed construction of the new tracks. The sounds of axes and sawmills echoed from the mesas. Erosion cut deep arroyos and muddied the river. Weeds appropriated overgrazed fields. Wolves, deer, and elk became scarce or disappeared altogether. Although tourists gazing at Pecos Pueblo may have convinced themselves they stood in a landscape that reflected ancient history, in fact the Pecos valley showed them the consequences of their own modern society.

“Railroad Iron Is a Magician’s Rod, In Its Power to Evoke the Sleeping Energies of Land and Water”: The Atchison, Topeka, & Santa Fe enters New Mexico

The construction of railroads transformed Pecos and the entire American West. Suddenly people could travel great distances in a fraction of the time and transport goods over the rough terrain with ease. The railroad’s arrival was no fortuitous accident. The federal government provided land grants to railroads and eastern capital subsidized the immense construction costs. The extension of the railroad represented a deliberate plan to exploit the vast lands and resources of the West. Most Westerners welcomed the arrival of railroads. Railroads provided consumer goods at a fraction of the old cost and fostered growth in local industries as well—timber cutting, mining, ranching, and farming. The power of a steam engine propelled the raw products to distant markets. The railroad itself transformed the landscape—miles of land for tracks, acres of timber to build them. Ralph Waldo Emerson captured the transformative power of the railroad when he said, “Railroad iron is a magician’s rod, in its power to evoke the sleeping energies of land and water.” At the same time, the railroads tied the West to the fortunes of eastern and world markets, taking the region on a roller coaster ride through depressions and prosperity. Many Western regions remained dependent on eastern capital and subsidies from the federal government.³

The railroads changed people’s relationship to the environment at its most fundamental level—the consumption of resources. The process became abstract—instead of raising a pig for slaughter or bartering for locally produced meat, people paid cash for cut and packaged meat sold at a store. Instead of using local timber for construction, trees were harvested hundreds, perhaps thousands of miles away and transported to growing communities by train. Although resources had always been traded and transported over long distances, the railroad and refrigerated box cars made it possible to treat almost every resource this way and completely separated consumption from production.⁴

Buying and selling resources also became an abstract process. Precise surveying, using standardized measures, had allowed people to exchange land even if they never set foot on the land itself. The railroad turned the products of that land into commodities as well. A person no

longer had to inspect a farmer's sack of wheat for they trusted the railroad to deliver grain that had been measured and weighed according to a standardized system. People used slips of paper to buy and sell wheat or timber. In such a system, cash became a necessity, and many Westerners turned to wage labor to earn it.⁵

The New Mexican economy and environment underwent this transition when three railroads converged in the region in the late 1870s—the Atchison, Topeka, & Santa Fe; the Denver and Rio Grande; and the Southern Pacific. The AT&SF and Denver and Rio Grande approached northeastern New Mexico from southern Colorado, both laying tracks towards Raton Pass. In February 1878 the AT&SF won the race and became the first to extend its tracks into New Mexico. A year later, the railroad had reached Las Vegas, which became a center for shipping and commerce in the region. The AT&SF chose to follow roughly the same route as the old Santa Fe Trail—through Glorieta Pass and the Pecos vicinity—because of the valuable timber in the area, the mines around Galisteo, the presence of Santa Fe, and the natural pass afforded at Glorieta that people had used for centuries to cross into the Rio Grande drainage.⁶

The railroad changed the economy and demographics of the Pecos area. New communities—many of them short-lived—proliferated along the railroad tracks. Geographer J. B. Jackson describes how these ephemeral settlements differed from older villages. They “testified to the existence of a new relationship with the landscape: the dwelling, and even the community, moved to be near the source of employment, in contrast to the traditional relationship where employment centered on the dwelling and the land.”⁷ Settlements like Baughl's Sidings served as short-term living quarters for the numerous workers employed in building the railroad tracks and cutting railroad ties in the surrounding forests. Rowe, first called Kingman Station, but renamed by 1889, appeared west of the Los Trigos village. Los Trigos itself disintegrated as its inhabitants moved to Rowe. The entire Los Trigos grant had already passed from Hispanic ownership to Anglos by the time the railroad arrived. Those Hispanics who did stay on the grant became tenant farmers.⁸ Across Glorieta Creek, north and west of the pueblo ruins, two clusters of buildings formed in the 1880s, large enough to be marked as separate villages in the 1880 census. These were Baughl's Siding, also called Baughl's Switch or Bowl's Switch, and La Joya. Baughl's Siding only lasted two years and La Joya probably not much longer.⁹

Adolph Bandelier described the location of Baughl's Sidings as a mile and a half from the Pecos Pueblo ruins, adding that “it is about 800m.—2,620 ft.—from the foot of the *mesa*, in a belt of fine large pine timber, very high, and gives glimpses of splendid views over the valley of Pecos to the Sierras beyond. Climate fine, but nights very cold. The buildings are as yet nearly all temporary; it is more a camp than a place as is it now.”¹⁰ Other settlements appeared later, replacing Baughl's Siding and La Joya, although located in the vicinity. A map from 1915 shows two “towns” along the AT&SF tracks. One, called Decatur, stands opposite the Pecos Pueblo ruins. The other, Fox Siding, was at the western edge of the Pecos grant.¹¹

All of these communities were temporary affairs—constructed to accommodate the needs of the railroad and abandoned when railroad construction moved to other parts of the region. A diverse population called these settlements home while they lasted, and some probably stayed in the Pecos area permanently. The 1880 Pecos census recorded people who hailed from Ireland, France, England, and other areas of Europe. The influx of new immigrants pushed the population of the “precinct of Pecos” upwards from 536 in 1900 to 667 in 1910. In 1910 forty-two local men worked for the railroad. New industries thrived in the Pecos village providing services for

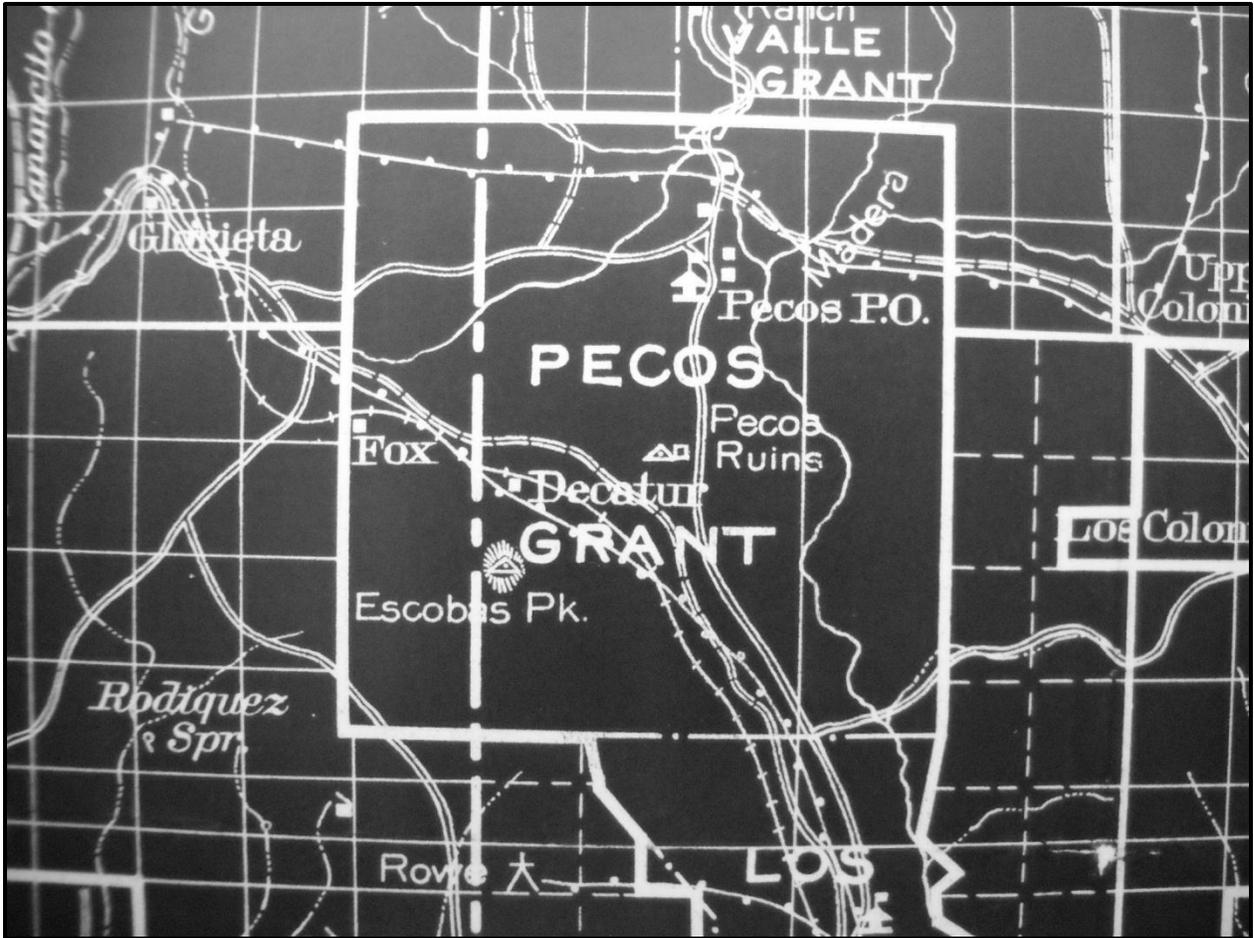


Figure 8. Section of 1915 map showing temporary settlements located along the AT&SF railroad tracks. Source: Forest Service “Santa Fe National Forest, Pecos/Jemez Division, Temporary Base Map” 1915 in Pecos River Forest Reserve Maps, Drawer 10, Folder 49, New Mexico State Archives, Santa Fe, NM.

the railroad workers. The 1880 census showed a restaurant keeper and a saloon keeper in Pecos. Three blacksmiths worked “within five miles of each other.” By 1900, a “whiskey salesman, jewelry salesman, grocery salesman, and others” plied their trade. A simple division of Pecos residents into “farmer, laborer, and farm laborer” no longer accurately described the area.¹²

Wooden railroad ties, railroad cars, telegraph poles—all required timber for construction. A mile of narrow gauge track consumed 104,000 board feet of lumber, which translated into roughly ten to fifteen acres of New Mexican forest.¹³ The AT&SF, a standard gauge track, used even more. In just two years following the arrival of the railroad, about thirty sawmills churned out lumber in the southern Sangre de Cristos.¹⁴ Timber cutting occurred on the Pecos grant. Andres Dold acquired the title to the Pecos grant in 1880 from Frank Chapman, his business partner. Dold managed a mercantile store in Las Vegas, and when he received the Pecos grant several tie camps operated on it already. Dold received rent and stumpage fees from these itinerant businessmen. A later owner of the Pecos grant, John L. Laub, was a timber cutter and railroad tie contractor based in Las Vegas. Laub had been cutting timber on the grant for several years before becoming the owner in 1896. Laub “went on using the property for the next year and a half, cutting more timber and hauling more ties.”¹⁵

The majority of the timber cutting probably took place in the northern sections of the grant where ponderosa pine, Douglas fir, and other coniferous species were more prevalent.



Figure 9. A portable sawmill cutting ties in Taos County in 1913. Similar operations existed around Pecos. FS#482531. Source: Santa Fe National Forest Historical Photographs, Southwestern Regional Office, Albuquerque, NM (hereafter, SWRO).

Glorieta Mesa also offered good timber. Bandelier climbed the mesa on his 1880 visit to Pecos, ascending a tie-shoot west of Kingman (Rowe). He also noted passing the “tie-camp of Mr. Keno” on the mesa.¹⁶ Three sawmills operated on the Pecos grant. Donaciano Vigil, who owned and operated a grain mill in the 1800s, allowed a sawmill in an adjacent arroyo to use the water from his ditch.¹⁷ A map from a government survey in 1877 shows a sawmill on the east side of the Pecos river, directly across from the ruins of the pueblo, perhaps the one mentioned by Vigil.¹⁸

Piñon and juniper, although not suited to railroad construction, were valuable as firewood and also to make charcoal. Mining smelters used charcoal for fuel, and as mining operations expanded in New Mexico in the late 1800s, so did extensive timber use. Although pine and fir could also be turned into charcoal, green piñon trees were preferred. Charcoal was produced in airtight kilns, where the wood was partially burned through the gradual exclusion of oxygen. Charcoal kilns located at Lamy, southeast of Glorieta, were probably the closest to Pecos and may have used piñon harvested in the Pecos area.¹⁹

The growth of new and old communities meant that a more extensive transportation network also developed beyond the railroad tracks. The Santa Fe Trail had been the main thoroughfare through the area for years, although settlers created informal trails between settlements. The railroad’s demand for timber necessitated either the construction of new routes or the improvement of existing routes that extended into the timbered high country. A road from

Chapter Six, 1880-1925

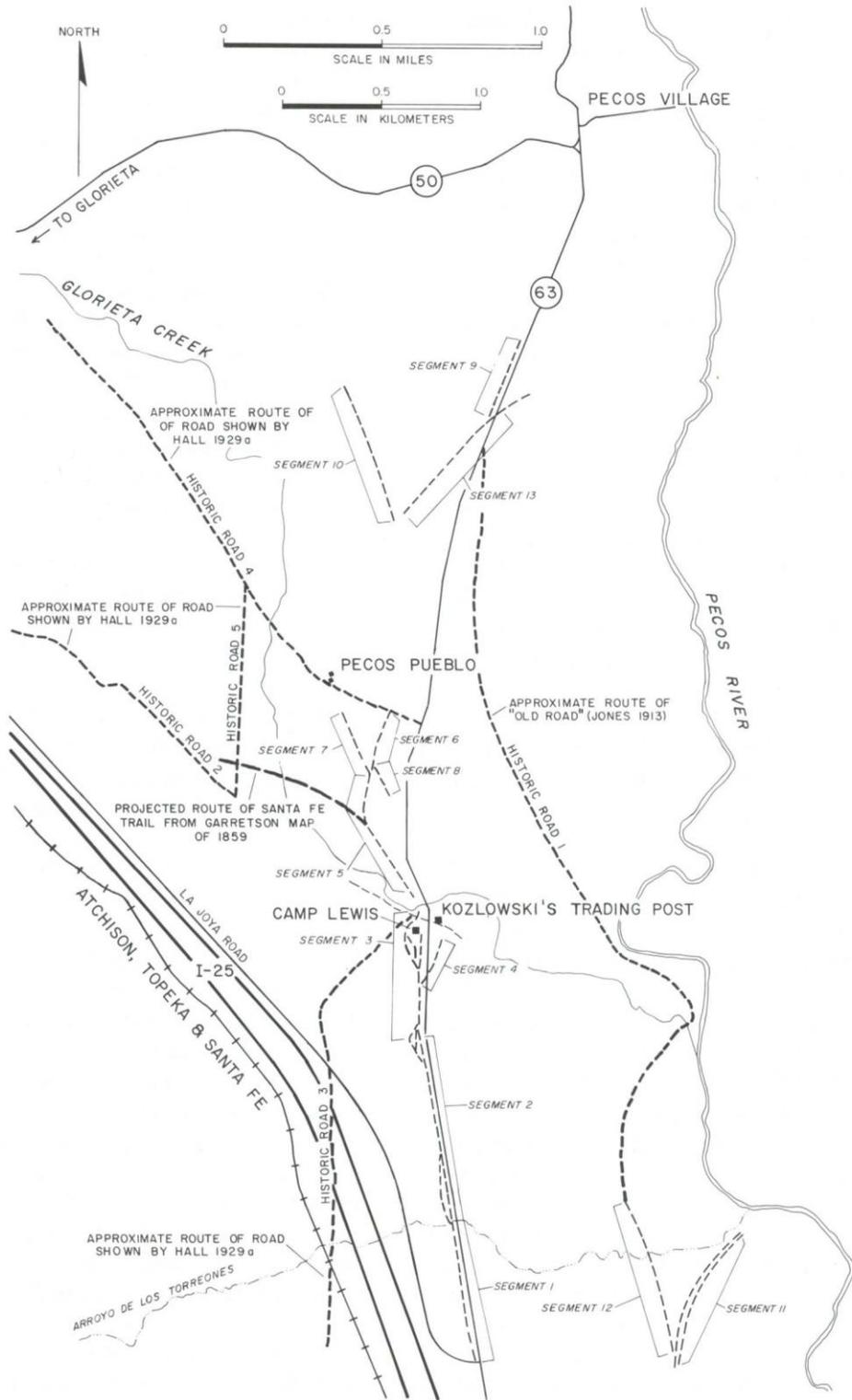


Figure 10. Historic roads in Pecos area, including segments of the Santa Fe Trail. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 2:413.)

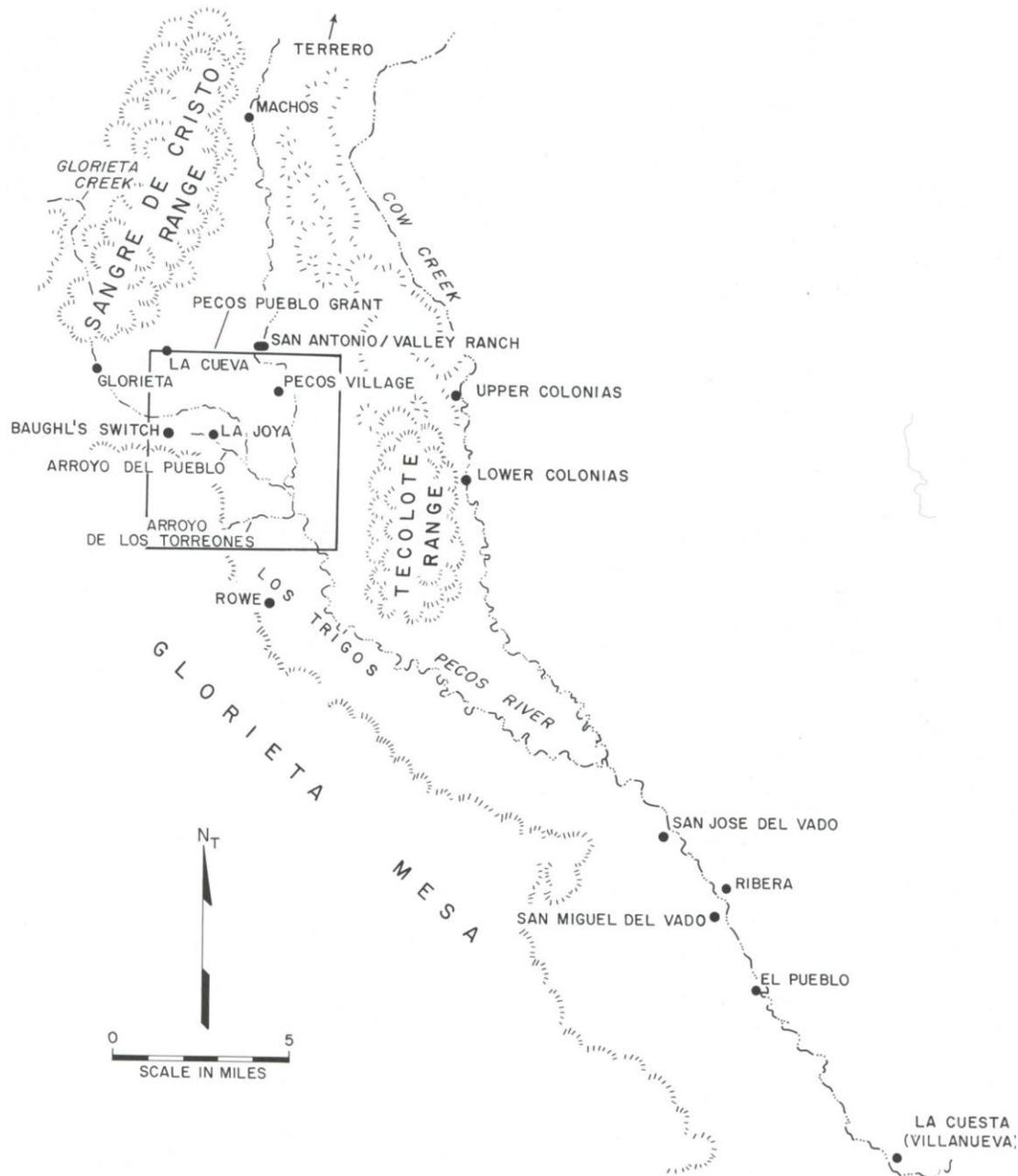


Figure 11. Pecos area, late 1800s and early 1900s. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 2:401).

the Santa Fe Trail had extended across the Pecos River to the town of Colonias, visible in an 1859 map from the William Garretson survey. It became an important route for hauling ties down from the Colonias area. The AT&SF railroad may have constructed a bridge over the river in order to make tie transportation easier.²⁰ Residents of Rowe, which did not have a well until the mid-twentieth century, also used the road for hauling water from the river. An east-to-west

road from Pecos to Glorieta, going directly through the Pigeon's Ranch complex, existed at least as early as 1915.²¹ In 1917 the State Highway Department constructed State Highway 63 from Rowe to Pecos.²² Again, this road merely improved upon an existing route, visible on a 1915 map, following part of the Santa Fe Trail before continuing straight north where the trail turned to the west.²³ The Santa Fe Trail was designated as Highway 1 on early road maps from the teens and twenties.²⁴ The expansion of the local transportation network supported the industrialization of Pecos.

The arrival of the railroad transformed the Pecos landscape quickly. When Bandelier came to Pecos in August, just a few months after the completion of the AT&SF tracks, Baughl's Sidings, complete with a boarding house, was already in its heyday and tie camps and slides operated on Glorieta Mesa. An influx of new people followed the railroad, constructing new businesses and homes in Pecos. The valley had always possessed connections to other landscapes and other people, but distance and time had mediated those connections. The railroad erased such inhibitors and brought Pecos into sudden and immediate contact with outside influences.²⁵

“Nearly All of the Titles of Land . . . Have Been Settled”: Land grants become private property

The railroad raised the economic value of the resources in the Pecos valley, but the title to the Pecos Pueblo grant remained as contentious as ever. The Pecos descendants at Jemez had sold the title to Frank Chapman in 1872 but also sold portions of the grant again in the late 1870s and 1880s to Hispanic inhabitants of the Pecos valley. Meanwhile, Martin Kozlowski and others occupied parcels on the grant without any title. Chapman's title transferred to his partner Andres Dold upon his death. Dold sold the land to J. Whitaker Wright of Philadelphia in 1881, and for the next seventeen years the title passed around the stock markets of the east, particularly New York. The men who bought the title had never been to Pecos and had no intention of going there. New York financed the mining and railroad interests, though, and the arrival of the Atchison, Topeka, & Santa Fe railroad with its need for timber had given the land value in the eyes of these distant speculators. John L. Laub of Las Vegas, New Mexico was the last to acquire title to the grant through the New York connections, bringing control of the title back to the region. While these transactions were taking place, the Hispanic inhabitants of Pecos went on selling and trading the land locally. Two separate paths of ownership of the Pecos grant developed—a virtual one in the hands of Anglo businessmen and one in the hands of Pecos residents that was tied to occupation of the land.²⁶

The usurpation of land in New Mexico by outside interests, including Anglo ranchers and the railroad, aroused resentment in many Hispanic citizens whose families had lived on the land for decades. In 1889 in San Miguel County, a group calling themselves the *Gorras Blancas* (White Caps) formed in opposition to the growing privatization of communal lands. The Gorras Blancas cut fences—both of Anglos and other Hispanos—and destroyed railroad tracks. They also undertook more conventional forms of protest by attempting to force companies to set standard prices for hauling and cutting railroad ties and encouraging railroad teamsters to strike. The Gorras Blancas enjoyed a great deal of local support, but their activities lasted little more than two years. Upon the formation of an area chapter of the People's Party, most of the members of the group joined, and their more subversive activities ceased.²⁷

Despite attempts to keep land in local hands, business interests continued to pursue property in the Pecos valley. In 1898 the operators of Gross, Kelly, & Company, based in Las Vegas, purchased the title to the grant from John Laub. The Gross Kelly Company operated

wholesale and retail stores throughout the region, including one in Pecos. They also dealt in timber cutting, and purchasing and shipping wool, sheep, and cattle. They purchased the Pecos grant for its timber and continued to carry out tie cutting operations on the grant.²⁸ A 1913 survey noted that the Gross Kelly Company reserved a tract of land near Decatur for “switch purposes” and loading timber onto railroad cars. Jerome Kunkle, who owned a section of land located north of Glorieta Creek, sold the timber on his tract to the Gross Kelly Company even though, as part of the grant purchased by the company, the timber technically already belonged to them.²⁹

The Gross Kelly Company recognized the contradiction in having to buy timber for which it had already paid. Unlike previous owners, the company decided to do something about the situation and initiated a suit to gain clear title to the grant. The Gross Kelly Company had acquired the title to the grant through the chain of Chapman and the New York owners. In the meantime, local land deals had continued. In the 1890s the Pecos descendants at Jemez once again sold some land to the Pecos citizens—for perhaps the third time. After 1910 a few local landowners began selling their property to the D.C. Collier Company. Collier lived in California and served as president of the Panama-California Exposition Company and as an officer in the San Diego branch of the American Institute of Archaeology. Collier was interested in Pecos for its archaeological potential and also entertained schemes for a summer resort and irrigation development. Collier’s ownership of the land conflicted with that of the Gross Kelly Company. Francis C. Wilson, who acted as attorney for both Collier and the Gross Kelly Company, filed a quiet title suit on behalf of Gross Kelly in 1914.³⁰

It seems no one involved in the many transactions of the Pecos grant ever stopped to consider whether its origin as a Pueblo Indian grant might invalidate all subsequent titles. Debate over the status of Pueblo Indian land had continued in Congress and the Courts following the *Joseph* decision of 1877. The 1912 act granting New Mexico statehood defined the Pueblos as “Indians,” a status denied to them in the *Joseph* case. Immediately, *United States v. Sandoval*, a case questioning Congress’s ability to designate the Pueblos as Indians, went to the Supreme Court. Bearing the same name as the 1897 case concerning Hispanic communal lands, this case confirmed Congress’s power to define a group as “Indian,” but did not interpret whether or not *Sandoval* changed the earlier *Joseph* decision. If the Pueblos were Indian tribes did that make any settlement on their lands invalid? Could the Pecos return to their grant and repossess it in its entirety? Or did *Sandoval* simply mean that the federal government had some say in the disposition of Pueblo lands? For the moment, all concerned ignored any potential implications of *Sandoval*.³¹

Gross Kelly’s quiet title suit certainly took no account of the Pecos descendants. D.C. Collier quickly sold the tracts he had bought to Gross Kelly, sensing the looming legal battle. Pecos residents, however, prepared themselves for a fight, determined to prove their rights to the land. Realizing that attempting to evict the entire population of Pecos from the grant would be impossible, Gross Kelly settled for the 10,870 acres in the southern portion of the grant. The case made no mention of any possible claims the Pecos descendants may yet have possessed. To the tie cutters and railroad workers, the only evidence that the Pecos had ever lived on the land was the pueblo ruin, slowly crumbling in the winds and rains that swept the valley.³²

In preparation for the court case, the Gross Kelly Company hired Vincent K. Jones to complete a survey of the grant. In his final report submitted in 1913, Jones confidently stated that “all of the titles of land claimed under adverse possession have been settled” through the quiet title suit and proceeded to provide details of the homesteads located on the Pecos Pueblo grant.

The survey, along with archaeological artifacts, offers evidence pertaining to those homesteads near the Pecos Pueblo ruins and Kozlowski's ranch. Some, such as the Benigo Quintana homestead (PECO 270), were no longer occupied by the early twentieth century (see Figure 4). Others evidenced signs of occupation. The Anicieto Rivera homestead (PECO 175) was probably still occupied through the late 1800s, and around 1890 Pedro Ruiz began occupying a site (PECO 367) that belonged to his father along the southern border of the Pecos grant. Anicieto Rivera may also have owned another homestead (PECO 541), which shows signs of occupation in the early 1890s. Settlers occupied this homestead for about twenty years and it was abandoned by the time of Jones's survey.³³

Gross Kelly's quiet title suit solidified the borders around the land in the Pecos valley. Land that had once been controlled through use and occupancy now belonged to people through a legal title. Allowing one's livestock to wander freely through the valley brought the risk of legal action. If a land owner such as Gross Kelly protested, the offender could be taken to court on trespassing charges. Although much of the land outside the town of Pecos remained unfenced, and cattle still grazed along the Pecos River, by the pueblo ruins, or on Glorieta Mesa, the legal mechanisms were now in place to halt free grazing if a land owner so desired.

“I Saw a Herd of Many Hundred Sheep and Goats”: Economic development in the Upper Pecos Valley

On his visit to Pecos in 1880, Bandelier saw some locals driving “a herd of many hundred sheep and goats” to a spring on the west side of Glorieta Creek across from the pueblo. Bandelier noted that although both Glorieta Creek and the pond in the old irrigated field by the pueblo had water in them, the herders “still preferred the old source.”³⁴ Many other residents of the Pecos valley continued to own livestock, and new ranchers moved into the area as the railroad provided ready access to eastern markets. Many livestock owners in New Mexico continued to herd sheep. Although they required more labor to raise and herd than cattle, sheep adapted to the arid climate more comfortably. The sheep population peaked in New Mexico in the late 1880s, numbering around 5 million. However, cattle numbers kept increasing. As more people became dependent on a wage labor economy, providing the required labor for sheep herding proved too difficult and many ranchers switched to cattle. In 1879, the year before the railroad arrived, 137,000 cattle grazed in New Mexico. By 1883 the number had risen to one million and continued to increase. In San Miguel County, there were 20,867 cattle in 1880 and 389,934 sheep. After 1900, the numbers of sheep steadily decreased, falling to around 40,000 by 1920. Cattle, in contrast, numbered around 50,000 by that year. In the Pecos area ranchers grazed both sheep and cattle in the high pastures of the Sangre de Cristo Mountains as well as on the forests and mesas closer to the Pecos River.³⁵ Several ranches were noted on an 1899 map of the area, most of them located in the Pecos canyon. The Valley Ranch Company, in particular, seems to have been a fairly large livestock operation. Expanded market opportunities for beef provided the incentive to increase herds far beyond the capacity of the local environment to support.

Livestock grazing continued in the area around the settlement of Pecos. The wealthy Anglo owners of the Pecos grant, such as Chapman, Laub, or the Gross Kelly Company, used the grant strictly for timber cutting and probably never pastured any livestock there. The residents of Pecos, though, continued to own livestock and pastured that livestock in the surrounding area. Donaciano Vigil, one of the prominent members of the community, included in his 1877 will a

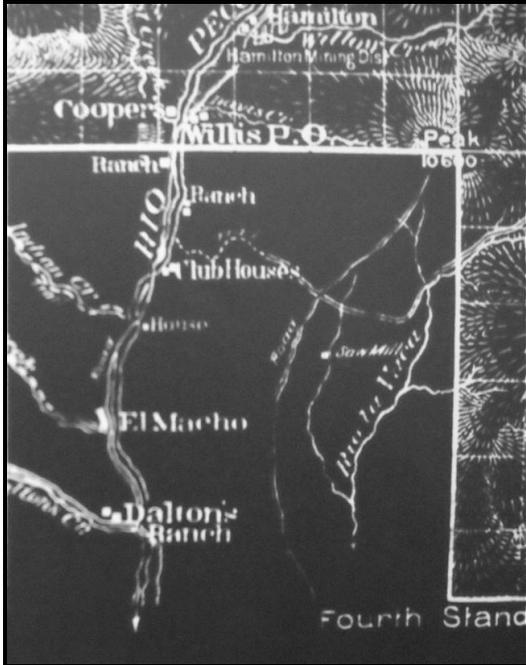


Figure 12. Section of 1899 Forest Reserve map showing the many ranches up the Pecos Canyon. Also note the sawmill in tributary canyon. Source: "Map of the Pecos River Forest Reserve," 1899 in Pecos River Forest Reserve Maps, Drawer 10, Folder 49, New Mexico State Archives, Santa Fe, NM.



Figure 13. Section of 1899 Forest Reserve map showing the many ranches up the Pecos Canyon. Source: "Map of the Pecos River Forest Reserve," 1899 in Pecos River Forest Reserve Maps, Drawer 10, Folder 49, New Mexico State Archives, Santa Fe, NM.

list of the various livestock he owned including “a certain number’ of cattle, oxen, cows, yearlings, calves old enough for branding, one mare with colt, two burros, three pigs, and interests in numerous other herds let out on *partido* (‘share-ranching’) contract to friends and Pecos neighbors.” He “kept upwards of five hundred sheep” on the Pecos grant itself.³⁶

Although livestock remained in the Pecos valley, livestock concentrations no longer followed the same patterns as in earlier times. As the Santa Fe Trail became obsolete, so did the cattle, mules, and oxen that used to travel and graze along it. The arrival of the railroad also signaled the demise of the many hostleries along the Trail. The railroad drew business to the communities alongside its tracks, and the old ranches no longer attracted many travelers. Alexander Valle had already sold his ranch to George Hebert in 1865. Hebert, who continued to operate the ranch as a stage stop and also added a post office, gave up the business in 1887 and sold the ranch to Walter and Sarah Taber. The Tabers built a house on the property and operated a store and the post office for a time but did not use many of the older ranch buildings. The structures suffered from desuetude and by 1920 only a corral, a three room building, and the remnants of an adobe wall remained.³⁷ Although photographs from the 1880s still show wagons and livestock at Pigeon’s, they depict an emptier landscape, absent the bustling of people and animals that must have characterized the ranch in earlier decades.³⁸

The cultivated fields that Civil War soldiers mentioned at Pigeon’s Ranch during the battle still appear open in photographs in the 1880s but were no longer actively maintained as the ranch slowly decayed. The center of travel and population shifted to the town of Glorieta where the railroad stopped. A 1901 survey of Glorieta recorded a number of people settled within the vicinity. The surveyor, John Zimmerman, described almost all of these privately owned tracts of land as “agricultural and small timber.”³⁹ His description suggests many cleared patches of land around Glorieta. Several of the tracts stood within the Forest Reserve, created in 1892, which was opened to homesteaders. Undoubtedly, residents who did not live within the Reserve also grazed cattle on the forest.

Andrew Johnson had sold his ranch in 1869.⁴⁰ Johnson’s Ranch continued to serve as a stop on the Southern Overland Mail route through 1880, but following the arrival of the railroad and the cessation of the mail route, Johnson’s Ranch probably began falling into ruin. Photos from the early twentieth century show a decrepit structure, perhaps abandoned.⁴¹ Certainly, people continued to live in the area, by then known as Cañoncito. A post office was located there briefly, from 1879 to 1880. Between 1880 and 1891 the parishioners of Cañoncito built a church, called the Nuestra Señora de Luz, which remains in use today.⁴² These people probably owned some livestock and carried out small scale farming. A photo of Cañoncito from 1914, possibly of Johnson’s ranch, shows a horse grazing in a landscape that appears denuded and eroded, probably from a combination of grazing and wagon traffic.⁴³

Martin Kozlowski stayed in the area, but his ranch ceased functioning as a waypoint for travelers who, up through the 1870s, continued to stay there and exclaim over the excellent trout obtained from the Pecos River.⁴⁴ Adolph Bandelier spoke to Helen Kozlowski on his 1880 visit, and the census of that year recorded some of Kozlowski’s children as living in the new town of Baughl’s Sidings where they were listed as the only native New Mexicans. Kozlowski himself was in jail in Las Vegas. Apparently Kozlowski “became insane and killed his only remaining son,” as the Santa Fe *New Mexican* reported upon Kozlowski’s release in 1881, although evidence suggests that other sons still lived.⁴⁵ Helen Kozlowski moved to Albuquerque to stay with some of her other children and died there in 1895. By 1913 Tomás Kozlowski, perhaps one of Martin’s sons, was back at the ranch and had rebuilt some of the structures. Jones’s 1913

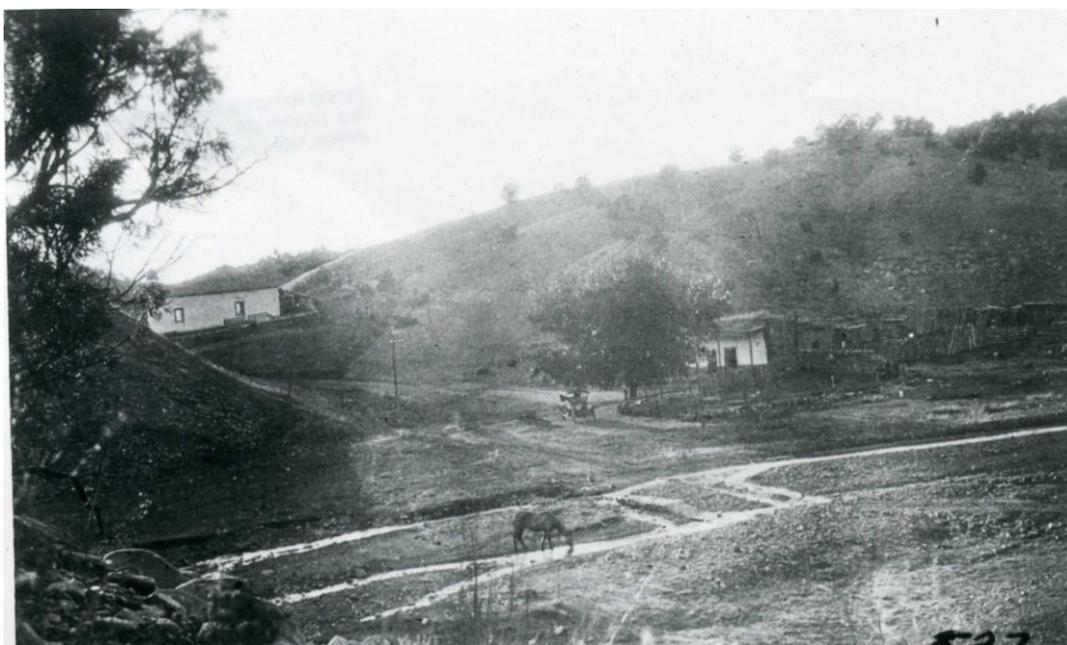


Figure 14. Cañoncito, NM, 1914. Photo by Waldo Twitchell. Source: Park Files, original negative at Museum of New Mexico, negative no. 8834.

survey shows two plots of “cultivated land” surrounding the ranch, where the Kozlowskis probably carried out small scale, temporal farming. The attempts at reviving the ranch failed. In the 1920s Tomás lost the land due to a failure to pay taxes.⁴⁶ Although the land around the old hostleries remained in use, they no longer boasted the numerous travelers with their horses, oxen, and cattle that had stayed there during the heyday of the Santa Fe Trail.

The Kozlowskis were not the only ones to face changing times in the Pecos valley. Many of the Hispanic residents became less and less reliant on farming and ranching as they were swept up into the developing regional, wage labor economy. Instead of owning their own herds, men found employment as ranch hands with large livestock operations. By the 1910 Pecos census, more men worked on stock ranches than those who herded their own sheep and cattle. The number of farmers in the valley also began to drop. In 1910 ninety-seven men worked as farmers, farm laborers, or herders. By 1920 more men reported a second source of income—freighting or stock raising—in addition to farming.⁴⁷ People continued to raise crops for profit. Newspaper accounts from 1925 refer to the early crop of head lettuce at Pecos. B. A. Ruter (also spelled Reuter) owned a stretch of land along the Pecos River directly below the Valencia Ranch. Ruter arrived in Pecos around 1920 and by 1925 was planting sixty acres of head lettuce, two acres of peas, and three acres of cauliflower.⁴⁸

But increasingly, men found employment outside the Pecos valley, sending money home to family members and returning themselves for short periods. The sugar beet fields in northern Colorado attracted thousands of workers during the planting and harvesting seasons. The Colorado Fuel and Iron Company also employed large numbers of northern New Mexicans in the coal fields of southern Colorado. Indeed, these industries relied on the low-paid labor of Hispanos and Mexicans. Men were not the only ones to leave home looking for work. The sugar beet industry, in particular, drew entire families to work in the fields.⁴⁹

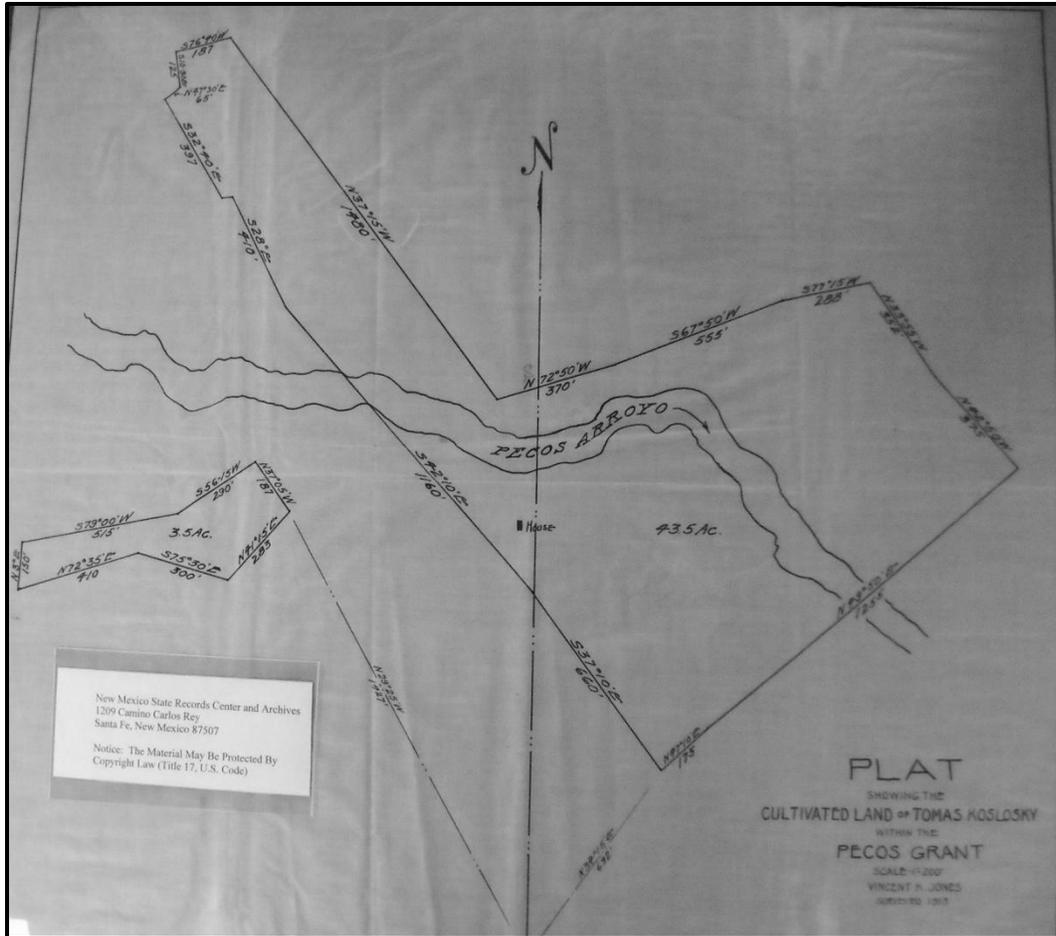


Figure 15. Map from Vincent K. Jones's 1913 survey showing the cultivated land around the Kozlowski Trading Post. Source: Collection 1959-296, Series: Land Grants-Pueblo Grants, New Mexico State Archives, Santa Fe, NM.

Even as new strategies of migratory wage work replaced a reliance on farming and ranching for Hispanos in northern New Mexico, keeping some cattle and sheep helped them to remain connected to their heritage. Many families continued to own small numbers of animals. These animals not only linked families to a long history of grazing in the region but also provided emergency sources of food during periods when finding wage work was difficult. A similar situation developed in regards to agriculture. Although fewer families possessed large acreages and extensive fields, gardens—tended by women—became important supplementary sources of food. Families also could sell canned or fresh produce in local markets.⁵⁰

A grain mill, built about 1905 across the Pecos River from the pueblo, and the failure of that mill by the 1920s illustrates the transition from a reliance on locally produced foods to the increasing dominance of store bought consumables. Grain milling had taken place in the Pecos area in the nineteenth century as well—Donaciano Vigil had owned a mill by the Pecos River. Vigil's mill probably operated on a toll system—people brought their grain and corn to the mill and gave a percentage to the mill owner. With the arrival of the Santa Fe Trail and the American military in New Mexico, milling assumed an increased importance. The army's demand for flour encouraged local producers to build grain mills, and traders brought the technology—cast iron wheels and turbines—that helped turn milling into a profitable business. Millers purchased grain from farmers and sold flour themselves to consumers. As it did in so many areas, the railroad

changed the milling business. Railroads brought eastern flour to New Mexico—more finely milled and less expensive. The milling business declined, but there was still some demand among locals for milling services.⁵¹

This local demand motivated the construction of a new mill along the Pecos River after Vigil's ceased operation. Documentation for the mill, known as the Catanach mill for its operator, Archibald D. Catanach, is scarce and begins with the 1909 deed for mill site. As with much of the land in the Pecos Pueblo grant, a succession of Santa Fe investors who never occupied the land owned the area around the mill. In 1906 two sisters, Mrs. Minnie DeMier and Mrs. Lilly Bergman purchased the land from Mr. and Mrs. Phillip Hesch—no mention was made of the mill in this deed. A 1909 deed divides the land between the two sisters, but they retained joint ownership of the “grist mill built on the land.” Archibald Catanach bought the mill in 1915. Catanach may have leased the mill from the sisters before purchasing it himself.⁵²

Historians Courtney White and Earl Porter, in their history of the mill, speculate that the mill was built between 1905 and 1910. Constructed of wood with two to three stories, the mill may have first used a stone grinding system but by 1910 the mill used a roller grinding system. A quarter-mile-long acequia brought water from the Pecos River to a reservoir on a small hill west of the mill. A wooden flume then carried the water from the reservoir to the mill. The acequia joins the Pecos at a bend in the river—a dam was probably constructed at this site to force water down the acequia.⁵³

Catanach wrote to the U.S. Food Administration in 1918, requesting a license for his mill. In the letter he described it as “a small mill about 60 bushel capacity a day and I grind the most on toll for the people and I do not run regular. And I do some buying of wheat and corn on a small scale.”⁵⁴ Although the Catanach mill was not a large operation, it was the largest mill between Las Vegas and Santa Fe. Catanach sold it to E.R. Crews in 1918, and the mill probably ceased operation shortly thereafter.⁵⁵

Interestingly, the Jones survey of 1913 did not mention Catanach or the two sisters who supposedly owned the land. In *Four Leagues of Pecos*, G. Emlen Hall provides a map modeled on Jones's survey map. On Hall's map, the land where the grist mill was located appears to belong to Anicieto Rivera with two tracts owned by D.C. Collier (the investor from California) to the north, and a section owned by W.W. Wagner to the south. This map, however, does not conform to the description Jones provides in his report. Jones states that the land adversely claimed by W.W. Wagner forms the *northern* boundary of Anicieto Rivera's tract. From the written report, it appears that, proceeding from north to south, D.C. Collier owned two tracts of land along the river, then Wagner owned a tract, and finally Rivera. In describing the land claimed by Collier and Wagner, Jones mentions the “Hesh Place.” The northernmost Collier tract's southern boundary was “a line between two points on the rim rock on each side of the River running through the upper dam which was constructed to irrigate the ‘Hesh Place.’” This dam was too far north to be the same one as that used for the mill acequia. Jones says that the actual “Hesh Place,” further to the south, was owned and adversely claimed by W.W. Wagner in 1913.⁵⁶

The absence of reference to Catanach or Mrs. DeMier and Mrs. Bergman in Jones's survey may reflect the confused state of land titles in the area. The same parcels of land were sold to different people numerous times. Perhaps the two sisters first sold the land to Wagner, who may have leased the mill to Catanach. Two quit claim deeds, one from Ralph Hinman in 1915 and one from Mrs. Bergman in 1918, release the land to Catanach. Additional land deals may have transpired in the interim between the 1909 deed dividing the Hesh ranch land and these

quit claim deeds. It is odd that Jones, who carefully noted any signs of possession on the land he surveyed, made no mention of any type of mill.⁵⁷ Adjacent to the mill along the Pecos River was an apple orchard—many of the trees still stand today. A second acequia brought water to the orchard. It is unknown when or by whom these trees were planted. A cultural landscape overview of Pecos National Historical Park dates the orchard circa 1860, but it is not clear what evidence the authors had to support this.⁵⁸

The Pecos landscape reflected the transitions in the regional economy. Livestock still roamed the mesas and forests, people still planted crops in the Pecos ciénega, but by the 1920s these land uses had become less economically important. Pecos residents, particularly men, left the area to find seasonal wage work. The landscape assumed new, gendered associations as women cared for farms and ranches in their absence. Local residents formed connections to other landscapes in Colorado where the presence of certain resources—coal and sugar beets—drew workers from northern New Mexico. The grain mill and apple orchard along the Pecos River testified to the continuing importance of local production; yet by the 1920s the wheels of the grain mill had fallen silent, and the apple orchard was left on its own to thrive or fail without human interference.

“The Pecos District Was Badly Overstocked”: Environmental degradation

Adolph Bandelier wrote lengthy descriptions of the Pecos Pueblo ruins, but he also included some descriptions of the landscape of the valley in his report. In one section, he compared Glorieta Mesa with the valley:

Vegetation [on the mesa is] more exuberant than in the valley of Pecos. Not only do tall pines grow everywhere, but there is a thick undergrowth of *encina*; the Yucca is large and green, mountain sage covers the soil, and grassy levels are dotted with flowers. Animal life, also, is more vigorous and more varied. Whereas in the valley crows and turkey-buzzards alone enliven the air, and there are scarcely any beetles; up here there is deer and turkey, and the gray wolf; jays and magpies flutter through the thickets, and the horned lizard is met with occasionally.⁵⁹

Bandelier visited Pecos when the intensive resource exploitation that followed the arrival of the railroad was just beginning. The population in the valley, though, had been increasing for decades. Bandelier’s report described a landscape that was showing the effects of large-scale grazing, timber cutting, and hunting. In the valley, closest to the center of population, those effects were more evident. One photo taken in or near Pecos around 1880 shows two adobe homes with only sparse vegetation around them. In the distance a hill covered with piñon and juniper is visible, but the tree cover is not dense.⁶⁰ Photos taken around Kozlowski’s also show sparse vegetation immediately around the ranch.⁶¹ Had Bandelier returned to the area twenty or thirty years later, he would have found a similar situation on Glorieta Mesa and farther up the Pecos canyon, evidence of the livestock and lumberjacks that stripped grass and timber from the area.

Unregulated timber cutting and grazing wrought havoc on the Pecos environment. Of course, Hispano ranchers and farmers, and the Pecos before them, had never regulated their use of resources. Timber depletion and overgrazing had been a problem on a local scale before the late 1800s. By the turn of the twentieth century, large ranches spread across northern and eastern

New Mexico, the numbers of cattle and sheep had increased, and timber demand had skyrocketed. The forests of the Pecos watershed bore the impacts of such intensive resource use. John W. Johnson, a ranger with the U.S. Forest Service who came to Pecos in 1918 stated plainly that “the Pecos District was badly overstocked.” Livestock grazed on any available forage. Sheep preferred short grasses and open meadows whereas cattle sought out bunchgrasses and sheltered areas. As historian William deBuys describes, “Every square foot of the mountain rangeland was put to full use, and the use continued without a break from snowmelt in the spring to the first white storms of October.” An 1898 report from the National Wool Growers’ Association stated that around Pecos, “overgrazing . . . had progressed to the point that the hungry sheep were even stripping the trees of their foliage.”⁶²

Overgrazing encouraged the infiltration of annual weeds that replaced perennial native grasses. A researcher from the New Mexico College of Agriculture and Mechanical Arts, E. O. Wooton, completed a report in 1908 detailing the problems. The two most voracious weeds, according to Wooton, were the native snake weed (*Gutierrezia sarothrae*, also called sheep weed or *yerba del vibora*) and the exotic Russian thistle (*Salsola tragus*). The Russian thistle, Wooton wrote, “seems to be taking possession of some ranges where the grass is badly killed out.” Wooton and a colleague, Paul Standley, also compiled detailed botanical inventories of the state, which recorded the presence of exotic and invasive species. Their *Flora of New Mexico*, published in 1915, mentions many of the species that continue to plague land managers today. The authors noted that tamarix (*Tamarix* L.), introduced from Europe, “grows rapidly from cuttings and withstands continued drought very well.” *Kochia scoparia* (Mexican fireweed) had been “cultivated at Albuquerque, and probably will be found escaped.” *Poa pratensis* (Kentucky bluegrass) was found in a number of locations around the state, including Santa Fe Canyon, Truchas Peak, and Raton. *Verbascum thapsus* (common mullein) grew in several locations, including Pecos.⁶³

While overgrazing encouraged the growth of new species in some areas, in others vegetation became denuded. Overgrazing and upstream erosion had particularly severe impacts on riparian areas. Bandelier’s description of Glorieta Creek mentions no riparian vegetation. Bandelier wrote that “we have to follow the *arroyo* downwards . . . till, south of the old church itself, the road at last crosses the wide and gravelly bed, in which a fillet of clear water is running. Then we ascend a gradual slope of sandy and micaceous soil, thinly covered by tufts of *grama*.”⁶⁴ Photos taken in 1915 of Glorieta Creek reveal a landscape with no willows or cottonwoods. The entire floodplain around the creek appears bare and stands of piñon and juniper on the surrounding slopes are thin.⁶⁵ Similar conditions probably existed along the Pecos River.

Bandelier’s account and many earlier descriptions describe Glorieta Creek as filled with water. Fray Dominguez, in his 1776 description of Pecos, does not refer to the creek as a water source for the pueblo, however. Later accounts in the twentieth century often stated that the creek was dry or had only intermittent flows. Alfred Kidder, recalling his archaeological work at Pecos in the 1910s and 1920s, wrote that Glorieta Creek was “normally dry,” but that “the arroyo is subject to furious floods after the violent thunderstorms of the summer rainy season.” He also noted that “along the rocky channel beneath its sandy bed there is a limited but seemingly constant flow of good water that can be reached almost anywhere by a little digging and that at several points comes to the surface in small springs.”⁶⁶ A local man, Señor Roybal, informed Kidder that the creek “never used to go dry.”⁶⁷ It is unclear exactly how much the streamflow of

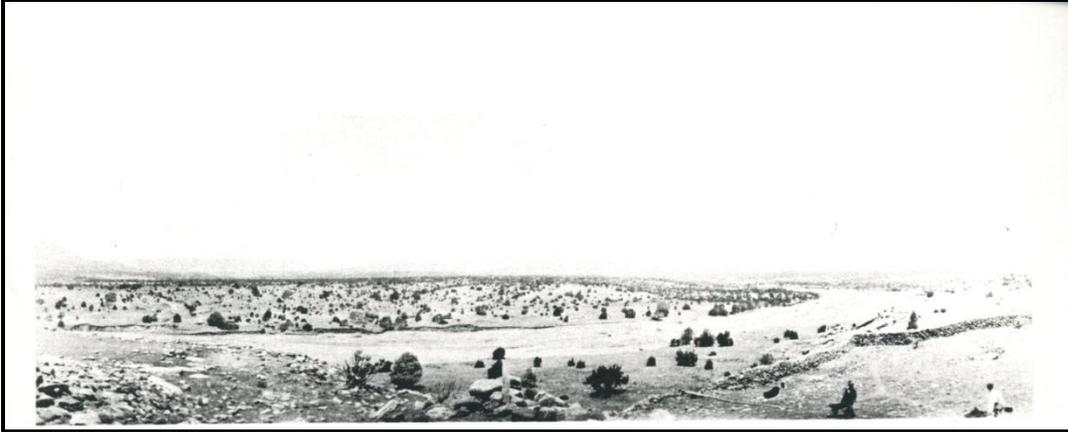


Figure 16. Looking from Pecos Pueblo ruins across Glorieta Creek to the northwest, 1915. Source: Cowley, Joseph, and Rhodes, *Cultural Landscape Overview*, 61, original at Museum of New Mexico, negative no. 12330e.

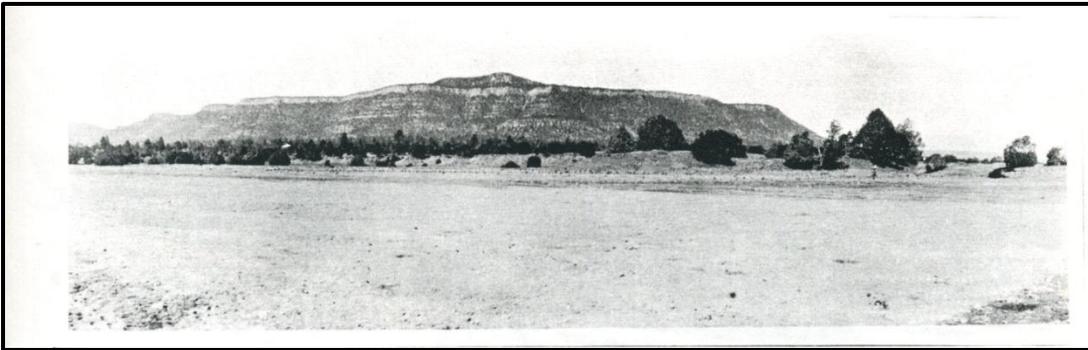


Figure 17. Looking across Glorieta Creek to the west, 1915. Source: Cowley, Joseph, and Rhodes, *Cultural Landscape Overview*, 61, original at Museum of New Mexico, negative no. 12325.

Glorieta Creek varied. Early descriptions of Glorieta Creek from the Spanish period and eighteenth century were written by people who were in the area only a short time. The memories of local residents, too, can be faulty, particularly in regards to past environmental conditions, which are usually nostalgically described as better than current ones. Records from the late 1960s to the present indicate that water flow in the creek has been constant, but varying in quantity.⁶⁸ Conditions in the surrounding watershed may have altered the flow of Glorieta Creek during the various periods of Pecos history.

Bandelier also mentioned the existence of a pond in a walled area directly to the west of the south pueblo, “which, even at the present time is filled with water. . . . This enclosed area, now covered with tufts of grama, occasional cactuses, knolls and scattered drift and pottery, was according to Sr. Ruiz, the former *huerto del pueblo*; that is, the fields of the inhabitants of the pueblo, where they planted and raised Indian corn, beans, calabashes, squash, and, after the advent of the Spaniards, also wheat, melons, and perhaps other fruit.”⁶⁹ Ruiz’s account matches earlier descriptions of the locations of the pueblo’s gardens.

Kidder also found a “reservoir” filled with water.⁷⁰ He felt the enclosure could have been either a corral or irrigated garden. This reservoir no longer exists, but the disappearance of the pond is probably due to the disintegration of the ruins rather than any appreciable change in climate. Unless the reservoir was at the location of a spring that has since dried up, it does not seem possible that precipitation alone could fill a depression for any great length of time. Although the early years of the twentieth century brought increased rainfall to New Mexico, it is

more probable that the Pecos carefully engineered the reservoir to collect and hold water. As the ruins fell apart, the irrigation system also failed. With nothing holding it back, water simply ran off the mesilla or formed short-lived puddles after a heavy rain.

Climate did play a role in environmental change, however. A twenty-year drought, from the 1880s through the 1890s, exacerbated vegetation loss initially caused by overgrazing. Wet weather returned by 1905—unusually wet. 1905 to 1920 “were the wettest fifteen years in the past two and a half centuries.”⁷¹ The increase in moisture probably had a dual effect—it aided plant growth, but erosion on overgrazed land increased. The period of wet weather also influenced people’s memories. Ranchers who arrived in the area after the turn of the century and even those whose families had been in the area a long time experienced an unusual climatic cycle, which encouraged them to intensify such practices as grazing in the belief that the land was better adapted to it than was actually the case.⁷² When conditions returned to a drier, more characteristic cycle by the 1920s, it appeared to residents that severe droughts had arrived. In fact in the Pecos area, tree ring records show that high precipitation continued until 1942 with only a brief dip in the 1930s.⁷³

Rainy periods increased the likelihood of severe flooding and the formation of *arroyos*. Arroyos are “valley bottom gullies characterized by steeply sloping or vertical walls in cohesive, fine sediments and by flat and generally sandy floors.”⁷⁴ Scientists as well as residents noticed a marked increase in arroyo formation all through the Southwest, including New Mexico, beginning around the late 1860s and accelerating in the 1880s and 1890s. Since the early twentieth century, a number of theories have developed to explain the accelerated arroyo formation. Evidence for when arroyos began forming is limited. Certainly some arroyos existed before the 1860s. The southwestern landscape may have gone through several periods of intensified erosion and subsequent deposition. Explanations for arroyo formation begin with the premise that a loss of vegetative cover leads to weaker soil and an increased possibility for erosion. Although a wetter period can intensify erosion, periods with many heavy rainstorms and floods may be more influential than seasons of higher overall rainfall.⁷⁵

The twenty-year drought in the late nineteenth century, combined with overgrazing, increasing population, and timber production, decreased vegetation and weakened the soil. When a wetter period began in the early twentieth century, the runoff created trenching, deepening existing channels or creating new ones.⁷⁶ Photos taken of Johnson’s ranch and the bridge in Apache Canyon in the first two decades of the twentieth century show sparse vegetation around homes and the roadway. The arroyo over which the bridge passes appears severely eroded, probably due to grazing as well as its location directly by a transportation route. In the Upper Pecos valley, the first severe flood of the new century occurred in 1904. Heavy rains arrived late in the month of September, swelling the headwaters of the Pecos. On the morning of September 30, the river overwhelmed its banks, sending floodwaters hurtling downstream. Communities all along the Sangre de Cristo range suffered, including Pecos and Las Vegas. The 1904 flood was the worst in the twentieth century, but certainly not the first flood on the river. Residents recalled another, less devastating flood, in 1886. The United States Geological Survey began keeping records of streamflow on the Upper Pecos in 1910. These records indicate a moderate 6.2-foot flood crest in 1929—the maximum recorded amount of discharge for the twentieth century, but the unrecorded 1904 flood was more extreme.⁷⁷

As creek beds eroded and weeds replaced native species, environmental changes affected many species of mammals and birds as well. The increase in human population in the Pecos area, many of whom sought to supplement their diets by hunting and also enjoyed hunting as a

sport, caused the local extinction of elk, the last of which were hunted out of the Sangre de Cristos by 1888. The need to provide food for railroad workers, in particular, hastened the destruction of elk herds. Bighorn sheep were gone by 1903, and the mule deer population, which had probably declined in the fifteenth century when the population peaked at Pecos Pueblo, also fell in the twentieth century. This time, the population decline occurred over a much greater area. On the Carson National Forest in northern New Mexico only eight deer survived in 1915.⁷⁸ Species that depended on riparian vegetation also declined as river banks became denuded and eroded.



Figure 18. Glorieta Pass, Apache Canyon, circa late 1800s, early 1900s, showing severe erosion. Source: Park files, original negative at Colorado Historical Society, negative no. F4057.



Figure 19. Closer view of Apache Canyon bridge showing erosion. Source: Park files, original negative at Colorado Historical Society, negative no. F34221.

“To Protect and Improve the Forests”: The Forest Service at Pecos

Conditions in forests throughout the nation echoed the conditions at Pecos. The mounting evidence of overgrazing and deteriorating watersheds prompted conservationists to agitate for an increased governmental role in the management of the nation’s public lands. Conservationists promoted the creation of forest reserves—land removed from direct citizen ownership but managed by the government for the benefit of the public. Advocating for federal government regulation of land use marked a definite change in American policy. Previously, the federal government had always worked to place land in the hands of private interests. The Civil War started the trend towards a larger government that was increasingly involved in ordering American society. By the 1890s, proponents of Progressivism were arguing for governmental oversight of such problems as corporate monopolies and urban health issues. Conservationists took the ideas of the Progressives into the arena of land control.⁷⁹

The American Forestry Association urged President Benjamin Harrison to pass the Forest Reserve Act in 1891.⁸⁰ One year later Harrison approved the creation of the Pecos River Forest Reserve.⁸¹ The 1897 Pettigrew Amendment provided the basic mechanisms for managing forest reserves. Managers were “to improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber.”⁸² Neglected for the first years of their existence, as management shifted from the Department of the Interior to the Department of Agriculture, it was not until the USDA’s Forestry Division was renamed the Forest Service in 1905 and received control of the reserves under Gifford Pinchot that active oversight of the reserves began. Shortly afterwards, the reserves were renamed national forests. The Pecos Reserve became the Santa Fe National Forest in 1915. A variety of administrative shifts and name changes occurred over the years, but the boundaries of the forest remained basically the same. In the Pecos area, as in most of New Mexico, the national forest consisted of the old communal lands—the land that people had used for grazing, firewood gathering, and piñon nut harvesting for centuries. The Santa Fe National Forest surrounded the Pecos grant and the area around Glorieta and Cañoncito on almost all sides.⁸³

The Forest Service approached the management of the national forests from the perspective that trained professionals were the best stewards—far better than local residents who wasted resources and destroyed the forests’ sustainability. Many other disciplines, including medicine and history, became professionalized at the end of the nineteenth century. In the Forest Service, academically trained foresters investigated the woodlands of the nation and often returned appalled by what they saw as wasteful and harmful practices, particularly in the large tracts of forests in the West. Justifying their reforms with science, the Forest Service put a halt to unrestrained timber cutting and grazing. Although the Forest Service never intended to stop these practices altogether—the Service stood by the principle that their lands were for public use—they did intend to institute policies and regulations to improve the health of forests.⁸⁴

In many cases the Forest Service correctly assessed that local residents had abused forest resources. But foresters and other land management professionals often held views that, although in line with the prevailing science of the day, later proved to be ill-founded. For example, eliminating “bad” species, such as coyotes and wolves, to boost populations of “good” species, such as deer, was common practice. Wolves killed livestock whereas deer provided game for hunters. Forest rangers poorly understood the ecological role of predators. Aldo Leopold, working as a ranger on the Carson National Forest in the early 1900s, later criticized the Forest

Service's predator policy, but at that time he was just beginning to develop his ecological land ethic. The function of fire in ecosystems also eluded many early land managers. The Forest Service approached fire from the perspective that all fires wasted valuable timber. Backed by the aura of professional authority and economic pressures to manage for maximum yield, the Forest Service suppressed fires whenever possible. The agency brought these management policies to Pecos, with unforeseen consequences for the Pecos environment.⁸⁵

One of the agency's main responsibilities concerned regulating the numbers of livestock allowed in national forests. Rangers in New Mexico realized that stock numbers would have to be cut drastically in order to improve the health of the range. Beginning in 1905, Forest Service officials instituted a permit system. Ranchers applied for a permit and the Forest Service allotted them a certain number of cattle or sheep that did not exceed the number determined by managers as the carrying capacity of the range. Prevailing grazing methods also needed to be changed. Graziers drove their herds to the high country as soon as the snows began clearing, usually in early May. Because the animals arrived so early and stayed through the entire summer, grasses received no rest period.⁸⁶ Ranchers, although most recognized the problems on the range, were accustomed to grazing their animals without restrictions. They did not always accept Forest Service regulations and resented having to pay a permit fee. The rangers quickly discovered that it was difficult to determine exactly how many livestock permittees owned or actively grazed in the forest. Ranchers were reluctant to reveal the true numbers of their herds because the government also counted animals for tax purposes. Ranchers also slipped greater numbers of livestock into the forest than their permit allowed—an easy matter in mountainous country—and kept stock on the range after the grazing season ended.⁸⁷

Many residents whose families had farmed and ranched in the area for years felt that the old system worked and, moreover, was their birthright. The new rules and regulations on their former common lands threatened their livelihoods and identities. As historian William deBuys points out, two different perceptions of the land were at work. Residents saw "grass for livestock and land that sustained their fathers and also them." Rangers saw the "last bit of ground cover and land facing ecological disaster."⁸⁸ Once again, different cultural systems collided at Pecos—a collision that held the opportunity for violence. Elliott Barker, the son of a local rancher who lived up the Pecos Canyon, became a Forest Service ranger in the early 1900s. Barker first worked in the Jemez National Forest and recalled that "we strictly followed our instructions . . . never to go anywhere, even from house to barn without our side arms." Although Barker never encountered any problems himself, the threat of violent confrontations over land control existed.⁸⁹

Forest Service officials divided the Pecos Ranger District into several grazing allotments, which remain the same today (Figure 21). The Colonias allotment abuts the Pecos Pueblo grant on the east side and a small portion of the north boundary. The Glorieta allotment joins the rest of the north boundary of the grant and also surrounds the actual town of Glorieta. The Apache Canyon allotment covers the area upstream from Cañoncito. Glorieta Mesa, on the west side of the Pecos Pueblo grant, is called the Springs allotment but was usually divided into sections in actual reports. These sections, proceeding from north to south, are Padre Spring, Winter, Ortiz Spring, No Agua, and Laguna Seca.⁹⁰ Notably, the Forest Service maintained the local Spanish names for the landscape. This reflected the agency's attempts to maintain good relations with locals and incorporate local land uses into forest policy.



Figure 20. Sheep grazing on the Rito Padre in the Santa Fe National Forest in 1924, photo by E. S. Shipp. FS#193845. Source: Santa Fe National Forest Historical Photographs, SWRO.



Figure 21. Grazing allotments around Pecos. Courtesy Santa Fe National Forest District Office.

The Forest Service began charging fees for grazing permits in 1906. Fees began at thirty-five to fifty cents per head for cattle grazing year round and five to eight cents per head of sheep for the summer only. The fees did not represent the true cost of grazing on the range—they were a “token payment” only. Still, stock owners protested having to pay for a formerly free common resource. And although the fees were relatively low, they were another burden for cash-poor families, particularly Hispanos, struggling to keep a few animals to supplement their income.⁹¹ Early attempts to reduce grazing on the allotments fell apart during the First World War. Ranchers used the compelling arguments of patriotism and an increased demand for meat from the armed services to demand that the Forest Service allow higher numbers of livestock onto the range.⁹² Following the war, when meat prices fell, the Forest Service again tried to reduce livestock grazing on national forests with mixed success. Declining livestock numbers ultimately had more to do with changing economics than Forest Service policies.

The Forest Service managed forests for multiple uses, and one of the acceptable uses was hunting. Both the Forest Service and the state of New Mexico lamented the loss of game species in the region. Under the supervision of the State Game Warden, a herd of elk was reintroduced on the Upper Pecos River in 1915. The elk arrived from Wyoming and were unloaded at Decatur, the small railroad stop across from Pecos Pueblo. First kept at the Valley Ranch, on the

Alexander Valle grant, the elk eventually dispersed into the mountains.⁹³ The Forest Service gave no such consideration to replenishing “useless” predator species that, according to ranchers and many land managers, did more harm than good. In the 1920s, a trapper from the Biological Survey working around Pecos killed forty coyotes and ten bobcats in a month.⁹⁴ Timber wolves, whose numbers in the Pecos area had always been small, were completely gone by the early 1900s. The last grizzly bear in the area was killed in 1923.⁹⁵

In addition to increasing game species to please hunters, land management agencies also manipulated fish species for recreational anglers. In 1921 the state of New Mexico constructed the Lisboa Springs Fish Hatchery a mile north of Pecos. The operation raised brown and rainbow trout for release into the Pecos River. The decrease in native species, particularly the Rio Grande cutthroat trout, probably began—or at least accelerated—in the 1920s as the introduced non-native fish competed for resources.⁹⁶ Elliott Barker remembered fishing in the Pecos River in 1896 and how “the black-spotted, red-bellied cutthroat trout were biting fast and furiously.”⁹⁷ A few decades later exotic species had almost entirely replaced these native fish.

The agency culture of the fledgling Forest Service that stereotyped wolves as bad and deer as good also viewed forest fires as wasteful conflagrations of valuable timber that harmed forests more than they benefited them. In 1910, after a cluster of non-suppressed fires grew into enormous, catastrophic fires that swept many western forests, destroying seven towns and taking eighty-seven human lives, the Forest Service instituted a policy of complete fire suppression that had far-reaching effects for western forests. A study of fire regimes in several locations near Albuquerque showed a general lack of spreading fires at every site in the period from 1906 to 1992.⁹⁸ This sharp decrease in fire intervals probably occurred in the Pecos area as well. If a fire did start, the Forest Service made every attempt to stop it from spreading. The first steam locomotives chugging through the Pecos valley constantly threw off sparks, starting small fires along the tracks, but the Forest Service tried to prevent these blazes from spreading. Fire suppression caused a buildup of fuels in forests, interfered with cycles of plant regeneration, and may have contributed to piñon and juniper infill into former grassland areas.

The Forest Service’s control of a large portion of the land surrounding the Pecos valley changed the landscape and how people lived in it. Although the Forest Service made a conscious effort to allow locals to use the forests, requiring a permit to graze animals or collect firewood still represented a change in land use practices and conceptions of the environment. Now, firm borders not only surrounded land within the Pecos valley but surrounded local forests as well. Crossing those borders carried the possibility of legal repercussions if one did not follow the prescribed use of the land. These borders were transgressed in many ways, of course. Weeds spread regardless of fences. Erosion upstream affected the entire river. Fire suppression and grazing changed plant communities on a regional scale. Had Bandelier returned to the Pecos valley a few decades after his first visit, he would have witnessed not only the cumulative effects of Pecos’s connection to the national economy but also the attempts to mitigate those effects by placing the Pecos environment under the auspices of professional scientific management.

“That Intangible Air of Mystery”: The development of the tourism industry

In 1890 Adolph Bandelier published *The Delight Makers*, a novel about the ancestors of the Queres at Cochiti Pueblo. Bandelier drew on his experiences among the Pueblos as well as his archaeological investigations to write the story. *The Delight Makers* depicted Pueblos in a romantic light—primitive, yet intelligent, people who practiced strange religions and inhabited an equally intriguing landscape. The railroad capitalized on the growing fascination with ancient

American Indian cultures, pueblo ruins, and quaint Hispanic villages to draw many tourists to the Southwest beginning in the late 1900s. Many of those tourists visited Pecos, and their presence brought a new meaning to the Pecos landscape. Under the “tourist gaze,” Pecos became romanticized, mythologized, and worthy of preservation.⁹⁹

The ruins of Pecos Pueblo had attracted the curious for years. Travelers on the Santa Fe Trail often wrote about the pueblo, and after the last residents had left, the ruins became an object of mystery and romance. Susan Shelby Magoffin, who followed the Trail with her husband in 1846 in the footsteps of Kearny’s army, recorded her feelings upon viewing the pueblo:

I have visited this morning the ruins of an ancient pueblo, or village, now desolate and a home for the wild beast and bird of the forest.

It created sad thoughts when I found myself riding almost heedlessly over the work of these once mighty people. There perhaps was pride, power and wealth, carried to its utter most limit, for here tis said the great Montezuma once lived, though tis probably a false tradition.

The story, which held that the Pecos had been charged by Montezuma with keeping a sacred fire burning in an underground chamber, became a popular legend repeated by many who saw the pueblo. According to the story, when the fire accidentally went out, the Pecos left the pueblo, “believing that *Fate* had turned her hand against them.”¹⁰⁰ People like Magoffin, and the many others who traversed the Trail for the first time, encountering new places and people, can be categorized as tourists. Fascinated by the ancient history of New Mexico and the numerous Pueblo ruins throughout the region, they began to construct distinctive narratives and images of the Southwest.

Railroad companies realized that tourism could be a profitable business, that railroad cars could be filled with people just as easily as timber and coal. By the early 1900s, railroad companies, including the Atchison, Topeka, & Santa Fe, embarked on a promotional campaign that presented the Southwest as the ideal tourist destination. Many promoters lauded the climate—dry, sunny, and warm with unique landforms, thick forests, and snow-capped mountains. Not only could tourists find a healthful climate but an enchanting history as well. One depiction of Santa Fe described it as possessing “something of that intangible air of mystery that the Moors brought from the Far East to Granada . . . transplanted to American soil by the conquistadores.” Tourist narratives depicted New Mexico as a place that modern life had bypassed, where Pueblos, Navajos, and Hispanos carried out their ancient ways of life unchanged.¹⁰¹

Historian Sylvia Rodriguez argues that in the Southwest the tourism industry combined perceptions of race, the landscape, and traditional architecture into a romanticized image that could be marketed to tourists. Tourism relies heavily on visual modes of perception, and the landscape of New Mexico with its adobe homes, pueblo ruins, mesas, and piñon trees became as essential an element to the tourism industry as the people tourists encountered. As Rodriguez says, ideas about race became integrated into the landscape. Tourism in New Mexico “is striking for its extraordinarily successful mystification of race. It is successful because of the enduring and pervasive power of the iconic triad of Indian-Mexican-Anglo.” Pueblos assumed the role of exotic “others” close to nature and spiritual powers. Such depictions stereotyped Pueblos as ideal stewards of nature and ignored the more complex history of resource exploitation in the

Southwest. Although Hispanos often were saddled with the negative racist assumptions that came with the term “Mexican,” the tourism industry usually depicted Hispanos as rustic villagers who lived simple, authentic lives. White tourists who came to New Mexico sought to experience such authenticity and exoticism through viewing pueblo ruins, attending American Indian dances, and purchasing hand-woven rugs or pottery.¹⁰²

The growth of the tourism industry had implications for the New Mexican environment and the people who lived there. In order to perpetuate a romantic historical narrative, the tourism industry preserved and created features on the landscape that tourists expected to see. Suddenly, New Mexicans had an economic incentive to preserve pueblo ruins, provide money for archaeological digs, and also maintain the pristine, “enchanted” environment that attracted visitors and new residents. The tourism industry certainly provided economic opportunities for New Mexican inhabitants, including Hispanos and Pueblos. But tourism also maintained the ethnic boundaries that restricted Hispanos’ and Pueblos’ access to power, including control of land and resources.¹⁰³

Archaeologists were intimately connected to the tourism industry, as they fed the public appetite for relics and stories of American Indian cultures. Pecos Pueblo, a substantial yet easily accessible ruin, attracted many archaeologists—both amateur and professional. Adolph Bandelier was the first to perform an actual archaeological survey of the ruins, but the most extensive work occurred under the direction of Alfred Kidder, who worked at Pecos from 1915 to 1929 when the Great Depression halted his activities. Using the newly popular method of stratigraphy, Kidder excavated both within the actual pueblo and church complexes as well as the midden heap on the east side of the mesilla. The midden heap revealed a wealth of ceramics layered sequentially from earliest to latest. This discovery enabled Kidder and his colleague, Anna Shepherd, to formulate a ceramic typology that became the standard dating method for Southwestern archaeology. Kidder’s excavations “started a new era in American archaeology,” not only through the development of stratigraphy and ceramic chronologies, but through Kidder’s emphasis on data collection and analysis over simply recovering interesting artifacts.¹⁰⁴ Although archaeology encouraged preservation, it also endangered artifacts by disturbing or removing them and by raising their market value. Ruins and graves became tempting targets for relic hunters.

Casual tourists, too, often removed artifacts from unguarded archaeological sites. The railroad brought many tourists to New Mexico and soon a new mode of transportation, the automobile, carried visitors down bumpy dirt roads to pueblos and mountain villages. The Fred Harvey Company, in partnership with the AT&SF, started its Indian Detours business in 1925. The three day auto tour took tourists on a circuit between Santa Fe, Las Vegas, and Albuquerque. One of the stops was at Pecos. Visible only from the windows of a train car as it rushed past, in an automobile, tourists could drive directly up to the pueblo ruins and clamber about, searching for souvenir artifacts.¹⁰⁵

Tourism introduced new ways of conceiving of and experiencing the Pecos environment. In economic terms, tourism conveyed value to the environment not for what was extracted—timber, grass, crops—but for what stayed in place. These values provided new rationales for landscape protection, similar to those used in the creation of national forests. Tourism was still a form of land use, but one that depended on preservation-oriented land management. Through tourism, new borders could be placed around landscapes—borders that separated landscapes that were “worthy of preservation” and conveyed certain romantic, idealized values. Although

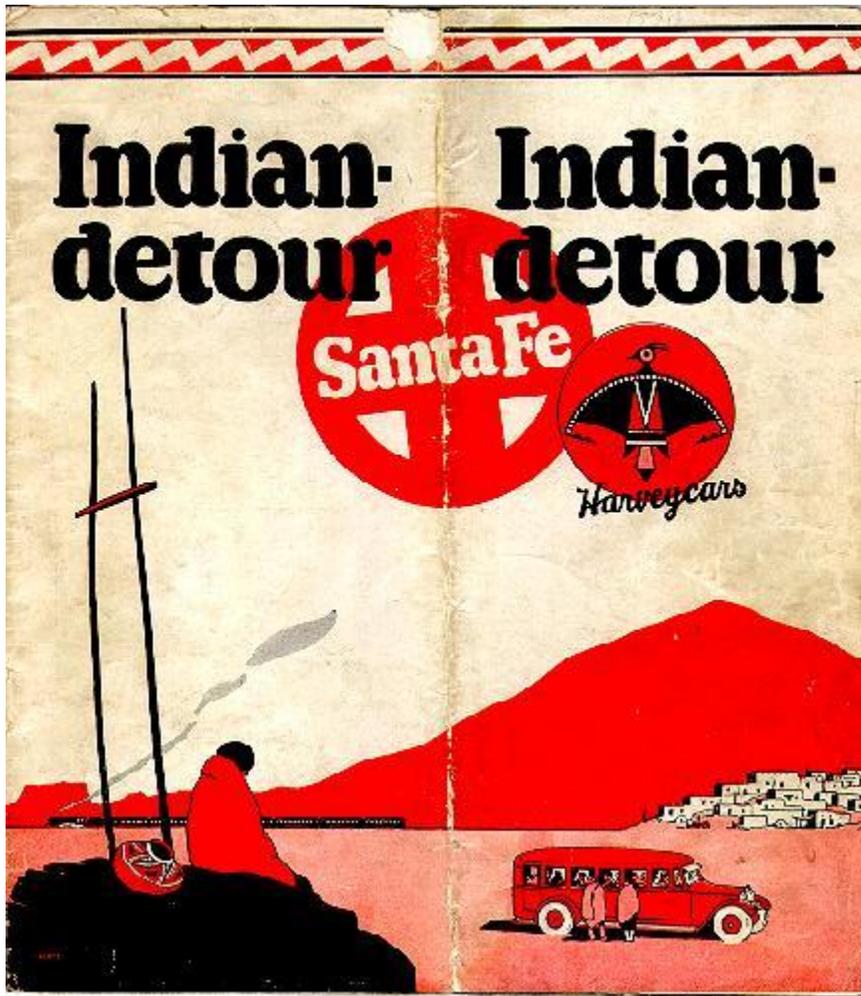


Figure 22. 1927 brochure for the Fred Harvey Company's Indian Detour business. Source: <http://classicrail.com/papera.html> [accessed May 5, 2010].

preserving a landscape such as a pueblo ruin afforded the illusion of timelessness and an unchanging nature; in fact it required very active management.

Bandelier arrived in Pecos just as immense changes began sweeping through the valley. By 1925 those changes had wrought a new landscape and altered people's relationship to the Pecos environment. Railroad tracks climbed over Glorieta Pass. Eroded riverbanks and barren slopes testified to the demands of the timber and livestock industries. Elk disappeared and then returned, but grizzly bears and wolves no longer roamed the forests. Large companies, such as Gross Kelly, and the Forest Service controlled much of the land in the area. Many Hispanos no longer depended on the Pecos environment for their living as they migrated out in search of wage work. Tourists drove along new roads in their automobiles, stopping to gaze at the romantic ruins of Pecos Pueblo and watching as archaeologists uncovered the sheltered secrets of the past.

Chapter Seven

Hard Times in the Land of Enchantment, 1925-1941

Tex Austin urged his horse into the Pecos River, the stones in the shallows rimed with frost. They splashed across, and Tex glanced back over his shoulder to make sure the party of tourists, astride their mounts from his stable, made it over safely as well. The tourists were in good spirits despite the chill in the autumn air, looking forward to a day of hunting and riding through the forests and across the mesas. In the evening they would return to Austin's Forked Lightning Ranch and enjoy a hearty meal, happily following the proscriptions printed in the dude ranch's brochures to "pitch till you win" as "no one keeps track of the helpings." Tex relished the chance to get out for a ride in the Pecos country. He had spent much of his time during 1927 organizing a rodeo in Chicago, held at the end of August.¹

Tex regarded New Mexico, and Las Vegas in particular, as his adopted homeland. When he traveled to Chicago or New York or London with his rodeos, he always touted the virtues of New Mexico as the perfect country to visit on a vacation. Just a few days before, the Las Vegas Chamber of Commerce had designated October 21 "Tex Austin Day" in recognition of his efforts to promote the state, and held a celebratory banquet in his honor. During the evening, a letter by the author Clement Yore, an acquaintance of Tex, was read aloud. "He shaved, first, when he was nearly four," Yore wrote. "He was chewing Climax then, and they called him Panatella."² Yore went on to describe Tex's early career:

Sometimes, he was so broke he rattled like an old Missouri Democrat wagon, coming to town, after it had wintered in a fence corner, and had been used for a harness rack all summer. Then I was told that he had spilled a lotta jack around Paso, San Antone, Roswell, Tucumcari, and other seaport towns; had stole the Civil War guns out of the post office's front yard in El Paso to help Villa romp into the back-alley of Juarez. Soon somebody asked me if I ever heard of a cow-impresario by the name of Austin. When I said no that bird withered me with a glance!³

Yore reminisced about when Tex organized a rodeo at Madison Square Garden in New York in 1922. "Then he blowed into New York and I see his pee-rade coming down Fifth Avenue," Yore elaborated. After relating how several of the shows "brons" had gotten loose and ridden wild through the city, ending up in "night clubs and actresses' dressing rooms," Yore concluded that Tex "set little old Noo Yawk wild with the heaves! Yes sir, they heaved all the things like good luck tokens they could at Tex and said to him, 'Cowboy, we've seen 'em all, but you've give us a bronc show!'" Tex went on to take his rodeo to London, Boston, and Hollywood. "If there's anything in that glass around where this is being read," Yore wrote, "anything of a fluid nature, except buttermilk, coca cola, or hair tonic, then one of you rannahans raise it and gulp it, as my toast to Tex Austin." Yore concluded, "He's a first class showman, a whale of a friend. Lord, how he loves New Mexico and how he's always boosting the state, and if you asks me what my wish for him is I'll sure give it to you in this sentence: "Stay a long time, cowboy, stay a long, long time!"⁴

Tex chose not to comment on the accuracy of Yore's letter. Stories such as Tex riding with Pancho Villa were far more useful to a man who made his living off people's fascination with the Old West than a more mundane reality. The success of Austin's rodeos, and also the dude ranch he started in the Pecos valley in 1925, depended on the image of a mythic West

inhabited by brave and daring cowboys, fiery horses, and American Indians who were either helpful sidekicks or villains depending on the needs of the story. At his Forked Lightning Ranch along the Pecos River, tourists expected to find horses, cattle, and cowboys—all of which Austin provided. If he could not manage to introduce them to real Indians, the ruins of Pecos Pueblo at least provided an appropriate setting for the myths and tall tales eagerly consumed by guests.

Tourists came to the Forked Lightning Ranch not only to experience the Old West, but also to pursue outdoor recreational opportunities. Guests wanted to hunt deer and turkey, fish for trout in the Pecos River, and eat chuck wagon dinners on pack trips into the Pecos high country. Although Tex owned a sizeable herd of cattle and horses, his uses of the Pecos environment differed from those who had lived on the land before him. The cattle were not there just to grow fat and be shipped off to market—they also played a necessary role in the cowboy drama. The deer were not hunted to supplement a diet of corn or wheat—the ranch guests hunted them for pleasure. Whether or not the soil along the Pecos River could produce crops was immaterial—Tex bought supplies for the ranch in Pecos or Santa Fe that had been shipped to the region by railroad. From the porch of his ranch house, Tex looked out on a landscape that he valued for its scenic, aesthetic qualities far more than its productive capacity.

Pecos, 1925-1941

The tourism industry that Tex Austin depended on continued to draw people to the Pecos valley as the twentieth century progressed. As outdoor recreational pursuits, such as fishing and camping, became increasingly popular, the pueblo ruins were no longer the only attraction for tourists in the Pecos area. Tourists valued the river, the forests, and the mountains for the opportunities they afforded to “get back to nature” and rejuvenate the mind and the body. Tourists found other attractions in the Pecos valley developed deliberately for the tourist trade. Tex Austin turned his Forked Lightning Ranch into a dude ranch and vacation resort. The road passing in front of nearby Pigeon’s Ranch was designated a part of Route 66 in 1926, and Tom Greer, another entrepreneur, had turned it into a roadside curiosity that boasted a pastiche of attractions related to the Civil War and the Puebloan and Hispanic history of the area. Tourism, which reflected changes in Americans’ relationship to the environment from one based primarily on production to one of leisure, changed the landscape of the Upper Pecos valley.

Not all the people who passed through Pecos were tourists, however. As the Great Depression swept over the nation, desperate migrants traveled west on Route 66, which went past the pueblo ruins and Pigeon’s Ranch before crossing Glorieta Pass and heading to California and the prospect of work. Times were hard in Pecos as well. The Depression demonstrated how deeply the West had become enmeshed in the national economy; it could not escape the economic downturn. Many local Hispanic residents who had come to depend on wage work lost their jobs. The few cattle and small garden plots that people maintained in memory of a former agricultural and pastoral lifestyle assumed new importance—the difference between starving and eating. The Depression affected the more prosperous as well—Tex Austin went bankrupt and lost his entire ranch.

Some Pecos residents found employment with the American Metal Company, which opened a lead and zinc mine at Tererro up the Pecos Canyon in 1927 that persisted through the Depression. Along with the timber business, which remained important to the area economy, the Tererro Mine was one of the last extractive resource operations near Pecos—an artifact of an older relationship to the valley’s environment that was becoming less influential. Although the mine operated only a few years, it did have long-term consequences for the environment—

consuming timber, increasing erosion, and releasing heavy metals into the Pecos River and its tributary streams.

The tremendous increase in the federal government's power and role in the lives of private citizens that resulted from the New Deal ensured that federal agencies continued to influence the Pecos environment as well. The Forest Service attempted to improve the health of the forests while continuing to provide locals with economic opportunities. The Civilian Conservation Corps occupied a camp at Glorieta for several years and undertook land improvement projects. And social welfare programs allowed many Hispanic Pecos residents to survive and continue to make the valley their home.

Although popular narratives of New Mexican history produced for the tourist industry minimized the contentious relationship between Hispanos, Pueblos, and Anglos over land, the conflict did not disappear. The Forest Service continued to clash with locals over restrictions on forest use. Tex Austin, the American Metal Company—both represented outside, Anglo interests developing the Pecos environment for their own benefit. Meanwhile, the debate over the Pecos descendants' rights to their homeland continued in the courts and finally resulted in a decision that severed the Pecos' legal ties to the land, although certainly not their cultural ones.

The melding of different cultural systems, now represented by the inhabitants of the Pecos valley, employees of federal and state agencies, tourists who came there on vacation, and the Pecos Indian? descendants who no longer lived in the valley but had not forgotten it continued to provide the mechanisms for change in the valley as it had for centuries. Guests watched Tex Austin's cowboys perform rope tricks while cattle grazed in the piñon and juniper and along Glorieta Creek. Miners from Tererro sent buckets of ore down the canyon to a mill above Pecos that leached lead into the water. Forest Service rangers shot wild horses and kept a sharp lookout for fires. Even as the Pecos landscape changed, the two influences that had begun developing in the late 1800s—the role of federal land management and a romantic view of the landscape that privileged leisure activities—continued to become the most important forces for environmental transformation.

“Way Out West an’ a Little Bit South”: Tex Austin’s Forked Lightning Ranch

The Progressive Era contained the beginnings of a consumer culture; a culture that came to typify American life in the interwar and postwar years. Americans increasingly defined freedom as a function of consumption—the right to a high standard of living, to leisure time, and to the goods they wanted and needed. For many, ownership of an automobile came to signify their achievement of the American dream. At first merely a toy of the wealthy, automobiles became available to growing numbers of middle- and working- class Americans in the interwar period. Automobile ownership altered people's relationship to nature by allowing them to participate in the developing industry of nature tourism and outdoor recreation.⁵

With an automobile, people could travel to far-off destinations quickly and cheaply. Automobile ownership opened up the American continent to leisure travel. As urban populations grew, many people desired traveling to destinations that afforded them the opportunity to experience a more rustic, “natural” lifestyle. Concern over the effects of industrialization and urbanization had led to the development of a “back to nature” ethic in the Progressive Era, an ethic that promoted outdoor recreational pursuits as a way to combat the perceived problems of modernity. People were also beginning to participate in nature tourism—going to specific destinations to experience the qualities, often aesthetic but sometimes recreational—of those places. The growth of the National Park Service in the 1920s reflected the popularity of nature

tourism. During the interwar years, automobile ownership allowed growing numbers of Americans to combine these interests and created a new relationship with nature arising from leisure and consumption.⁶

Historian Paul Sutter describes the characteristics of a “leisure-based attachment to nature.” In particular, “tourism requires a nature that is separate, distant, and exotic—a nature that one goes to see.” Although outdoor recreation is more often “activity specific” than “site specific,” it, too, rests on a separation between leisure and everyday life. Hunting, fishing, or camping for pleasure attracts people because such activities represent a relationship with nature very different than what they experience on an everyday basis. Both nature tourism and outdoor recreation are connected to consumption—owning an automobile, purchasing special accoutrements, staying in a motel or eating in a restaurant while on vacation. The consumer goods that support the leisure industry require extractive industries, but production usually occurs in landscapes far removed from those where leisure takes place. These leisure activities also facilitate consumption of nature as experience. Tourism affects “destination” environments through the management of those environments to produce a specific experience.⁷

In the 1920s and 1930s, a “leisure-based attachment to nature” came to typify many relationships to the Pecos environment and influenced how the environment was managed and developed. Tex Austin’s Forked Lightning Ranch was one of the manifestations of the growing importance of tourism to the Pecos environment and economy. Located “way out west an’ a little bit south,” as one tourist brochure put it, the Forked Lightning Ranch capitalized on the public’s infatuation with the mythic Southwest and its ancient American Indian ruins, with a healthy dose of cowboy culture mixed in. The environment was essential to the myth. Sparkling rivers rushing down from the mountains, mesas covered with piñon and juniper, cattle grazing and horses galloping by—these elements provided a well recognized background to the tales of the Western frontier. For the tourists staying at the Forked Lightning, the right environmental setting was just as important to their experience as the activities they undertook in that environment.⁸

Tex Austin’s entire career was based on the romance and myth of the West. Born Clarence Van Norstrand in Ferguson, Missouri in 1888, Austin drifted west to Texas with his family. He later changed his name to John V. “Tex” Austin, a name he considered more suitable for a westerner than Norstrand. As an adult, Austin headed to California where he worked in a few early western movies. By 1910 Austin was producing rodeos, including the Rough Riders Reunion in Las Vegas, New Mexico. His rodeos went to Wrigley Field in Chicago, and also to Boston, New York, and, in 1924, London. His involvement in the Las Vegas rodeo probably served as his introduction to the Pecos region, and his career in the entertainment industry provided ample proof of the profits to be made off people’s fascination with the West. Rodeos, like people’s desire to “get back to nature,” reflected the anxieties of an urbanizing America. Rodeos also capitalized on the racism and ethnic divisions so evident in the tourism industry’s depiction of New Mexico. In rodeos, cowboys were always white, despite the fact that real cowboys came from a variety of racial and ethnic backgrounds, including African-American and Hispanic. Historian Louis Warren describes the romanticized Anglo cowboys showcased in rodeos as “racially distilled men, hardened by frontier combat . . . cowboys were bulwarks against the modern age and all its miscegenated, manufactured, and artificial blandishments.”⁹

In 1925 Austin purchased 6,000 acres of the Pecos Pueblo grant, including the Kozlowski’s old homestead, usually referred to as the Trading Post, with the intention of setting up a dude ranch with accommodations and diversions for tourists.¹⁰ He purchased the land from the Continental Life Insurance company of St. Louis, which had obtained the land through a

foreclosed mortgage.¹¹ It is unclear if the Gross Kelly Company had mortgaged the land or if there was another owner in between Gross Kelly and Austin. Austin also purchased a variety of small tracts scattered around the river. These included the homestead owned by Benigo Quintana and that owned by Pedro Ruíz.¹² A 1934 Bureau of Land Management survey states that Austin and his wife owned 6,229 acres and the Continental Life Insurance company owned about 4,000 acres west of the AT&SF railroad tracks—the majority of Glorieta Mesa within the Pecos grant.¹³ Reflecting the growing realization that preserved artifacts of New Mexico's history would draw people to the state, the Gross Kelly Company had donated the pueblo and church ruins to the Archbishop in Santa Fe in 1920, who transferred it to the state in 1935.¹⁴ Although Austin did not own the property, the ruins remained unfenced and unmanaged, and visitors to his adjacent ranch could wander freely about the site.

Austin named his ranch the Forked Lightning and hired the Santa Fe architect John Gaw Meem to design an attractive ranch house with twelve bedrooms on a plot of land with the Pecos River on the east and Glorieta Creek to the southwest.¹⁵ Meem designed the ranch in the Spanish-Pueblo Revival style, which reflected a romanticized view of Southwestern history. Architects in Santa Fe at the turn of the century, seeking a design that would reflect Santa Fe's unique history, selectively chose elements from various historic buildings to form the Pueblo Revival style. The style was calculated to appeal to tourists and fit within the mythic historical narrative developed by the tourism industry. The Spanish-Pueblo Revival style Meem used for the Forked Lightning Ranch house also resembled an idealized Southwestern home with its long porch, protruding roof beams, and stucco walls. Kozlowski's Trading Post was incorporated into Austin's ranch as the foreman's quarters and served other ranch support functions. The Trading Post may also have offered extra beds for guests.¹⁶ Austin removed the remains of the grist mill by the Pecos River and may also have demolished any structures associated with Hispanic homesteads on his land.¹⁷

Brochures produced by Austin detailed the numerous activities visitors could enjoy at his ranch. They could “stroll through an old orchard by the murmuring river” or “pull a few trout from the clear, cool waters of the old Rio Pecos.”¹⁸ One brochure claimed that the river was “practically infested with trout.”¹⁹ Hunting parties occasionally sought out the “deer and wild turkey” when in season. Mealtimes were an important aspect of the visit. “Dinner and supper are served ranch style, placed on the large family table in big heaping dishes.”²⁰ Visitors could choose from a variety of offerings. One menu included a “Special Mexican Plate” of chile con carne or posole and pork with tamales and frijoles. Other choices were Hungarian Goulash, Dinty Moore's Corned Beef and Cabbage, broiled sirloin steak, fresh mountain trout, “imported Italian spaghetti,” oysters, and a “Cowboy Steak Sandwich on Toast.”²¹ Guests also enjoyed “fresh vegetables grown on Austin's ranch.”²² Other activities included “pack and chuck wagon trips to the high peaks” and riding parties. Tex Austin built a polo field adjoining the ranch house.²³ One brochure admiringly stated that at the ranch, visitors could find a landscape of unmatched beauty, where “the night stars glow like headlights,” an idiom of mechanization that reflected how technology was beginning to mediate people's experiences of nature.²⁴

Providing the appropriate scene for visitors, complete with cattle and horses, as well as the demands of Austin's rodeo business, meant that the Forked Lightning operated as a working ranch with sizeable herds. Tourist brochures boasted that the cattle herd numbered in the thousands, but actual numbers were much lower. In a history of the ranch written in 2001, historian Andrew Young gives the number as “several hundred” cattle, citing an interview with a local resident and ranch manager. Austin leased another ranch near Santa Rosa, known as the

Moon Ranch, as well as more land in the Pecos area. His cattle herd was spread out around these areas. Austin also owned a large horse herd.²⁵ Photos from tourist brochures show both the cattle herd and the horse herd, called the “remuda,” watering in and crossing the Pecos River. The herds grazed on Austin’s land in the Pecos valley and also on Glorieta Mesa. One brochure said that the mesa “assures excellent summer feed for Tex Austin’s cattle Dropping by sloping grades from this elevation the cattle are worked through spring to winter feed at the lower pasturage, 3,000 feet nearer sea level, beside the Pecos.”²⁶ These were probably the largest herds that had grazed in the area for a while—perhaps since the mid-1800s when the substantial herds of the Pinos and Vigils roamed the banks of the Pecos.

A letter describing Tex Austin’s ranch, written during the 1930s, stated that the land was “open grass land with some scrub cedar, piñon, and a few pine trees.”²⁷ A 1929 aerial photo, looking south from Pecos Pueblo, shows an open area on the west side of Glorieta Creek. This meadow appears to have been actively maintained, perhaps for the purposes of cultivation, as the boundaries are linear and closely surrounded by trees. A thin line of vegetation extending into the meadow suggests an arroyo or irrigation ditch. If the meadow was used for cultivation, it was created prior to Austin’s ownership of the Forked Lightning and may date back to early Hispanic settlement. It could also have been an area utilized by the Pecos. There is no evidence that Austin created other open areas on his ranch.

The effects of the animals on riparian vegetation can be seen in a photo of Austin’s ranch house. Taken from the banks of Glorieta Creek, looking north up to the house, the photo shows a bank practically bare of vegetation—no willows or cottonwoods grow along the creek.²⁸ Grazing similarly affected riparian vegetation along the Pecos River on the Forked Lightning Ranch. Not all influences on the riparian ecosystems were negative, however. In the 1930s beaver returned to the Pecos River watershed, in the streams up the Pecos canyon. The Game and Fish Department of New Mexico also reintroduced beavers to the Pecos River.²⁹

The Forked Lightning hosted a number of distinguished visitors over the years. Alfred Kidder, who conducted archaeological investigations of the Pecos ruins, held the first Pecos Conference on Southwestern Archaeology at the ranch in 1926. Charles and Anne Lindbergh also visited the Forked Lightning in 1929. Under Kidder’s direction, Charles Lindbergh took several aerial photos of the area around the Pecos ruins. Kidder’s work from 1915 to 1929, which provided the foundation for Rio Grande archaeology, also affected the Pecos landscape. The digging and excavation on the mesilla prevented the growth of vegetation (although the disturbed soil would be a perfect host to weedy species upon the cessation of active work). Photos from Kidder’s excavations show a barren area around the ruins with scattered piñon and juniper in the meadows adjacent to the pueblo. Kidder constructed a small work shack on the north-western edge of the ruins and several houses for the workers across Glorieta Creek near the Forked Lightning Ruin. The shifting path of Glorieta Creek can be seen in one of the Lindbergh photos. A wide bend of the creek passing near the ruin had been cut off as the creek moved eastward. In his final report, Kidder noted that a flood from Glorieta Mesa in 1927 had deepened the arroyo around the Forked Lightning Ruin.³⁰ Although not directly related to tourism, Kidder’s work did foster interest in Southwestern history, and many guests at the Forked Lightning probably watched Kidder’s excavations.



Figure 23. 1929 aerial view looking south from Pecos Pueblo. Note field in upper left corner with clearly delineated borders. Photo by Charles Lindbergh. Source: Park files, original negative, Museum of New Mexico, negative no. 130352.



Figure 24. 1929 aerial photo of Dick's Ruin, south of Forked Lightning Ranch house, showing open areas mixed with woodland. Photo by Charles Lindbergh. Source: Park files, original negative at Museum of New Mexico, negative no. 1303332.

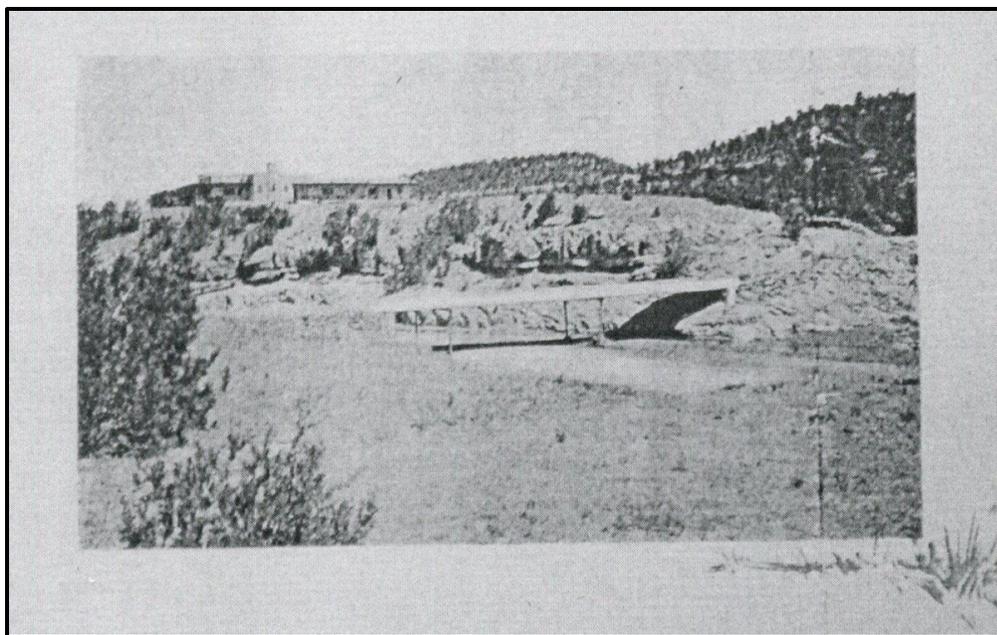


Figure 25. Photo from tourist brochure for Tex Austin's Forked Lightning Ranch, looking across Glorieta Creek at the Forked Lightning Ranch house. Note the barren creek banks. Source: Park files.

Tex Austin was not the only one in Pecos to profit from the tourist trade. Tom Greer purchased Pigeon's Ranch in 1926 and turned it into a tourist attraction. Born in 1881 in Woodruff, Arizona, Thomas Lacey Greer moved to the Pecos Valley in 1914, and by 1920 Greer lived in San Jose, twenty miles from Pecos. Before moving to New Mexico, Greer lived in El Paso, Texas and may have known Tex Austin. Perhaps his acquaintance with Austin led him to purchase land in the Pecos area and follow Austin's footsteps in capitalizing on people's interest in the history of the Southwest. Greer developed Pigeon's Ranch specifically to target tourists passing through the valley in their automobiles. Highways now crisscrossed New Mexico, including Route 66. Although the postwar years saw the transformation of Route 66 into a tourist icon, many tourists ventured to the Southwest in their cars in the interwar years as well.³¹

Greer utilized both the Hispanic and American Indian history of the area as well as the Civil War Battle of Glorieta Pass to lure tourists into the old adobe building at Pigeon's Ranch. Photos of the ranch as well as the reminiscences of Bill Greer, Tom's son, suggest that Greer merged several attractions related to the Old West into a kitschy conglomeration. In the main building, decorated with animal skins, Greer opened a museum and sold a selection of curios and souvenirs. He advertised an adjacent building as the hospital used by Civil War troops, erroneously claiming that "parts of these old walls" had been constructed 200 years prior to his ownership of the property. Greer billed the old well across the road from the main building as "Coronado's Well," although it was probably constructed in the mid-1800s. Like Tex Austin, Greer had no interest in historical accuracy when myth served his purposes. In one photo, a sign mentions the "entrance to the cave" by Sharpshooter's Ridge, probably referencing some rock formation. Photos also show a man, probably of Hispanic or American Indian heritage, talking to tourists, dressed in an Indian costume complete with headband and beaded necklaces. Bill Greer remembered his father keeping at least two pet bears, another element of the frontier scene Greer imagined. According to his son, Tom Greer owned livestock as well—about eight to ten horses and 110 cattle. Besides offering extra income, the cattle and horses also contributed to the

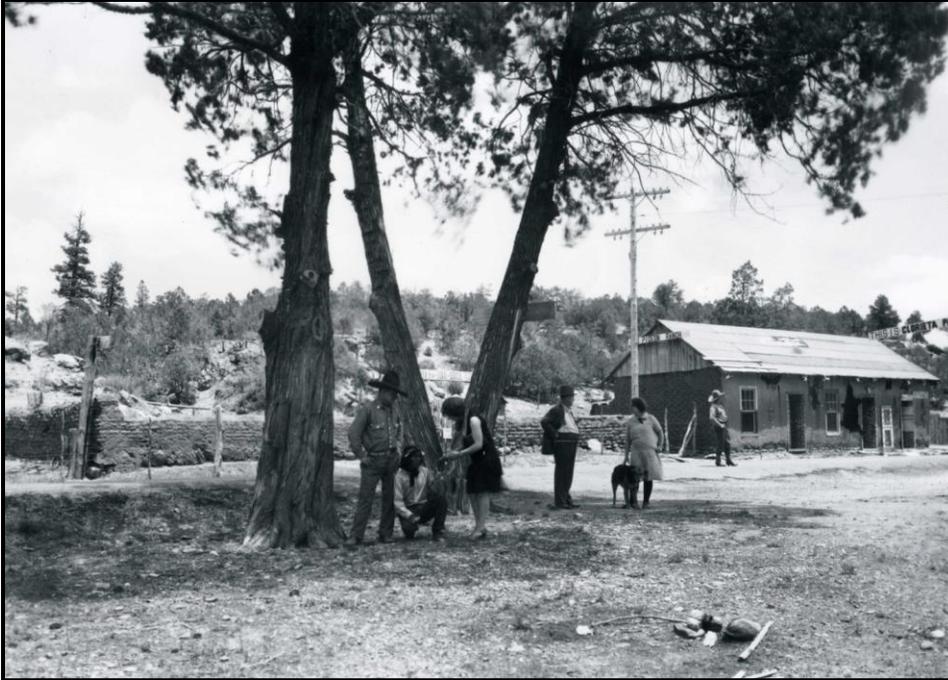


Figure 26. Pigeon's Ranch as tourist attraction, circa 1935. Photo by T. Harmon Parkhurst. Source: Park files, original negative at Museum of New Mexico, negative no. 9689.



Figure 27. Pigeon's Ranch, circa 1935. Note sign on left—"Entrance to Cave." Photo by T. Harmon Parkhurst. Source: Park files, original negative at Museum of New Mexico, negative no. 9690.

Western atmosphere, just as they did at the Forked Lightning. Greer probably owned a permit to graze the cattle in the surrounding national forest, but the animals also grazed around Pigeon's Ranch, and riparian vegetation along Glorieta Creek may have remained sparse. Greer also operated a gas station and garage at the ranch and a plethora of hand-painted signs vied for tourists' attention as they drove past.³²

New Mexico had been building a profitable relationship with tourists ever since the railroads arrived in the 1880s. In the interwar years, as more people went on vacations, either by rail or automobile, many of them traveled to New Mexico. In the New Mexican environment, they sought not only to connect with a mythical past of cowboys, Indians, and conquistadores, but also to enjoy numerous recreational activities, such as fishing or hunting. Both pursuits required certain landscapes—some more actively managed for tourism than others. Tom Greer used the old buildings at Pigeon's Ranch to support a mythical history of the landscape, a meld of fact and fiction. Tex Austin developed the environment of his Pecos ranch to fit tourist expectations, including maintaining cattle and horse herds. Although tourists were not chopping down trees, mining gold, or planting crops, their presence still affected the environment.

“It Does Not Seem that the Indians Have any Prospect of Making Recovery of This Land”: The Pueblo Lands Board and the Pecos Pueblo grant

In 1928 Tex Austin wrote to Herbert Hagerman, member of the Pueblo Lands Board, regarding the title to his Pecos ranch. Austin addressed Hagerman as “Dear Gov,” and inquired into the proceedings of the Board regarding the Pecos Pueblo grant.³³ The Board had just begun considering the claims of non-American Indians to land within the grant in preparation for awarding a monetary compensation to the Pecos who lived at Jemez. Tex enjoyed having the ruins of Pecos Pueblo nearby, a convenient excursion for ranch guests, but he wanted to make sure there was no chance the board would invalidate his title to the ranch. Although the tourists who admired the ruins viewed the Pecos as a mythical people with no connections to living tribal members, the Pecos descendants had not forgotten their homeland. The Pueblos, including Pecos descendants, had long sought federal recognition of their loss of land to Anglos and Hispanos. Recognition of Pueblo losses first involved recognizing their rights to the land. Pablo Toya, a Pecos descendant at Jemez, wrote to the federal land office in Santa Fe in 1921 requesting a copy of the patent issued in 1868 for the Pecos grant. Toya's request may have been in response to the actions of John Collier and other Anglo advocates for Pueblo rights who were agitating in Congress and the courts to have Pueblo lands restored. Local Hispano residents also remembered the Pecos. They continued to observe the Feast of Nuestra Señora de los Ángeles de Porciúncula on August 2 each year. During interviews with Pecos residents in the 1990s, they “referred to their obligation to perform this mass as ‘*una promisa*,’ a promise made to the Pueblo people to honor Our Lady of the Angels perpetually.” This promise reflected the cultural ties between the Pecos and Hispano residents. Although the Hispanos may have remembered the Pecos, that did not mean that they supported returning the Pecos grant—on which most of their homes were located—to the Pecos.³⁴

As pro-Pueblo forces mobilized over Pueblo land rights, the issue quickly attracted controversy, as many Hispanos and Anglos faced the loss of their land if it was decided that adverse possession—and even sales—of Pueblo lands were invalid. Collier's opposition did not want the issue to go before the courts, where a decision would hinge on whether the Pueblos ever possessed the right to relinquish their lands in the first place. If the decision was no, as the *Sandoval* case suggested it might be, all the Pueblos, including the Pecos, would regain their

land. Instead, the question was pushed into Congress. The Bursum bill, introduced in 1922, aimed to decide the question based on adverse possession—a stance that gave landholders firmer ground to stand on and the Pecos none at all. Collier and his allies rallied to oppose the bill. Nineteen pueblos, including a representative for Pecos, also signed a letter objecting to the Bursum bill and stating that non-American Indian settlers should receive money in compensation, and the Pueblos should receive their lands back—not the other way around. Collier hired Francis C. Wilson—who, coincidentally, had helped the Gross Kelly Company assert its right to the Pecos grant—to represent the case to Congress.

The ensuing debate initially allowed a place for the Pecos who did not possess the same justification as those Pueblos who still inhabited their ancient homes. Ideally, Collier wanted to return all Pueblo land—no matter when that land had passed out of Pueblo control. Wilson adopted a more pragmatic view. He felt that a statute of limitations should be imposed, which would leave no room for Pecos. Their opponents exploited the split between Collier and Wilson, and soon Pecos became an example of Pueblo land that would not be restored because it had been acquired by non-American Indians so long ago. The Pueblo Lands Act, as finally passed in 1924, stated that title to Pueblo land could be proved based on a deed if acquired before 1902, ten years before New Mexican statehood, or could be proved based on adverse possession dating back to at least 1889. Pecos would have no claim under either provision.³⁵

The act also created the Pueblo Lands Board, which began considering each grant individually to determine the validity of claims and amounts of remuneration. At first, the board did not think it needed to deal with Pecos—it had clearly been abandoned long before the 1889 date. By 1928 the board had changed its position and began an investigation at Pecos. The board was not, as historian G. Emlen Hall concludes, determining “whether the Pecos Pueblo had lost the tract, but rather how and to whom.”³⁶ Locals aided and abetted the surveys completed by the board. Because the board did not recognize communal lands, several Pecos residents extended their private land claims to include communal tracts, particularly to the east of the Pecos River.³⁷

Upon concluding its surveys, the board issued deeds to the landholders. After making sure that every portion of the Pecos Pueblo grant had an owner with a deed, the board considered how much the Pecos descendants at Jemez should receive for their lost lands. Typical of the narrow way in which the federal government construed the term “Indian,” the board considered only those Pecos descendants who lived at Jemez, despite the fact that others had settled in local communities, such as Glorieta. The board arbitrarily ignored the method it had used to determine the value of land for other grants and assigned the land at Pecos a flat rate of \$1.50 per acre, taking no account of water rights. This resulted in the lowest remuneration paid to any pueblo—\$28,144.95 for the entire grant.³⁸ When the Forked Lightning Ranch was sold in the 1930s, the buyer, W. C. Currier, paid \$58,000 for just 6,000 acres.³⁹ The contentious legal disputes over Pueblo land grants showed how issues of land control still aroused deep emotions. And the arbitrary decisions of the Pueblo Lands Board in regards to Pecos demonstrate how issues of ethnicity, power, and inequality continued to dominate that conflict.

“Herds of Wild Horses Scamper Through the Piñon”: Forest management

The horses that participated in Tex Austin’s rodeos bore names such as “Pinto Pete,” “Black Thunder,” and “Red Bird.”⁴⁰ The tourist brochures for Tex Austin’s dude ranch liked to portray the wild horses that wandered around the Pecos valley in an equally romantic light—“up on that lowering mesa herds of wild horses scamper through the piñon.”⁴¹ To the Forest Service, however, these horses represented an uncontrolled, wasteful use of a threatened resource. Many

residents of Pecos turned their horses loose to graze in the valley and also cast out old horses to fend for themselves. Congregating into herds, these horses grazed unchecked in the forests, contributing to erosion and overgrazing.

Despite the efforts of the Forest Service, erosion and forest degradation continued to be a problem in the 1920s and 1930s. Ranger John W. Johnson described the state of the range when he arrived at the Pecos District in 1918:

Removal of the excess [livestock] was necessary. Most of the climax-type forage was gone from the higher elevations and less valuable plants were taking its place. Some of the high open land around the head of the streams had nothing but skunk cabbage and sneezeweed. Erosion was active because summer rains are almost all of the flood type, and every heavy rain filled the streams with silt.⁴²

Detailed Forest Service records on the condition of the allotments in the Pecos district and the numbers of animals grazed on them are not available until the late 1940s. These reports make some general references to the preceding decades, usually noting that the range was overstocked. A report on the Springs allotment on top of Glorieta Mesa, for example, stated that past reports consistently mentioned the damage done to the land around the few watering areas on the mesa, which, like riparian corridors, were vulnerable to cattle and sheep overuse.⁴³ The records include evidence of sawmills from the early decades of the nineteenth century on both the Springs allotment and the Apache Canyon allotment.⁴⁴ These later reports mention the grazing of cattle, sheep, and goats in past years. Although some reports from the mid-twentieth century record the range condition as fair or even good in some areas, there is evidence that rangers may have consistently overestimated the capacity of the range. A report entitled “narrative report of recommendations to close to all grazing the Apache Canyon allotment,” probably written in the 1940s, stated that the range had “zero capacity for grazing, despite higher estimates in the past.” The ranger said that the Apache Canyon allotment was “seriously damaged by untended goats from adjacent villages years ago.” The ranger mentioned erosion, soil loss, and pine encroachment on the allotment.⁴⁵

Ranger Johnson and other Forest Service employees did what they could to institute better practices. It was often difficult for Forest Service rangers to balance the needs of local ranchers with their quest to improve the health of the range. Rangers lived in local communities, and many of their decisions angered the residents of those communities.⁴⁶ Throughout the 1920s and 1930s, the Forest Service tried multiple strategies to reduce the numbers of animals on forest land. The large herds of wild horses presented one difficulty for Johnson and his colleagues. The rangers began trying to remove the wild horses in 1926, notifying owners that they needed to round up their animals and move them elsewhere. They impounded any horses left running wild at local ranches. The rangers shot or sold the unclaimed horses.

Many locals protested the actions of the Forest Service and resented having to remove their horses. The mesas and forests had long been open to grazing, and for many people, it was the only place where they could graze the small numbers of horses they owned. All together, of course, the accumulated horses of Pecos residents formed a substantial herd. Responding to the protests, Johnson said, “I knew that the larger stockmen were all for the cleanup . . . the petition was not instigated by the responsible stockmen.”⁴⁷ Johnson believed only professionally trained land managers or owners of commercial herds (many of them probably Anglos) should make the decisions about forest management. The protests came from the poorer, mostly Hispanic

residents of the valley. Much as it had in debates over the Pueblo land grants, conflict over land control continued to erupt along ethnic and class lines.

In addition to trying to eliminate unlicensed stock from the range, the Forest Service also tried to reduce the numbers of permitted livestock. Johnson attempted to perform accurate counts of livestock numbers and ensure that livestock were removed at the end of the season—with varying degrees of success. Although sheep numbers continued to decline in New Mexico, herds still grazed in the Pecos area. Sheep numbers had reached their apex in San Miguel County in 1900, with over 490,000 animals. By 1930, sheep and cattle numbers were about equal—around 48,000 cattle and 49,000 sheep. Cattle numbers remained steady in the following decades, while sheep numbers declined sharply. Sheep required too much labor to be profitable to their owners.⁴⁸

Still, some Pecos residents continued traditional practices and owned sizeable sheep herds. In 1927 Blas Duran and Bert Foster were accused of stealing sheep from the herds of Pecos sheriff J. C. Rivera and his neighbor, Manuel Varela. Blas Duran worked as a herder for the sheriff and Varela. Foster, Duran's son-in-law, owned a ranch and was apparently attempting to increase the size of his own herds. Missing sheep from Rivera and Varela's herds with altered ear markings appeared on the Foster ranch.⁴⁹ A year earlier, Tex Austin accused a man named John Condon of rustling cattle from him.⁵⁰ Although livestock may not have been as central to Pecos life as in earlier decades, as wage work and tourism slowly assumed greater prominence, it was still an important resource that caused contention and controversy.

In addition to controlling grazing, the Forest Service also carried out an active fire suppression program. Ranger Johnson noted several forest fires during his tenure at Pecos. One occurred in April, probably in the 1920s, at the Gross Kelly Company's Reed Sawmill. The mill was probably located up the Pecos canyon or else north of Glorieta. Johnson stated that the cause of the fire was never determined. Another fire occurred in the Hagus Canyon (possibly the "Hagen Creek" that appears on current maps), a tributary to Glorieta Creek, in May 1938. A local woman set fire to a cabin to destroy a still inside it. Johnson mentioned another accidental forest fire in May 1938 in Madera Canyon, northeast of Pecos.⁵¹ None of these fires were particularly extensive, and Johnson did not mention any really large fires during his tenure at Pecos. It is notable that the fires he did remember all occurred in the spring, the driest time in New Mexico, particularly if there had been reduced snow accumulation the winter before.

Grazing and fire suppression both affected the density of woodland in the Pecos valley. The issue of piñon-juniper encroachment into previously open meadows became a concern for land managers over the course of the twentieth century. Because historical conditions are often unknown or impossible to quantify precisely, it is difficult to say with certainty that encroachment is taking place. A recent study of piñon juniper vegetation differentiates between "infill"—an increase in vegetation density in a pre-existing woodland—and "expansion"—vegetation colonizing grassland or shrubland. The dynamics of piñon-juniper vegetation are poorly understood, and it is unclear why vegetation density increases, whether it is due to grazing, climatic conditions, fire exclusion, or some combination of factors. The study also emphasizes that expansion may simply be piñon-juniper woodlands recovering after centuries of intensive human use.⁵²

Although it seems fairly certain that the immediate area around the Pecos ruins had been practically bare of vegetation since its earliest occupation, the density of piñon and juniper elsewhere in the valley is less clear. 1929 aerial photos taken by Charles Lindbergh provide the first really good depictions of piñon-juniper cover for the area surrounding the ruins. In the

photos, piñon-juniper immediately around the ruins remained sparse as did vegetation along Glorieta Creek. More trees appeared farther south, north, or east from the ruins, including along the old tracks of the Santa Fe Trail on the west side of the creek. A photo of the Forked Lightning Ruin shows a more extensive tree cover. A photo of Dick's Ruin, farther south along the Pecos River, shows large open areas on either side of the river along with denser clusters of trees. It is impossible to say for certain exactly why the landscape appeared this way. Did the stands of piñon-juniper near the ruins—which did become denser over the succeeding decades—represent trees colonizing former grassland as a result of grazing and fire suppression or were they simply returning to areas that had been woodland before humans occupied the mesilla? At Pecos, the vegetation composition in the valley before the arrival of humans may be impossible to determine. Instead, it is probably best to recognize the Pecos landscape as in a constant state of change—both gradual change over a long period and change caused by short term events—affected by a variety of factors, some better understood than others.⁵³

The Forest Service, by intensively managing the land, became one of those agents of change. Fire suppression, livestock reduction—these tactics, promoted by a scientific and professional bureaucracy, transformed the Pecos landscape and did not go uncontested. Many locals continued to resent Forest Service regulations, seeing the agency as an unwanted symbol of federal oversight or as the latest in a long line of Anglo interests usurping Hispanic rights. Confrontations could turn violent. On the Lincoln National Forest in 1927, forest homesteader Thomas Shumaker shot and killed W. C. White, a young ranger. Shumaker “generally opposed the Forest Service,” and sent many threatening letters before resorting to murder.⁵⁴ Although Ranger Johnson escaped violence, he too encountered disagreements and conflict with local residents.

“There was a Feeling of Fellowship Among all the People in Tererro”: Mining in the Pecos Canyon

Among the many stories about the West that tourists avidly consumed were narratives of mineral wealth—the hard luck prospectors who struck gold and became millionaires, the lost mines that promised fantastic riches to any who re-discovered them. The Upper Pecos valley had seen its share of hopeful prospectors throughout the late-nineteenth century. The area did not yield many promising hits, however. Tailings piles, adits, and two shafts east of the Pecos River near the pueblo ruins (PECO 548, Figure 4) attest to one of the many attempts to strike it rich. Named the Jose Baca mine site after a local judge, recovered artifacts date the site to the early decades of the twentieth century. The prospectors were not rewarded for their efforts.⁵⁵

A prospector named Case made one find that did hold promise in 1881. Case discovered outcroppings of mineralized ores at the junction of the Pecos River and Willow Creek, north of the town of Pecos. He began to develop the mine under the title of the Pecos Mining Company, but by 1886 he had sold his interest to another local, A. H. Cowles. Under Cowles the mine was called variously the Cowles Mine or the Hamilton Mines. Cowles managed to start a small operation where ore was hauled by wagon to Glorieta and thence, presumably by railroad, to El Paso for smelting. Cowles quickly discovered he needed a large investment of capital to make the mine profitable—too much for a small operator. Cowles shut down his operation in 1907 after trying and failing to make his Pecos Copper Company succeed.⁵⁶

The ores included the sulfide ores of copper, lead, and zinc as well as small amounts of silver and gold. In the early twentieth century, the mining industry had not yet perfected the processing of sulfide ores. Despite the technological drawbacks, the Goodrich Lockhart



Figure 28. Cutting and log ways on the American Metals sale, Indian Creek, Pecos Division, 1936, photo by R. C. Salton. FS#329890. Source: Santa Fe National Forest Historical Photographs, SWRO.

Company purchased the mine in 1916. The company expanded the mine, drilling down 518 meters. Once again, costs proved prohibitive. Finally, in the 1920s, technology caught up to people's hopes. The industry developed a process for extracting minerals from low grade sulfide ores. Armed with this new technology, the American Metal Company purchased the mine, by that point referred to as the Tererro Mine. In addition to deepening and lengthening the tunnels at the mine, the company built the Alamitos Canyon mill, a state of the art flotation plant half a mile above the town of Pecos. A twelve- to thirteen-mile aerial tramway transported ore from the mine to the mill where the ore was extracted.

The American Metal Company began substantial mining in 1927. A newspaper article from August of that year reported that the company had used more than 250,000 feet of timber for construction at the mine. The company cut its timber in the area around Willow Creek and Indian Creek on national forest land, under the supervision of ranger John W. Johnson.⁵⁷ Production at the mine continued throughout the Depression until 1939. The company town of Tererro grew up around the mine and boasted a peak population of 3,000 residents. Developments included a grade school, post office, and hospital. One miner, Wes Darden, recalled years later that the doctor at the hospital owned "several herds of sheep that were pastured over the mountains to the east. If one of his herders arrived at the office during hours, the patients would have to wait a little longer than usual while the good doctor inquired about his sheep."⁵⁸ The mine itself employed several hundred men. Darden stated that the company's mineral rights lease required it to hire local men—at least seventy-five percent of its workforce. Darden remembered the many Hispanic families who lived in Tererro and also a number of men from lead and zinc mines in Oklahoma, Missouri, and Kansas who "worked hard and played hard." Although Darden claimed that "there was a feeling of fellowship among all the people in Tererro," conflicts arising from ethnic tensions may well have been common.⁵⁹

Every day, heavy buckets of rocks traveled the aerial tramway to the Alamitos Canyon mill. Inspectors rode the ore buckets, too, making sure that the cables were sound. At the mill, engineers used a flotation process to extract the valuable minerals. The mill utilized water from the creek, a tributary of the Pecos River. Tailings ponds located downstream from the mill collected the detritus. As ore production increased, the Tererro mine grew into an extensive complex. Two vertical shafts extended downwards. While drilling them, miners hit an underground water source. The lower depths of the mine were always wet, despite pumps that operated constantly to keep the mines open. The mine was one of the largest lead and zinc mines in New Mexico, and the company extracted 2.3 million tons of ore worth more than forty million dollars. Despite such returns, the company was forced to close the mine in 1939 when the costs of pumping out water became so excessive, they outweighed potential profits.

An intensive resource extraction operation, the Tererro Mine had both short- and long-term impacts on the Pecos environment. The digging and construction at the mine site increased erosion and thus runoff into the Pecos River. More detrimental to water quality was the influx of minerals, particularly lead, into the water of Willow Creek, the Pecos River, and Alamitos Creek as well as into the surrounding soil. At the Alamitos mill, heavy metals saturated the tailings ponds and leached into the creek. Howard Lowe, who worked at the mill in the 1930s, recalled that to ease the fears of locals worried about the possibility of contaminated water, Lowe and other mill employees would “take people down to the water runoff from the slag and [demonstrate] the lack of danger by drinking the water in the presence of the doubters.”⁶⁰ Besides chemical contamination, the mining activity also resulted in extensive timber cutting in the immediate area, which also contributed to erosion.

Although the miners who worked at Tererro interacted with the environment through manual labor, they also enjoyed outdoor recreation activities. Darden recalled how miners loved fishing—both in the Pecos River and in the smaller tributary streams. “It was common for fishermen to catch the limit within a mile of the camp,” Darden wrote. “The Mora joined the Pecos a mile upstream from Tererro, and there was good fishing there also.” Darden continued, “Hiking along one of these streams or along Willow Creek was the favorite summer pastime of many. . . . Picnics on the river were held often.” The company also constructed a nine-hole golf course, and baseball was popular among the miners as well.⁶¹

Workers at the mine also hunted, particularly elk from the herd that had been reintroduced to the area in 1915. Elliott Barker, who grew up in the Pecos area and served as a Forest Service ranger on the Santa Fe National Forest for three years, felt that many of the mine workers were “drifters with no interest in the local resources of the county.” Along with other inhabitants of the Pecos valley, mine employees heedlessly shot elk, regardless of the fact “that there was no open season. The Game Department did not have sufficient funds to cope fully with this lawless destruction of the much-prized game, and the increase was greatly retarded in the Willow Creek, Bear Creek, Valle Medio, and Cow Creek country.”⁶² Barker was quite the hunter himself, but believed that regulations should govern people’s use of resources. In his reminiscences of living at Pecos, Barker rhapsodized about the many hunting trips he took into the Pecos high country. For Barker, hunting went beyond merely catching food. The activity involved escaping “modern high-tension” living for a time and renewing his soul through close communion and interaction with nature.⁶³ Although people had enjoyed the Pecos environment for centuries, by the twentieth century activities like hiking, fishing, or hunting carried certain connotations distinct to the period. The miners at Tererro, residents like Elliott Barker, and the tourists at the Forked Lightning viewed their activities in the light of the back to nature

movement, concepts of the western frontier, and the growth of a consumer-oriented leisure industry.

“When You Get to the End of Your Rope, Tie a Knot and Hang On”: The Great Depression

In 1936 Tex Austin lost the Forked Lightning Ranch. The onset of the Great Depression had curtailed the tourist industry, and Tex’s rodeo business failed as well. With the mortgages on his ranch and the sums he owed to creditors growing, Austin decided to try and find oil on his property. The well he drilled turned up nothing.⁶⁴ Despite his best efforts, he could not keep up with his debts and finally declared bankruptcy. Forced to leave the Forked Lightning, Tex and his wife, Mary Lou, moved to Santa Fe and opened the El Ranchero restaurant. Although close to the Pecos valley, the El Ranchero was a far cry from Tex’s ranch and the cattle, horses, and cowboys he had spent so much of his life around. When his doctor told him that he was going blind, Tex’s despair was complete. He committed suicide in 1938.⁶⁵

“When you get to the end of your rope, tie a knot and hang on,” Franklin Delano Roosevelt told Americans suffering the effects of the Depression in the 1930s. Many residents of Pecos besides Tex Austin found themselves in dire straits during the Depression. Although the presence of the Tererro mine may have helped offset some of the Depression’s effects in the Pecos area, in general the economic downturn hit northern New Mexico hard. The sugar beet industry in northern Colorado laid off workers as profits fell, as did southern Colorado coal mines and the railroads—all of which had become important sources of work for northern New Mexicans in the preceding decades. As opportunities for wage work became scarcer, families depended on their gardens and livestock to a greater extent.⁶⁶ In an oral history project, conducted in 2002, elderly residents of Pecos were asked how their families survived the Depression. Almost all of them mentioned growing their own food, slaughtering livestock, or hunting.⁶⁷ Residents could sell crops for cash as well, but the market quickly became glutted and prices collapsed.⁶⁸ Farming was never a sure enterprise. Heavy snowfalls in the winter of 1931 to 1932 in northern New Mexico killed livestock, and hailstorms and grasshoppers the following summer destroyed crops.⁶⁹ For those who had limited resources in the first place, such disasters could be devastating.

Other resources of the Pecos valley continued to provide economic opportunities as well. John W. Johnson, the forest ranger, felt that timber remained a crucial part of the local economy through the 1930s. “The economy of the area was based largely on timber products, mine ties and props, stulls, piling, railroad ties and sawtimber,” Johnson remembered. “Juniper posts were in great demand and a truckload of juniper posts could be sold anywhere at a good price.” The demand for timber encouraged people to trespass on the national forest without permits in order to obtain it. Johnson recalled that “timber trespass had always been a problem and as the timber on private land was cut out, trespass on the forest increased.”⁷⁰ Residents of Pecos also depended on the forest to provide cheap grazing land for their livestock. The Forest Service, however, in trying to remedy decades of overgrazing and unrestrained timber cutting, put restrictions on forest use. Historian John R. Van Ness argues that during the Depression “the consequences of grant land alienation, environmental degradation, and the drastic contraction of wage labor opportunities created a crisis of life-threatening proportions.”⁷¹

The poverty of many villages attracted substantial federal government aid. Federal programs such as the Works Progress Administration and National Youth Administration, which often focused on the “traditional” aspects of village life such as crafts and farming, in many ways

attempted to contain Hispanos in a static lifestyle—a lifestyle intimately connected to racial stereotypes. In other ways, though, federal aid did allow Hispanic villagers to maintain their cultural practices, if not always solely on their own terms. By 1935, sixty percent of Hispanos in northern New Mexico received some form of government aid.⁷²

Another federal program, the Civilian Conservation Corps (CCC), provided employment and also affected the environment of the Pecos valley. Part of the various economic recovery acts passed by President Franklin D. Roosevelt to combat the Depression, the CCC offered the chance of a steady job to unemployed men. The CCC crews gave several federal agencies, including the Forest Service and the Park Service, a sudden influx of workers. To the agencies, which usually faced the problem of an insufficient work force, the CCC crews represented an opportunity to catch up on neglected projects or forge ahead with new ones. The CCC established a camp near Glorieta—possibly a short distance north of Pigeon’s Ranch—in 1938. The CCC men helped the Forest Service with fire suppression, construction projects, tree planting, and erosion control. Ranger Johnson mentioned recruiting CCC men to help fight the 1938 fire in Hagus Canyon. At other CCC camps, crews built and repaired check dams, trails, and roads and generally improved infrastructure. We were not able to find any detailed sources on the Glorieta CCC camp, but they probably undertook similar activities. After the camp closed, according to Johnson, the army considered turning the remnant buildings into an internment camp for Japanese Americans during World War II. The plan failed, and Johnson helped remove the buildings in the 1940s and “cleaned up the area.”⁷³

As the residents of Pecos scrambled to turn resources into food and cash, others also sought profit in the environment. Although Tex Austin had failed to find any oil, interest in oil drilling on the Forked Lightning Ranch did not disappear. In August of 1934 officials of the Mexada Oil Company, based in Oklahoma, arrived in Francis C. Wilson’s office seeking information about leasing the ranch. Wilson was serving as Austin’s attorney in the bankruptcy proceedings. If oil was discovered, Wilson felt “everybody’s troubles in this case would be over.”⁷⁴ Nothing came of the Mexada Company’s interests, either, and Austin surrendered the Forked Lightning to his creditors. In 1936 Wilson C. Currier purchased the majority of the ranch land for \$58,000.⁷⁵ Currier was also involved in the oil business and probably hoped the oil rumors would pay off.⁷⁶

Currier was not a stranger to the area—he owned a 3,000 acre ranch at the base of Glorieta Mesa and had vacationed with his family in the area for many years.⁷⁷ John W. Johnson recalled that Currier had tried to increase the value of the Glorieta ranch by obtaining a “sizeable grazing preference” in the adjacent national forest but was turned down. Johnson stated that the Currier ranch was approximately three miles from Hagus Canyon, a tributary of Glorieta Creek.⁷⁸ The Glorieta ranch may have been a more substantial operation than Currier’s share of the Forked Lightning, which he bought based on its potential for oil. The part of the Forked Lightning Ranch purchased by Currier did not include the ranch house and the 135 acres around it. Currier and his family moved into Kozlowski’s Trading Post, remodeling the buildings and utilities. He kept only a few livestock at the Trading Post—two milk cows and some horses.⁷⁹

Tex Austin’s large horse and cattle herds disappeared from the Pecos landscape when Austin’s western romantic retreat collapsed under the economic strains of the Great Depression. Under Austin’s management, the Forked Lightning had offered tourists the chance to live out their fantasies of western life, complete with hunting, riding horses, and watching cowboys herd cattle. Many others in the Pecos valley experienced the environment at least partly through leisure and aesthetic values. The miners at Tererro enjoyed hiking and fishing along the Pecos

Chapter Seven, 1925-1941

River. Although the Forest Service facilitated timber cutting and grazing, it also managed species specifically for hunters and fishermen, and suppressed fires that helped create a landscape of dense forest that many viewed as the appropriate setting for western adventures. Although the Depression curtailed tourism, people clung to the hope that better times would allow them to buy a car and travel westward themselves to experience all the “Land of Enchantment” had to offer.

Chapter Eight

Imagining the Past in a Postwar Landscape, 1941-1965

On a warm June evening in 1964, a small group of Hollywood notables and wealthy Dallas oilmen mingled in the secluded courtyard of the Forked Lightning Ranch house. The Pecos River rushed by below them, gurgling over the rocks. The guests breathed in the scent of the dry desert air and walked across the bluegrass lawn in their shiny cowboy boots, warmed by margaritas and the flattering attention of their famous hostess, Greer Garson Fogelson. The day had been filled with activities befitting the guests of a gentleman rancher—a hearty “chuckwagon picnic” by the Pecos River at tables covered with denim cloths, an appreciative inspection of the ranch’s picturesque stables and prizewinning herd of Santa Gertrudis cattle, and an afternoon horseback ride among the piñons. The evening would feature a mariachi band by lantern-light before the guests retired to their private bedrooms to listen for the haunting calls of coyotes in the darkness.

Greer Garson was a well-known movie star in 1949 when she married Texas oilman E. E. “Buddy” Fogelson, who purchased the Forked Lightning Ranch before World War II. Like Helen Kozlowski, Greer stepped into an alien environment the first time she visited the Pecos area. Unlike Helen and her family, Greer did not have to worry about wresting a living from the environment. To Greer, the Pecos River valley and her husband’s sizeable property provided a beautiful backdrop for dramatic social spectacle in the tradition of Tex Austin’s dude ranch, but made more exclusive because visits to the ranch were now by invitation only. Greer greeted her guests personally at the local train station wearing a colorful Western costume. “It was as if a great director had carefully arranged the scene and she was the cattle queen in some wild Technicolor movie,” remembered one famous guest, Art Linkletter.¹ Indeed, the Fogelsons’ life on the Forked Lightning Ranch relied as much on theater and romanticized notions of the Old West as had Tex Austin’s tourist operation. But unlike Austin, they did not rely on paying guests to keep the ranch afloat—Greer and Buddy Fogelson were so well-off that they could afford to use the ranch as a private retreat for family and friends.

Greer’s upbringing in England influenced her romanticized view of the American Southwest, and her experience as an actress working on Hollywood movie sets further affected the choices she made in four decades of summer residence at the Forked Lightning. Greer developed a very personal relationship with the landscape in those years, even as she perpetuated its mythology. The Fogelsons furnished their ranch with American Indian and Hispanic artwork and furniture and dabbled in local traditions such as baking bread in the *horno* oven they installed behind the ranch house. But they remained somewhat removed from the local community, acting as benevolent philanthropists who valued and protected their privacy and the sanctity of their property boundaries.

The Fogelsons arrived in the Pecos valley carrying the cultural baggage of a modern consumer society. Flying to movie premiers, buying expensive pure bred cattle and American Indian rugs for the ranch, driving up to the Forked Lightning in a Fleetwood limousine—both Greer and Buddy approached the Pecos landscape from the perspective of people who valued the environment for its aesthetic and recreational potential. They did breed cattle on the ranch, but the operation was always a hobby, never a livelihood. The Fogelsons’ experience of the Pecos



Figure 29. Greer Garson with one of her beloved poodles on the Forked Lightning Ranch road, undated. Source: PS40, Folder 2, Env. 6, Series 1 Photographs, Greer Garson Papers, Jerry Bywaters Special Collections, Jake and Nancy Hamon Arts Library, Southern Methodist University (hereafter, HAL).

environment in the context of leisure and recreation became more common for many of the people who traveled to Pecos in the mid-twentieth century. The Pecos Pueblo ruins, the Santa Fe National Forest—these landscapes attracted people interested in recreation and leisure. Yet even as Greer and other visitors lived out their Western fantasies in the Pecos valley, many others continued to depend on the resources of the Pecos environment for their livelihoods. The different types of land use at Pecos and the different visions of how the landscape should appear affected and transformed the environment of the valley.

Pecos, 1941-1965

As World War II began, the environmental conditions at Pecos reflected sixty years of intensive logging and grazing, a brief but damaging period of mining at Tererro, and ongoing subsistence use of the forests, watershed, and meadows. When a severe drought enveloped the region in the 1940s and 1950s, it brought ecological, social, and political changes to an already vulnerable landscape. The postwar economic boom encouraged the exploitation of timber resources and the expansion of the livestock industry. The Forest Service struggled to manage multiple uses of the forests while also attempting to improve ecological conditions. Local traditions survived and endured, but in the context of a changing environment.

The demand for resources caused conflict over who should manage and control those resources. Many Hispano residents whose families had lived in the valley for generations resented the continuing dominance of Anglos over the land and economic opportunities. The

Forest Service remained a powerful bureaucracy that relied on scientific management of the forests, and although it tried to take local concerns into consideration, the agency culture often clashed with that of local residents. The Fogelsons' purchase of the Forked Lightning Ranch also aroused some resentment. Many saw the Fogelsons as simply the latest Anglo landowners who breezed into the region and locked up land behind fences and "No Trespassing" signs.

Different cultures continued to meet at Pecos, as they had throughout the centuries. In the postwar era, the piñon pine forests, high mountains, and interesting tourist sites attracted many people to the Upper Pecos valley. By the 1950s individual automobile ownership had become an integral part of a new, higher standard of living enjoyed by many Americans, and economic recovery and greater leisure time brought travelers seeking recreation and diversion in national forests, parks, and historic sites. A modern infrastructure of highways and power lines developed that connected Pecos to the nation and allowed for easy travel to the region. Tourists brought with them their own perceptions of the Pecos environment. They wanted to find clean rivers for fishing and hike through dense forests. They wanted to visit the Pecos Pueblo ruins and find facilities and interpretive exhibits waiting for them. The expectations of tourists influenced the Pecos landscape. The State of New Mexico attempted to manage and protect the ruins of Pecos Pueblo and the Spanish missions despite funding constraints. The Forest Service began to take recreational use into consideration.

As the largest and wealthiest landowners in the valley, the Fogelsons also changed the landscape, and the legacy of their decisions is still visible today. The Fogelsons combined many of the land use practices that typified the Pecos valley as it moved into the postwar era. Just as the Forest Service relied on science for solutions to forest degradation, the Fogelsons employed scientific breeding programs for their cattle. Many of the tourists who came to the valley shared the Fogelsons' fascination with romantic Western history. The Fogelsons' manipulation of the landscape to create a perfect Western ranch was similar to the efforts of the State of New Mexico to manage the ruins to meet the expectations of tourists. Although the Pecos environment suffered from overgrazing, erosion, and drought, it remained a landscape that also offered people an avenue into romance and recreation.

"Instead of Eight Cows to an Acre, It's More Like Eight Acres to a Cow": The Fogelsons buy the Forked Lightning Ranch

Greer Garson first visited the Forked Lightning Ranch in 1948. Elijah E. "Buddy" Fogelson had invited Greer and her mother to spend a week at the ranch after the premier of Greer's latest film, *Julia Misbehaves*. Buddy met Greer on the set of the film and was immediately taken with the red-haired actress. Only a few days later, at a dinner party at Greer's home, Buddy boldly told her "I'm going to marry you some day." Still smarting from two divorces, Greer resisted committing her heart to Buddy. But she immediately fell in love with the Pecos valley. Expecting picket fences, duck ponds, and ponies, Greer wore high heels and an organdy dress the first time she visited the Forked Lightning Ranch. The rugged, arid environment of Pecos surprised, but delighted her. "I was immediately struck by the color of the earth, the sky, and the people," Greer remembered. She took particular note of the "Indian, Spanish, and pioneer American" history embedded in the landscape. "The wonderful thing is that they all get on well together. It's historic. Spacious. Thrilling. It's not like the lush pasturage of, say, Virginia. Instead of eight cows to an acre it's more like eight acres to a cow! I felt so fragile and uncomfortable in that vast, rugged land."² Greer's perceptions of Pecos reflect how popular and widespread the romanticized history of the Southwest had become. She did not read

evidence of past conflict and change in the environment but rather saw a landscape so immense that it was removed from human influence, its inhabitants cloistered inside the safe confines of a historic narrative developed by the tourism industry.

In reality, the Forked Lightning Ranch stood within a landscape that had experienced centuries of intensive human presence and use. The active management of the land continued under Buddy and Greer Fogelson as they created a new cultural landscape reflecting their perceptions and desires. The ranch had stood idle for five years after Tex Austin's bankruptcy, but with Buddy Fogelson's purchase of the land, the Forked Lightning once again became a working ranch. In the mid-1930s, Fogelson had visited fellow Texan Lyle Brush's guest ranch in the canyon above the Pecos village and developed an interest in owning property in the area. In 1938 Fogelson began negotiating the purchase of the unsold portion of Tex Austin's former holdings—the main ranch house and 135 surrounding acres.³ He finalized the deal for the ranch house parcel in 1941. After Wilson C. Currier, in failing health, abandoned his hopes of finding oil, Fogelson also purchased Currier's land, which included most of the property between the river and Glorieta Mesa. Later that year, Fogelson bought the Los Trigos Ranch, the former land grant bordering the Forked Lightning Ranch to the south, from Bruce and Dorothy Strong.⁴

Although Fogelson was new to the Upper Pecos valley, he quickly influenced local land use patterns, much like Tex Austin and other Anglo landowners before him. Ranches like the Forked Lightning—large, commercial operations usually owned by Anglos—occupied much of the best range land around the headwaters of the Pecos River by the mid-twentieth century. The accumulation of land in the hands of a few wealthy Anglos forced all the other residents of the Pecos valley to put their livestock on the national forests. The resulting erosion from overgrazing affected all downstream communities and economic activities in the Pecos watershed.⁵

A native Nebraskan raised by well-educated Finnish immigrants, Fogelson made his fortune as an oil wildcatter in Texas.⁶ Coming from an area steeped in cowboy culture and cattle, Fogelson saw the Forked Lightning as a vacation home but also a place to breed cattle. Initially, he stocked it with a mix of purebred and commercial Horned Herefords purchased in Forth Worth, Texas. When the United States entered World War II, Fogelson placed his new project on hold and volunteered for military duty in December 1941. Fogelson was named chief of Eisenhower's petroleum planning division in Europe and served on the Allied War Reparations Commission after the German surrender.⁷

As the U.S. entered the war, the Upper Pecos area contained the highest population density and greatest degree of economic distress in the entire Pecos River watershed.⁸ Many local men who did not volunteer or get drafted pursued employment opportunities on assembly lines in other parts of the West. They encountered a wider range of skilled labor positions and opportunities for geographic and occupational mobility.⁹ Employment opportunities outside of San Miguel County continued to grow in the postwar period. Many wage laborers settled in cities such as Denver, Tucson, and Los Angeles and other parts of New Mexico that offered employment in the defense and oil and gas industries rather than returning to the Pecos area.¹⁰ The population of Pecos began to decline in 1940 and did not rise again until the 1970s when Pecos became a bedroom community for Santa Fe. The influx of new residents into other areas of New Mexico during the war years created an Anglo majority in the state for the first time. The Fogelsons were part of the Anglo migration to New Mexico. By the late 1940s, Fogelson was a decorated veteran and wealthy philanthropist. He already owned the Forked Lightning Ranch, and after meeting Greer in 1948, Fogelson turned his substantial energies to wooing the reluctant

actress. Greer finally consented, and they were married in Santa Fe in the summer of 1949. Together, they began turning the Forked Lightning into their ideal of a Western ranch.

“I’ve Taken to Ranch Life Like a Duck Takes to Water”: Environmental change on the Forked Lightning Ranch

Greer Garson quickly developed a passion for ranching that rivaled her husband’s. The Fogelsons arrived at the ranch every June and stayed through Greer’s birthday, September 29. As a child, Greer often had visited her grandparents’ dairy farm in County Down, Northern Ireland. Those visits instilled in her a lifelong fascination with rural life.¹¹ Shortly after their marriage, Buddy presented Greer with a section of the ranch for her very own. Greer called the parcel El Rancho Blanco and established a herd of Scottish-bred white shorthorns—six heifers and a bull—that reminded her of her British roots. “I’ve taken to ranch life like a duck takes to water,” Greer wrote in a letter to a friend. “I’ve switched from bustles and bows to Levis and boots, and I think it’s definitely a change for the better.”¹² Ranch hands took to calling the parcel the “Greer Garson” pasture. Because the ranch continued to maintain a commercial herd of Herefords, it was necessary to keep the purebred shorthorns away from the other cattle. Greer enjoyed immediate success at the New Mexico State Fair, where her shorthorns won many ribbons and awards. Soon the Forked Lightning Ranch developed a reputation in New Mexico as a first-rate cattle operation. In February 1951 Greer gave an address at the Cattle Growers Association Convention in Albuquerque—the first woman to do so.¹³

The Fogelsons relied on a permanent staff of ranch hands to keep the Forked Lightning in operation year round. They developed strong relationships with their staff built on mutual trust and friendship. Ranch foreman Slim Wasson, a former Texan who had been in the Pecos area since 1921, oversaw the ranch during Buddy’s military service and was one of only a handful of attendees at the Fogelsons’ private wedding in Santa Fe.¹⁴ Wasson lived in a trailer van on the ranch in the 1940s. Eventually, the Fogelsons established a ranch foreman’s residence and headquarters at Kozlowski’s Trading Post.¹⁵ Jay Kirkpatrick, a local born less than a mile south of Los Trigos, replaced Wasson as foreman in 1954 and later became a managing partner in the ranch. The Fogelsons also hired a veterinarian, Melvin Hinderliter. Another local man, Gilbert Ortiz, began working as a ranch employee under Hinderliter in 1963 and also received a college scholarship from the Fogelsons. Later he was promoted to ranch manager and lived at the Trading Post. Ortiz developed an extensive knowledge of bovine genetics, which he learned from Hinderliter.¹⁶

The Fogelsons added to and changed the ranch infrastructure that remained from Tex Austin’s ownership. They altered the path of the main ranch road near Glorieta Creek as the road drew near the ranch house and installed a new bridge over the creek. A wooden mill diversion dam on the Pecos River and an accompanying diversion ditch probably was used through the 1950s for agricultural irrigation on the ranch. After the wooden dam washed out, they switched to using pumps. Remnants of irrigation (black plastic pipe and diversion ditches) are still evident.¹⁷ To the east and south of the ranch foreman’s quarters at Kozlowski’s Trading Post, the ranch hands built pens and chutes, corrals, a shop, and storage buildings. In the outer pastures, they added loading and holding pens.¹⁸ At some point, they dug two wells in the Middle pasture south of the road to the ranch house because it did not contain a surface water source for the cattle.¹⁹

Forked Lightning cattle did not mingle with the herds on the Forest Service lands. The ranch offered plenty of quality grazing land, and the Fogelsons wished to keep the pedigree lines

clean.²⁰ Cattle grazed on the land surrounding the small state monument that encompassed the pueblo ruins, in the pastures between State Highway 63 and the Pecos River, and in fenced pastures on the east side of the Pecos River. Most pastures contained access to an arroyo that served as a water source for the animals. The ranch was divided into eleven designated pasture areas, some of which were further subdivided at various times in the ranch's history (see Figure 30). The Greer Garson pasture (#6) had no water source and was not grazed after she moved her white shorthorns off the ranch. The steeply sloped Orchard pasture (#1) was rarely used. Pastures used for regular rotation included the Monument pasture (#2), the Horse pasture (#3), Upper Pump pasture (#4), Pump pasture (#5), Windmill pasture (#7), Pajarito pasture (#8), Quintana pasture (#9), the "No Name" area (#10), and the West pasture (#11). When the Fogelsons donated land to create the national monument in 1965, they included land from the West and Monument pastures, thus reducing their original size.²¹

By 1953 the herd of Scottish shorthorns had grown to twenty, but the Fogelsons soon moved them to their Texas ranch or perhaps sold them to another Texas rancher who planned to cross them with white Brahmas to establish a new breed: "white short-horned Greers."²² The Fogelsons quickly developed a new passion, however. In the late 1950s, they began their long-term involvement in the international experiment to expand and improve the lowland Santa Gertrudis cattle breed. In 1958 Buddy impulsively bought "Gee-Gee," a \$10,000 Santa Gertrudis bull, from his friend Winthrop Rockefeller in Arkansas. The King Ranch in Texas developed the Santa Gertrudis breed, formally recognized by the U.S. Department of Agriculture in 1940—the first breed of beef cattle to originate in the United States. After the hasty decision to purchase the sire, Fogelson consulted with Jay Kirkpatrick, who advised him to buy some heifers as well. Fogelson bought three and added thirty Santa Gertrudis cows the following summer, each purchased for an average price of \$3,000. As the Santa Gertrudis operation grew, the Fogelsons sold their commercial Hereford cattle to provide more grazing pasture for the purebred livestock. By 1961 they owned seventy-five breeding age females. The Santa Gertrudis breed was noted for the ability to rapidly gain weight by converting food into muscle tissue at a faster pace than other breeds. Although still unusual in the West in the 1950s, the Fogelsons were not the first to export Santa Gertrudis cattle to the arid high county. Tweet Kimbell of the Cherokee Ranch in Douglas County, Colorado, stocked her ranch with the breed several years before the Fogelsons began their experiment in New Mexico.²³

As year-round ranch manager, Kirkpatrick oversaw the herd's first year in the dry, high-altitude conditions of northern New Mexico. The experiment began in a period conducive to success. After many years of prolonged drought, the summer of 1959 was unusually wet, and the cows did well on the available forage, requiring no supplemental feeding. Although some were concerned that the cattle might suffer during the winter, the Santa Gertrudis fared well. The Fogelsons eventually stocked the entire ranch with about 300 head of the new breed. According to a former ranch employee, there was a five-or six-year hiatus in the early 1960s after the Fogelsons sold the horned Santa Gertrudis herd. During that time, caretaker Luther Hamby ran ten to fifteen head of Angus cattle to keep the ranch going. The small herd and sudden decrease in grazing pressure allowed encroachment of piñon-juniper in unused pastures. When the Fogelsons decided to start a new herd of Santa Gertrudis, the ranch staff undertook extensive piñon and juniper eradication—both of new trees and older growth as well—to prepare the pastures for the herd's arrival.

The infill of piñon and juniper into pasture areas also may have been influenced by climatic fluctuations. Dramatic climatic variability from World War II through the early 1960s

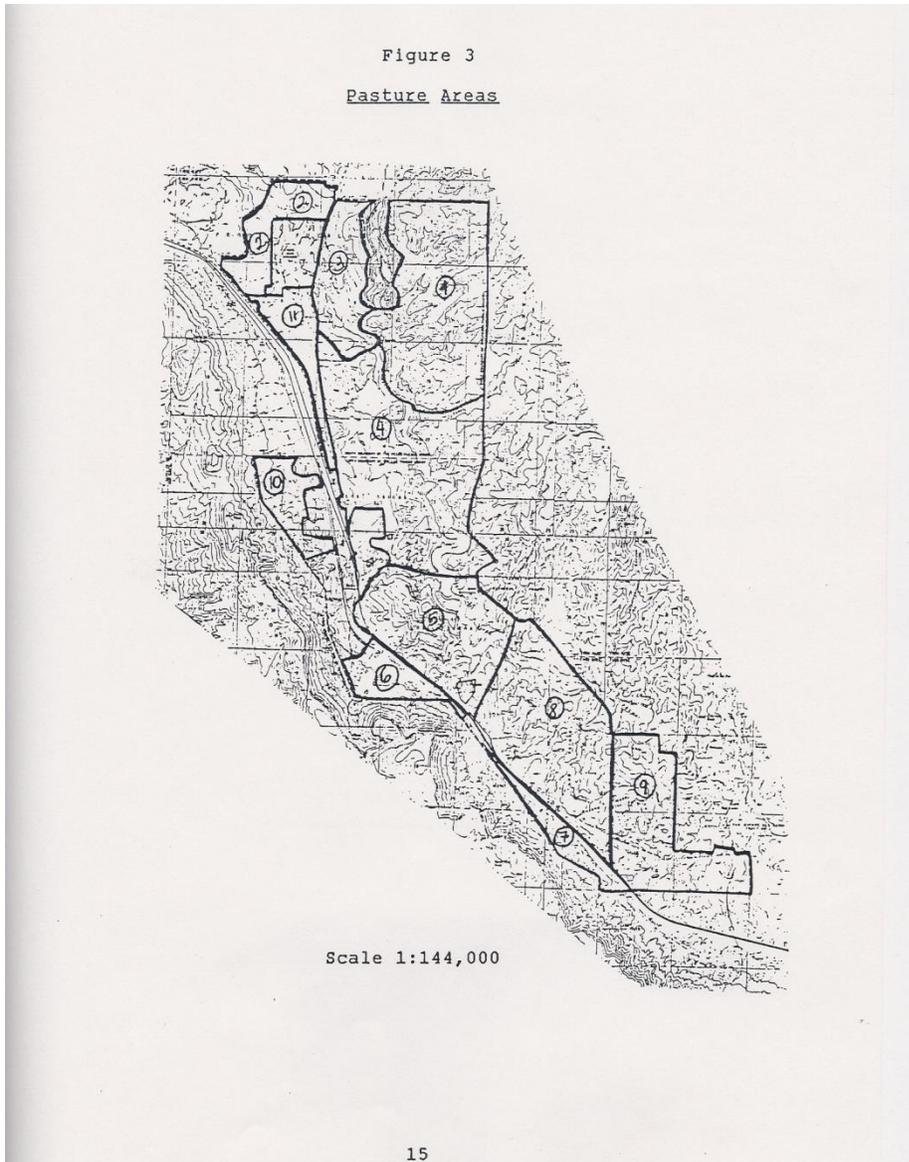


Figure 30. The eleven pasture areas used on the Forked Lightning Ranch. Source: Meszaros, “Vegetation and Land Use History of the Upper Pecos Area,” Figure 3, 15.

impacted the New Mexican environment. In the early 1940s, New Mexico experienced an El Niño period of abnormally high precipitation, lasting from 1940 to 1941, which resulted in flooding, killing frosts during the summer that damaged crops, and a low number of fires throughout the state. A La Niña period immediately followed, and from 1942 to 1957 drought conditions ravaged the area. The 1950s was New Mexico’s driest decade in 400 years. 1956 was the climax of the dry period—as much as sixty percent of the state’s crops failed in that year alone. As surface irrigation in the region declined due to drought, well-drilling to access groundwater accelerated to compensate. One Glorieta well digger claimed he had already drilled more than 50 wells in the area by 1950.²⁴ The drought affected not only agriculture but the livestock industry as well. As a result of the 1950s drought, range management scientists warned

Southwestern stockmen that drought planning should take precedence over all other grassland management practices.

The most abundant type of vegetation community in the Pecos valley, piñon-juniper woodland was vulnerable to climate fluctuations. The wet years in the 1940s presented conditions favorable for piñon-juniper invasion in grazed grassland areas. Yet in the 1950s, severe drought conditions caused massive piñon and juniper die-offs in places such as the Pajarito Plateau west of Santa Fe and the Sevilleta National Wildlife Refuge.²⁵ Similar conditions around Pecos probably limited piñon-juniper expansion during the drought years. But in general, episodic climate fluctuations over a number of decades, combined with continuing disturbance from livestock grazing, created conditions that altered the age structure and species composition of woodlands and accelerated piñon-juniper encroachment on grasslands.²⁶ The continued suppression of fire also affected piñon-juniper dynamics. Centuries of human activity radically affected plant communities, and that activity overlay a pattern of large-scale environmental change.

At the Forked Lightning Ranch, although the drought may have inhibited piñon-juniper encroachment to some extent, the ranch managers agreed that too many pastures were being overtaken by the trees. To achieve conversion to grassland, land managers in the Southwest developed mechanical tree removal techniques as early as the 1930s. The most popular method involved using bulldozers with a chain stretched between them to rip out trees. Aldo Leopold was an early critic of the practice—he believed that mechanical conversion ignored the complex relationship between grazing, fire, and encroachment. “Most of conservation is the manipulation of the plant succession, yet the term is seldom mentioned in conservation propaganda,” he wrote.²⁷

By the mid-1960s, ecologists better understood the role of fire and climatic change in scrub invasion, but until controlled burning methods emerged in the 1970s, mechanical removal was widely regarded as the most effective and safest method. Although burning removed a higher number of trees and allowed grasses to recover quickly, controlled burns were still uncommon. At Pecos the neighboring Forest Service, which controlled a vast amount of land in the valley, discouraged controlled burning. Despite developments in ecological science, many land managers did not yet understand the ecological causes of brush encroachment. When the Fogelsons cleared their pastures in the 1960s, they based their decision to use mechanical removal methods on the livestock industry’s continued reliance on technological solutions.²⁸

In 1962 during the hiatus from the Santa Gertrudis operation, the ranch hands began clearing piñon and juniper. They consulted with the Pecos District Office of the Soil Conservation Service, which offered a program in the 1950s and 1960s encouraging ranchers in the Southwest to increase grasslands for cattle forage.²⁹ One former Forked Lightning Ranch manager remembered using a chain dragged between two bulldozers to knock down the trees, but other recollections suggest the trees were removed with bulldozers alone. The recommended method included scraping the removed woody vegetation and some soil into windrows to expose cleared ground for reseeding. Existing forage plants could naturally revegetate the exposed ground, but studies indicated that artificial revegetation in the spring or summer with drilling or broadcast distribution of seeds on prepared seedbeds was a more effective and rapid method of reaching a desired level of productivity. The ranch hands usually burned the stockpiles of uprooted brush in the winter months when fire danger was low.³⁰ According to the 2002 cultural resources inventory, ranch managers cleared about twenty-five percent of the relatively flat land included within the present-day Pecos Unit boundary. That included most of the ranch’s pastures

west of the Pecos River, with the exception of the parcel just south of Kozlowski's Trading Post.³¹ In the West Pasture, they cleared the top of the mesilla south of the ruins and several level areas above the slopes west of Glorieta Creek. The 1962 clearing operations also included the Monument pasture north of the ruins. Vegetation patterns on several formerly cleared pastures on the Los Trigos portion of the ranch continue to show evidence of windrows (Figure 32).³²

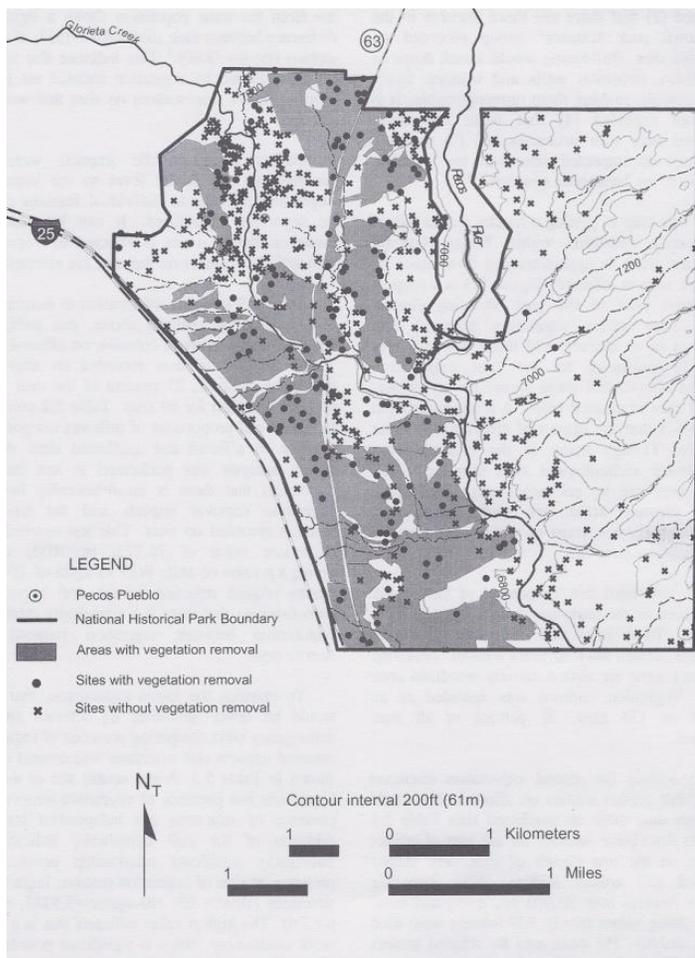


Figure 31. This map of the Pecos Unit indicates sites where vegetation removal impacted archaeological sites. The shaded area provides a general indication of the full extent of brush clearing on the northern half of the Forked Lightning Ranch over time. (Reprinted, by permission, from Head and Orcutt, *From Folsom to Fogelson*, 1:104.)

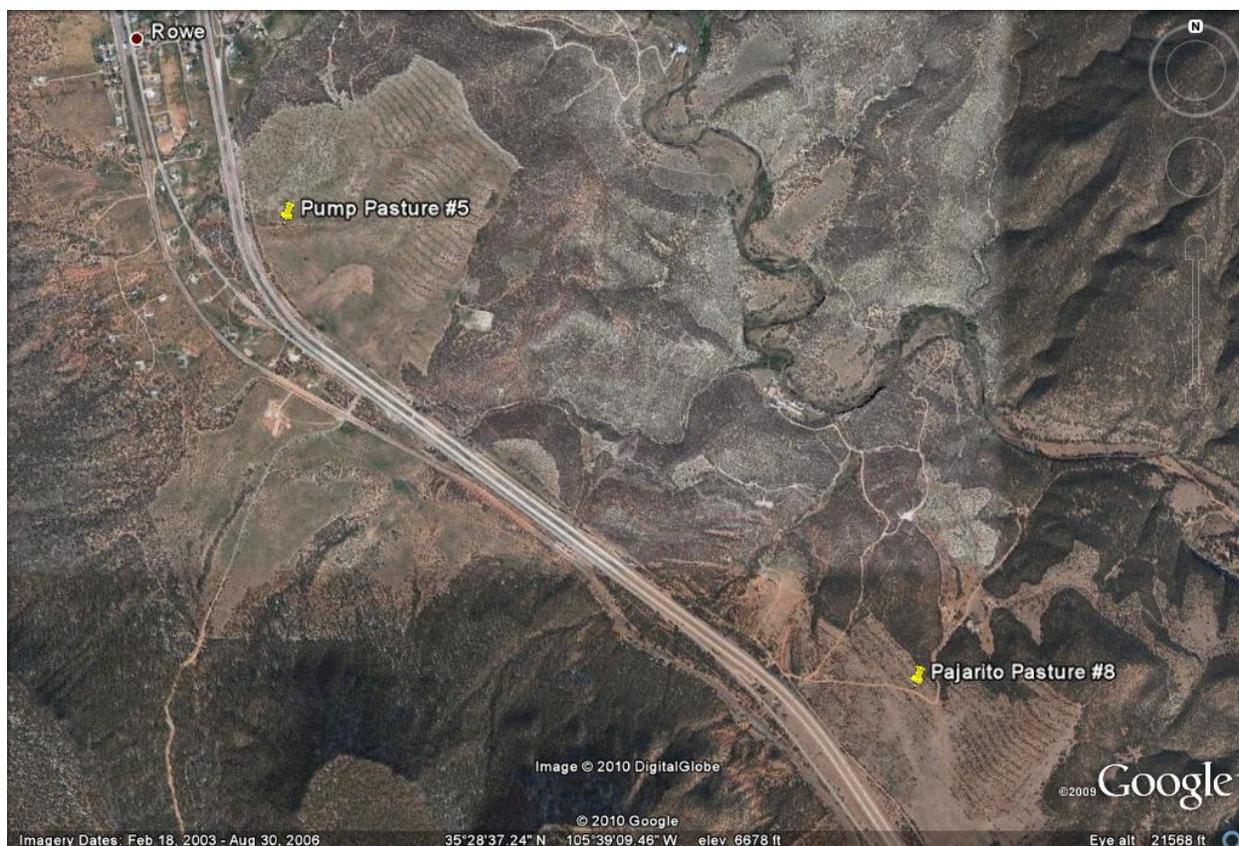


Figure 32. A satellite image from August 14, 2009, indicates windrow vegetation pattern on formerly cleared pastures #5 and #8 on the Los Trigos portion of the Forked Lightning Ranch.

Mechanical clearing was an imperfect method of removing trees. Although quick, chaining missed the shorter, younger trees, which quickly grew after removal of the upper stand. One article on the subject encouraged the combined method of removal, windrowing, and drilling and emphasized the importance of proper site selection for clearing, which included avoiding steep slopes and rocky soils. The article noted that by making these decisions land managers essentially delineated their land into “natural” habitat and “modified” areas of converted grassland.³³ When the Forked Lightning Ranch was in operation, grazing occurred continuously on the newly cleared areas, but in later years, when grazing ended, conditions were ideal for the germination of piñon and juniper. The faster growth and maturation rate of piñon as opposed to the one-seeded juniper may have led to a higher number of piñon in the ranch pastures. According to one estimate, by 1998 piñon-juniper encroachment and/or regrowth had replaced 200 acres of pasture out of a total of approximately 600 acres used in the 1970s.³⁴

The effects of mechanical clearing, grazing, drought, and fire suppression acted together to change the landscape of the Forked Lightning Ranch over time. Although the severe drought that swept the region in the 1950s occurred independently of any human action, much of the variability in piñon and juniper cover in the valley arose due to human land use. The primary reason for clearing trees on the ranch in the 1960s was to maintain pasturage for the Santa Gertrudis cattle. However, Buddy and Greer also wanted their ranch environment to be an attractive one. An article on piñon and juniper clearing suggested that “the resulting stands of

grass surrounded by untreated woodland probably have as much aesthetic value to residents and travelers as does the typical piñon-juniper scenery.” Actively managing the ranch environment created a landscape that was practical yet also visually appealing.³⁵



Figure 32. This Soil Conservation Service image documents an area of piñon-juniper encroachment on the Forked Lightning Ranch before mechanical removal in 1965. The SCS estimated 800 trees per acre in that particular area, with very few grasses present in the understory due to grazing. Source: PS40, Folder 7, Series 1 Photographs, Greer Garson Papers, Jerry Bywaters Special Collections, HAL.

“Everything from Stuffed Lobsters to Filet Mignon Was on the Menu”: Land management under the Fogelsons

The Fogelsons threw a lavish party at the Forked Lightning Ranch in August 1950 to celebrate the opening of Greer’s film, *The Miniver Story*, sequel to the immensely popular *Mrs. Miniver*. The *Santa Fe New Mexican* related that “a magnificent buffet had been set up decorated with ice carvings and flowers and loaded with a rich assortment of foods. Everything from stuffed lobsters to filet mignon was on the menu. . . . [The] La Fonda orchestra played for dancing throughout the evening.”³⁶ Even in his heyday at the ranch, Tex Austin never could have managed such a spread.

The lifestyle of the Fogelsons, who kept other homes in Dallas, California, and New York, contrasted sharply with the lives of other residents of the Upper Pecos valley. Although Tex Austin had not depended on the Pecos environment for every aspect of his livelihood, the Forked Lightning Ranch did support the cattle and horses he used in his rodeos. When the Fogelsons assumed ownership, the disconnect between the Pecos environment and the ranch owners’ livelihoods deepened further. Greer was an actress and Buddy an oilman—neither depended on the Pecos valley to provide food or shelter. For locals who did rely on the resources of Pecos—particularly firewood and land for grazing—the Fogelsons’ ownership of the best land in the valley aroused resentment. To some Hispanos, the Fogelsons represented merely the latest in a long line of Anglos who had usurped the land of New Mexico. For the most part, the

Fogelsons remained on good terms with their neighbors and supported many philanthropic causes, but conflict and tension continued over the land and resources of the Pecos valley.

In some ways, the Fogelsons' management of the ranch fit the pattern of professionalization that had begun to influence resource management in the early 1900s—a reliance on scientific management and a conviction that trained professionals were the best stewards. At Pecos examples of this trend included Kidder's archaeological work at the ruins, the growing influence of federal agencies, and the influx of range, timber, and soil scientists into those agencies. As the Fogelsons turned their Santa Gertrudis operation into an intensively managed breeding program, they also relied on professional expertise and modern science for solutions.

In the mid-1960s, the Fogelsons re-stocked the ranch's recently improved pastures with a polled (hornless) herd of Santa Gertrudis cattle. The lack of horns made the cattle more suitable for feedlots and thus more appealing to potential buyers. The Fogelsons brought Kirkpatrick back to expand the breeding operation. They called their new registered bull "Moses" and used artificial insemination to improve the stock.³⁷ Artificial insemination had become popular in the dairy cattle industry in the 1940s. Cattle owners could manage the process easily with animals confined in barns. Using this technique for beef cattle that roamed across thousands of acres was challenging, but the separate pastures on the Forked Lightning Ranch allowed the employees to control, monitor, and separate the artificially inseminated animals with relative ease.³⁸ In 1964 in preparation for the new scientific breeding operation, the Fogelsons purchased an additional 31.27-acre lot located behind Adelo's store in the Pecos village. The new pasture provided a separate holding area for the artificially inseminated cattle.³⁹ The process of using separate pastures to minimize vegetation damage and soil erosion and to separate the herd into smaller units echoed the Forest Service's grazing allotments and their attempts to manage grazing on public land.

A few locals also saw Fogelson's purchase of the acreage by Adelo's store in the same light as the Forest Service's earlier takeover of Hispano communal lands. Fogelson bought the acreage from Dr. Leslie Fitzgerald in 1964, and the transfer of another parcel of the Pecos Pueblo grant from one Anglo to another sparked some local resentment.⁴⁰ No other Pecos area ranches ran breeding operations, although current Park Service employee Eric Valencia stated that the breed became popular with locals and some still keep them today. Like the Fogelsons, locals often kept cattle for other reasons besides economic ones—as a hobby and as a way of maintaining their heritage. But Hispanos approached the land on which they grazed their cattle with a collective mentality. Few could afford to own and maintain an extensive private ranch—they relied on the former common grazing pastures surrounding the Pecos valley, now controlled by the Forest Service.⁴¹

The Forked Lightning operations required multiple fenced pastures for cattle rotation covering thousands of acres by the mid-1950s. Maintaining fencing on such large parcels of land was an ongoing project. In addition to securing the valuable cattle herds, fencing also inhibited trespass by locals, an ongoing problem for the ranch managers. Kirkpatrick described "wood hauling trespassers" who took advantage of weakened fencing sections to enter ranch property. Often, these security breaches occurred when the highway department, the railroad, and the utility companies entered the ranch to conduct maintenance and cut the fence line but did not properly repair it. In 1954 when the state widened Highway 63, the project required replacement of the ranch's fencing along the new road, as well as the addition of an underpass for access between the east and west portions of the ranch near the turnoff to the ruins.⁴² In 1960



Figure 33. The Fogelsons replaced the horned Santa Gertrudis herd with a polled (hornless) herd in the mid-1960s. This undated photo must have been taken between 1959 and 1961-62, when they sold the horned cattle. Source: Photos binder, PNHP archives.



Col. E. E. Fogelson, right, and ranch manager Jay Kirkpatrick.

Figure 34. Ranch foreman Jay Kirkpatrick and Buddy Fogelson in the trading post complex, 1961. Source: "Forked Lightning Plans Larger Herd," *The Santa Gertrudis Journal*, September 1961, 13, "Tex Austin's Forked Lightning Ranch" folder, PNHP library.

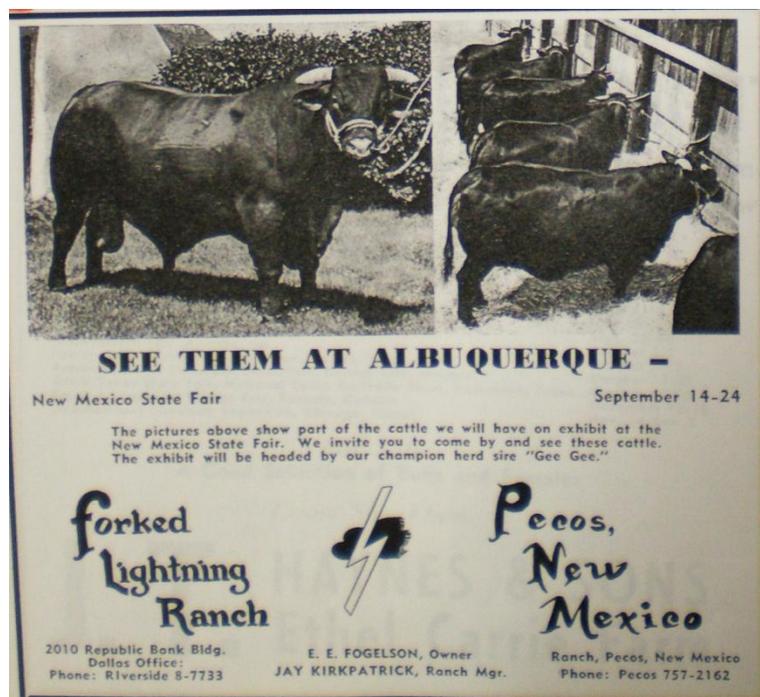


Figure 35. This 1961 advertisement for the show herd demonstrates the ranch's connection to a larger promotional effort to bring the Santa Gertrudis breed to the arid high country. Source: "Forked Lightning Plans Larger Herd," *The Santa Gertrudis Journal*, September 1961, 24, "Tex Austin's Forked Lightning Ranch" folder, PNHP library.

Kirkpatrick asked the Atchison, Topeka, & Santa Fe Railroad, as well as the Mountain States Telegraph & Telephone to install locking steel gates as a solution to the ongoing problem of maintenance personnel cutting ranch fences.⁴³

For most of the Fogelson era, with the exception of the early 1960s, the ranch staff maintained about 300 head of cattle on 20,000 acres. They practiced limited rotation and put larger herds in areas with better grass cover. Available forage for a herd of that size depended on sufficient rainfall to support the native grasses in the ranch's pastures and canyons. The ranch hands fed the cattle supplementary alfalfa and hay in drier years.⁴⁴ Ranch hands also tried to minimize weeds. Locoweed and broom snakeweed were the most problematic invasive plants—ranch employees controlled both with spraying when they emerged in May. The north pastures bordered untreated neighboring pastures in the village and traditionally had the greatest amount of invasive exotics, particularly around the pueblo ruins.⁴⁵ A former employee explained that the ranch managers were able to minimize erosion and overgrazing by using pasture rotation. The staff of five or six employees divided up responsibility for the herd and closely observed the range conditions on horseback. They used a stable of eight Appaloosa and Quarter horses to work the ranch and move cattle. The Fogelsons used the same horses for pleasure riding—Greer called her two favorite mounts "Kissing Time" and "Ho-Hum Silver."⁴⁶

"Don't Fancy This Place Up": Turning the Forked Lightning Ranch into a romantic Western retreat

Greer recalled that shortly after marrying Buddy, who affectionately called her "Rusty" because of her red hair, he teasingly warned her not to turn the Forked Lightning Ranch into a Hollywood socialite's mansion. "Don't fancy this place up, Rusty," Buddy said. Greer promised that instead she would "respect the local environmental harmonies."⁴⁷ The cattle operation was

the most significant activity affecting the environment within and surrounding the Forked Lightning Ranch, but the aesthetic changes the Fogelsons made to the ranch also changed the environment. Although Greer and Buddy had discussed keeping things simple, their idea of simple reflected their shared notions about how their ranch fit into the cultural landscape of northern New Mexico. Under Greer's guiding hand, the ranch began to reflect a cohesive aesthetic brand that was based on a romanticized tradition. Historian Chris Wilson describes that tradition as a mythic representation of northern New Mexico—a subjective invention of tricultural harmony created to attract tourists and promote a distinct regional identity. The ranch house that John Gaw Meem built for Tex Austin already showcased the Spanish-Pueblo Revival architectural style promoted by Santa Fe tourism boosters, a style that intermixed Pueblo and Spanish elements and obscured the reality of Anglo economic power and interests in the region.⁴⁸

When the Fogelsons took over the Forked Lightning Ranch, they built on and perpetuated that myth even as they created a modern ranching landscape of pastures, fences, and prize-winning cattle. “The house was very plain and manly when I first saw it,” Greer recalled. “Now, it’s a little more Garson’s style—nearly all white walls with brightly colored paintings and Indian rugs as accents.”⁴⁹ In the 1950s the Fogelsons installed split-rail fencing along the highway and asked John Gaw Meem’s firm to design a formal entrance of “adobe” (cinder block) posts and massive walls bearing the Forked Lightning brand at the Kozlowski’s Trading Post entrance.⁵⁰ The Mandarin Orange paint used on the ranch house and fences (which faded to pink) and the Bismarck Blue trim and accents instantly identified Forked Lightning lands and property. The Fogelsons extended their romantic aesthetic vision into the Pecos village by donating the same paint to local residents for their homes and businesses.⁵¹

The cattle, known locally as “Fogelson’s toys,” were as much a part of the atmosphere for visitors as they were a business investment.⁵² Buddy liked to show them off for guests. Like most modern Americans after World War II, the Fogelsons had no direct relationship with their food supply, despite their proximity to nature at their ranch retreat. While their Hispanic neighbors in the Upper Pecos valley continued to keep small kitchen gardens, cows, and other farm animals to supplement their purchased food supplies, the Fogelsons grew no food on their property. As in the Tex Austin era, ranch employees transported all food to the ranch by jeep from Santa Fe, and the Fogelsons’ cooks traveled with the couple and hired locals to assist them while in residence at the ranch.⁵³ Ranch hands also helped to maintain the landscaping around the ranch house complex, a pet project of Greer’s. Because they did not need to grow vegetables or keep chickens, the Fogelsons enjoyed the luxury of a bluegrass lawn as well as ornamental trees and flowers planted around the ranch house and casita.

Although no large-scale food production occurred at the ranch, Greer expressed interest in some of the more quaint Southwestern culinary traditions. She had a traditional horno oven installed in the yard in the 1950s, where local women taught her to bake bread. She also enjoyed hosting “chuckwagon” picnic lunches by the river on tables bedecked with blue denim cloths and red bandanna napkins. Guests hiked down steep concrete steps to the picnic area on the signposted “Niñas Trail,” built just east of the ranch house in the 1960s.⁵⁴ In many respects, the Fogelsons’ activities at the ranch seamlessly continued and expanded the inventions that Tex Austin had used so effectively to draw tourists to his dude ranch. The messier truth—a story of land use that also included unregulated resource extraction, soil erosion, water pollution, and struggle for survival and ownership of land—remained hidden behind this façade.



Figure 36. The Fogelsons' moved the main ranch entrance to the road near the Trading Post and constructed an "adobe" entrance gate painted in the ranch's signature colors. Undated. Source: PS40, Folder 2, Env. 2, Series 1 Photographs, Greer Garson Papers, Jerry Bywaters Special Collections, HAL.

Activities at the Forked Lightning Ranch during the Fogelson era included a mix of serious business and picturesque leisure activities. Although Greer and Buddy demonstrated benevolent interest in local affairs, their activities and mindset revealed their cultural and economic distance from the local population. A natural actress, Greer enjoyed her "role" as mistress of the manor, and her opinions strongly influenced activities at the ranch. For example, she and Buddy prohibited hunting and trapping on their property. Unlike Tex Austin and his guests, who had hunted wild game on the ranch and in the national forest, the Fogelsons and their family and friends shot clay disks on the private skeet range they built northwest of the ranch house in 1955. They allowed only limited fishing in the Pecos River as well. They could afford this sentimental approach to nature more common to Greer's friends in Hollywood than to their local neighbors in New Mexico, many of whom still hunted and fished to feed their families. As a result, the ranch became a sanctuary for any wildlife that found favorable habitat conditions within the heavily grazed areas. Perhaps the predators discovered that game was plentiful. In a 1966 interview Greer fondly remembered a thrilling encounter with a "wolf"—probably a coyote or fox—on the dirt road to the ranch house after a night at the Santa Fe Opera.⁵⁵ In interviews with the cattle trade press, she boasted of her contribution to roundups, riding fence to check damage after flash floods, and herding wild horses, as well as her regular duties supervising the house staff—bUTler, maid, and cook. She collected and displayed American Indian artifacts and rock specimens, and encouraged Buddy to support the state monument at the pueblo ruins, the arts in Santa Fe, and other charities.⁵⁶ Her connection to northern New Mexico, although enhanced by her dramatic skills, was very real. She felt New Mexico gave her a sense of continuity and peace—a sanctuary in a landscape still somewhat



Figure 37. The radio on the table provided a fitting soundtrack for Greer’s modern version of a “chuckwagon” picnic by the Pecos River. Source: PS40, Folder 2, Envelope 2, Series 1 Photographs, Greer Garson Papers, Jerry Bywaters Special Collections, HAL.

removed from modern America. “There is an almost mystical strength about New Mexico,” Greer wrote. “The longer you stay it seems to be the center of the world and everything else peripheral.”⁵⁷

Greer came to the Pecos valley expecting to find the quaint country scenes she remembered from her childhood. Although the environment she encountered proved to be quite different, Greer was no less enamored of it. She and her husband had distinct ideas about what the landscape of the ranch should look like and how the land should be used. Their cattle operation entailed heavy grazing and an intensely managed landscape. Ranch managers manipulated the vegetation communities to provide pasturage and eliminate piñon and juniper. The Fogelsons also created a visual aesthetic on the ranch that reflected their romantic notions of New Mexican history. Although many Pecos residents were friends with the Fogelsons and appreciated the help they gave to the community—in 1960 locals began an annual celebration for Greer’s birthday—some locals resented the Fogelson’s ownership of the ranch.⁵⁸ The numerous cases of trespass on ranch land arose from the opinion that the Fogelsons were asserting control over land that rightfully belonged to the Hispano residents who had lived in the valley for generations. The Fogelsons rested their claims on legal title, purchased with their ample supply of wealth. With that money, the Fogelsons turned the Forked Lightning Ranch into their ideal image of a Western vacation home and cattle operation.

“A Link to Bind the Past to the Present”: The creation of the Pecos National Monument

Intrigued by the Spanish and American Indian history of New Mexico, Greer undoubtedly visited the Pecos Pueblo ruins numerous times and showed them off to visitors. When the Fogelsons arrived at the Forked Lightning Ranch, the ruins were still a small, neglected testimony to nascent preservationist impulses in New Mexico. The Gross Kelly Company had deeded the ruins to Archbishop Albert T. Daeger of the Roman Catholic Archdiocese of Santa Fe in 1920. Throughout the Southwest in the early 1900s, people grew more concerned about protecting archaeological sites. This impetus arose from both the developing profession of archaeology, which brought attention to vandalism of ruins, and also the tourism industry, which promoted New Mexico’s American Indian and Spanish Colonial history and the protection of the visible artifacts of that history.

The Archbishop conveyed the 62.6 acres to the shared custody of the Museum of New Mexico, the University of New Mexico, and the School of American Research in 1921. On February 20, 1935 New Mexico designated the ruins a state monument.⁵⁹ Preservation, interpretation, and recreation became official management priorities during this period. Alfred Kidder continued his work at the site until 1929, which provided some ongoing supervisory presence at the ruins, but lack of a permanent, on-site caretaker and adequate funding meant the transition to a publicly managed resource did not immediately result in increased protection for the property. The monument existed as a fragile, unprotected island of ruins in the rapidly changing landscape of the Upper Pecos, busy with livestock production, logging, and a rural community struggling to make ends meet through the Depression, World War II, and the postwar years.

Pecos still remained a bit off the beaten path in the late 1930s and 1940s. After 1937 Route 66 connected Santa Rosa and Albuquerque directly, bypassing the original, roundabout “Santa Fe Loop” that included Pecos, Pigeon’s Ranch, Glorieta, and Cañoncito. The state of New Mexico constructed Route 50 on the old Santa Fe Trail corridor in 1941, and visitors could reach the monument and recreational opportunities in the Santa Fe National Forest via Route 50 and Highway 63. Nearby, Tom Greer continued to operate Pigeon’s Ranch as a roadside tourist attraction on Route 50. As traffic and residential development increased on that road, so did threats to the aging structures at Pigeon’s Ranch and the archaeological remains of the Glorieta Battlefield. The realignment of US 85 in the 1950s and the subsequent construction of Interstate 25 in 1964 greatly reduced traffic in the vicinity of the Civil War site—and also reduced visitors to Tom Greer’s tourist enterprise. He closed the museum and other attractions in the 1950s and sold the property in 1971.⁶⁰

Despite changes in the transportation infrastructure, the Pecos Pueblo ruins remained popular. The Museum of New Mexico staff planned to excavate and stabilize the ruins for public viewing in time for the Coronado Cuarto Centennial in 1940, which necessarily delayed additional facilities improvements and further archaeological excavations in the area. Historian James Ivey characterized the work on the outer defensive wall and South Pueblo, church, and convento completed by the Museum for the Centennial celebration as rushed, poorly planned, and poorly documented. Field supervisor Edwin N. Ferdon directed the School of American Research (SAR) in excavations and stabilization work for the Museum. The CCC men, staying in the camp by Glorieta, provided the labor for the work, which took place between 1938 and 1940. To make up for the time constraints, large crews of as many as thirty-five people worked on sections of the ruins. The project involved excavating, mapping, and stabilizing the northern

portion of the South Pueblo, excavating and mapping the convento, and stabilizing the eighteenth-century church. "Huge quantities of dirt were hastily removed" in this process, yet by the mid-1960s the excavation work was indistinguishable from areas that had not been touched since the nineteenth century. The excavations, which disturbed the soil throughout the ruins, created ideal conditions for the growth of weeds.⁶¹

The circumstances of the Depression provided a temporary surfeit of workers for the state of New Mexico to undertake preservation work, but for the most part the state had little funding to devote to the monument. A similar situation existed across the country. A plethora of state and national monuments appeared following the passage of the 1906 Antiquities Act. Frequently, no provisions were made to provide funding for the upkeep of the monuments.⁶² Yet although the Pecos State Monument may have remained ignored and underfunded, the landscape around the ruins was being integrated into the modern age. An entire infrastructure connected the Pecos region to the nation. Pecos had always been connected to other places, but much as the railroad had intensified those connections in the 1880s, developments in the 1940s and 1950s brought Pecos into a modern technological system that wove the country together. Improvements included paved roads, new highways, electricity, natural gas lines, and telephone lines.⁶³ Butane Gas Company of New Mexico, Pecos Light and Power Company, Benson Electric Company, and Pecos Telephone Company serviced local residents immediately following the war, including Hispanic residents who could afford modernizing upgrades. The Valencia Ranch, for example, received electricity in the hacienda in 1951.⁶⁴

The Museum of New Mexico, which oversaw operations at the monument, understood that the facilities at the Pecos State Monument would have to be modernized, too, but the necessary funding remained unavailable. State officials had authorized the construction of caretaker quarters using Works Progress Administration labor after the Cuarto Centennial, in June 1941. The Museum appointed F. W. King as the first caretaker of the Pecos ruins. Not long after King arrived, the well drilled on the monument grounds became contaminated. A second drilling attempt failed and funding ran out before the Museum of New Mexico was able to complete the well. King left, and the lack of potable water and limited funding prevented the hiring of a new caretaker. Pecos State Monument was left untended between 1941 and 1950, leaving the site vulnerable to relic hunters, vandals, and careless tourists.⁶⁵ Despite ongoing financial hardship, by 1950 the Museum managed to scrape together enough money to enlarge the caretaker's residence, construct a small exhibit space, finish the well, and install telephone service and a single phase power line along the south side of the entrance road.⁶⁶ The Museum still could not provide a reasonable operating budget and adequate pay for a full-time employee throughout most of the decade. F. W. King returned as caretaker, but left precipitously while the residence was still undergoing renovation, requiring the Museum to contract with a local Pecos Power and Light employee, Lewis Stinett, who occupied the house temporarily as a substitute caretaker. A break-in when Stinett was away caused Mrs. Stinett and a friend to flee while the "marauders" stole mattresses and tools, thus ending their brief tenure at the monument. O. M. Clark took the post in 1951 and remained until 1956.

When Clark assumed his post, state and federal agencies throughout the country were paying more attention to facilitating visitor use and interpretation at historic sites. The National Park Service stood at the forefront in the field of interpretation and visitor services. By the postwar era, people were visiting state parks and historic sites, national forests, and other heritage areas in greater numbers and expected to find facilities and services similar to what they experienced in national parks. In 1952 Clark oversaw the completion of a marked, self-guided



Figure 38. In the immediate postwar years, the managers of the Pecos State Monument attempted to attract visitors but imposed few regulations on activity at the site. This photo is captioned “Duck pond at Pecos Ruins, September 25, 1951.” Photo by Henry Dendahl, Museum of New Mexico, photo #45403. Source: Photo binder in PNHP archives.

trail around the ruins under the supervision of archaeologist Stanley Stubbs from the Laboratory of Anthropology in Santa Fe. “As a result,” Clark wrote to Boaz Long, director of the Museum of New Mexico, “visitors now spend about three times as much time on the grounds as before.”⁶⁷ Additional improvements included a picnic area and comfort station for visitors, although Clark felt they were too close to the caretaker’s residence. Picnic groups, including locals, continued to use the monument grounds for social gatherings, which required frequent garbage-hauling trips to the city dumping grounds four miles from the monument.⁶⁸

Despite greater attention from caretakers, the ruins were in poor condition and increased visitor access only worsened the problems. The Museum did not establish regular visitation hours, which would have enabled better control of visitors at the ruins. Most of the caretaker’s time was spent battling weeds, livestock, and other trespassers who threatened the archaeological treasures. The Museum paid a crew of locals each year to clear the trails and ruins of invasive weeds by hand. Although the annual celebration of the Feast of Nuestra Señora de los Ángeles de Porciúncula had been held at the ruins since the last Pecos residents moved to Jemez in 1838, it moved to St. Anthony’s Parish in the village in 1953 because the ruins were so unstable.⁶⁹ After the hasty excavations and stabilization of the ruins in the late 1930s, minimal archaeological work or preventive maintenance occurred until 1956 when Stanley Stubbs and Bruce Ellis excavated a kiva and portions of the Lost Church, originally constructed by Fray Pedro Zambrano Ortiz in 1617.⁷⁰ In 1963 the Museum allowed the Highway Department to create a road into the Glorieta Creek arroyo and remove 21,117 tons of sand and gravel from an existing gravel pit. Excavation at the same borrow pit in 1954 had produced material for the widening of Highway 63.⁷¹

Struggling to provide adequate services and protection at the monument, the Museum of New Mexico began searching for an entity that could take over the management of the ruins. As

early as 1947, the Museum had offered Pecos to the Park Service. The Park Service declined—in the immediate aftermath of the war, the agency was also suffering from decreased funding, personnel shortages, and a backlog of maintenance.⁷² In the first decades of the twentieth century, when Bandelier and Kidder were conducting the first studies and excavations of the ruins, the chances for admitting Pecos into the National Park Service system would have been slim. Many Park Service officials and conservationists believed that national park status should be reserved for land with outstanding scenic features such as Yellowstone or Glacier. National monuments, created under the auspices of the 1906 Antiquities Act, became the catch-all category that absorbed sites of historic interest, unique natural features, and areas where presidential proclamation provided a surer means of preservation than the uncertain route of Congressional designation. The monuments, managed by a range of agencies, generally were neglected and considered inferior to national parks.⁷³

This attitude began to change in the 1930s. Horace Albright, an Assistant Director and then Director of the Park Service, felt that the National Park Service was the agency best equipped to manage sites protecting the nation's history. The Park Service already administered sites rich with historic detail. Albright hired Verne Chatelain as historian for the Division of Education, and Chatelain promoted the idea that the Park Service should develop a comprehensive interpretive program that offered visitors a sweeping view of the nation's history. At Colonial National Monument in the east, Chatelain argued that the historic landscape and buildings, in conjunction with an interpretive program, would “serve as a link to bind the past to the present and be a guide and an inspiration to the future.” Other monuments could tell the same stories. Besides seeing the interpretive potential of the national monuments, Albright also wanted to broaden the Park Service's domain into areas untouched by its perennial rival, the Forest Service. In 1933 Albright's hopes were fulfilled when Franklin Roosevelt signed Executive Order 6166, which transferred all national monuments to the Park Service. The influx of workers and funding that the Park Service received during the Depression allowed it to develop facilities at the national monuments, and the lines between a national monument and a national park began to blur. By the 1950s, the addition of Pecos Pueblo to the national park system was a realistic possibility.⁷⁴

In 1958 Robert Utley, a staff historian for the National Park Service based in the Southwest, officially recommended Pecos for eventual inclusion in the national park system. The Museum renewed negotiation with the Park Service for the transfer of the monument.⁷⁵ Despite becoming involved in some decisions, the Park Service did not immediately take over management of the ruins—the approval and planning process took eight years. In the meantime, the Museum hired Vivian O'Neal as the new caretaker for the monument while they awaited the transition. O'Neal was an archaeology enthusiast with a longstanding interest in Pecos, and she became the ruins' guardian angel. A conscientious manager, O'Neal was determined to preserve Pecos as an important piece of history, and her husband, Edwin, contributed a great deal of time, labor, and ingenuity as well.⁷⁶ Unfortunately, when the state planners heard that negotiations were underway with the Park Service for the transfer, the state cut off funding for the monument on June 30, 1961. Luckily, the O'Neals were financially secure and continued to live at the monument, occasionally using their own funds to purchase supplies.

The O'Neals served their detail in relative isolation, but they developed and maintained a cordial relationship with the Fogelsons and the ranch hands at the Forked Lightning Ranch.⁷⁷ Ranch foreman Jay Kirkpatrick provided occasional advice, such as the suggestion to nurture the growth of grasses around the ruins to crowd out damaging exotic weeds. O'Neal frequently

mentioned the constant battle against invasives in her reports to the Museum. Beginning in the winter of 1959, the O'Neals destroyed the weeds around the ruins on the mesilla with a weed burner after the danger of setting off an uncontrolled fire passed. They also mowed the weeds down in the summer months. On October 1, 1960, O'Neal wrote, "We are starting on the weeds and have much of the convento cleared. In the spring they grow so high and strong they can hardly be cleared out. Water stands in the rooms and I only try to keep the front ones cleared but in the fall they can be burned out and it is a relief to see them disappear."⁷⁸ Like her predecessors, control of the weeds and livestock that threatened the pueblo and mission ruins was O'Neal's primary concern. For example, she boasted of annual rattle snake kills, presumably because the rattlesnakes threatened visitor safety.⁷⁹

O'Neal and earlier caretakers also strove to keep grazing animals away from the ruins. One result of that decision was substantial infill of piñon and juniper, particularly on the western slope of the mesilla below the ruins. The sixty-four-acre state monument was fenced at some point in the 1940s or 1950s, but locals could easily let down that fencing to drive horses, goats, sheep, and cattle onto the property to graze.⁸⁰ Some livestock entered on their own through openings in the inadequate fencing. Caretaker F. W. King reported that a herd of four to six horses regularly entered the tract.⁸¹ O'Neal and her husband must have encountered recurring livestock trespassers around the ruins as well. Goat trespass was a particular problem, perhaps because the fence kept larger livestock out but the smaller goats could slip through. The continued grazing as well as increased tourist traffic and active maintenance kept several areas around the ruins clear of woody vegetation. Geographer Donald Burtchin, in a study of aerial photos taken of the monument, notes that 1958 photos depict several barren areas: the top of the mesilla, a few fields, and the historic grassland area east of the monument.⁸² The Museum's focus on preservation and protection of the ruins from grazing thus created informal, widely varying zones of vegetation management.

On August 9, 1962 the Secretary of the Interior finally granted his approval for the eventual designation of Pecos as a national monument. The O'Neals provided basic security and maintenance during the planning phase until official designation occurred in 1965. The Park Service officially assumed management on January 1, 1966.⁸³ The delay of three-and-a-half years from approval to formal inclusion was the result of required planning as well as negotiations to determine whether the site would be added by presidential proclamation or Congressional authorization.⁸⁴ In the meantime, the monument acres received only the attention the O'Neals could provide in their informal, interim capacity.

The initial efforts to preserve the pueblo and mission ruins on the mesilla had been halting and piecemeal. Although many people agreed that the ruins were a landscape that deserved to be protected, the site did not possess the scenic grandeur of Yellowstone or Yosemite. The State of New Mexico struggled to manage the ruins and gratefully seized the opportunity to turn the monument over to the Park Service. By the 1930s the Park Service was developing a broader mission that incorporated not only places of scenic beauty but areas of historical interest as well. As historian Hal Rothman describes it, the Park Service became "guardians of a cultural heritage." When the Park Service took over management of the Pecos Monument in 1965, they intended to develop the site in accordance with prevailing philosophies of providing facilities for visitors and interpreting the history of the monument. This mission would require intensive management of the Pecos landscape.

“A Management Showplace”: Environmental change after WWII

When Buddy gave Greer a section of the Forked Lightning Ranch as her own, Greer jokingly wrote that “I considered [stocking the pasture with] a white hippopotamus—but my husband wired a firm ‘no.’” Instead, Greer’s herd of Scottish white shorthorns grazed in El Rancho Blanco. Greer’s shorthorns, and later “Moses,” “Gee-Gee,” and the other Santa Gertrudis cattle, never wandered into the adjacent Santa Fe National Forest. But many other residents of Pecos continued to rely on the national forest for grazing land. By the mid-twentieth century, the national forests of New Mexico bore the deleterious effects of overgrazing. Perennial grasses were far less abundant than weedy annuals; compacted, bare soils lacked plant material to maintain temperature and slow evaporation; and arroyos had become widespread. The Forest Service, despite decades of effort, still confronted a grim situation in New Mexico’s forests.

Aldo Leopold, the influential Forest Service ranger and conservationist, had already experienced his epiphany that human management interfered with nature’s ability to self-regulate healthy complexes of flora and fauna. He understood that eliminating predator populations was disastrous, and the loss was akin to the irreversible process of erosion, which had caused the soil to “slip down the Rio Grande in the night.”⁸⁵ His *Sand County Almanac* (1949) proposed a land ethic based on preservation of the biotic community rather than on the production of commodities, but popular support and a fundamental shift in resource management policies based on his work and others would not emerge for nearly two decades.

The Forest Service’s attempts to limit overgrazing and timber cutting had stalled during World War I. A similar situation occurred during World War II. While a few members of the scientific and conservation communities, such as Leopold, predicted the eventual incorporation of ecological management principles, the war effort and postwar economic expansion continued to create conditions that demanded heavy use. Many foresters joined the military effort, leaving the national forests understaffed during the war years. Hispanos using the forests for subsistence grazing began to convert their herds from sheep to cattle as available labor became scarce.⁸⁶ Accelerated timber demand during the war created economic conditions that encouraged the Forest Service to intensify logging, with an attendant increase in access roads and truck traffic. Intensive grazing and timber cutting coincided with the onset of the severe drought in the 1950s.

The end of the war did not bring a corresponding decrease in forest use. Because the Santa Fe National Forest was overstocked by 100 percent in the late 1950s, the Forest Service continued to pursue stock reduction by cutting the number of permit holders and permits in the following decade, to the dismay of stockmen who had failed in their attempt to convince the Eisenhower administration to privatize public grazing lands. Through their Congressional contingents, western stockmen called for investigations of the new federal grazing policies and advocated federal legislation to limit future policy changes. Public backlash against the industry’s political maneuvers created an opportunity for ecologists to influence Forest Service policy. The new programs included extensive efforts to increase rangeland capacity with improved distribution of water sources and the provision of rest periods for grazing areas. Growing concern over the forests’ ecological health coincided with the postwar environmental movement and an increase in recreational use of national forests. A powerful constituency developed with the clout to influence Forest Service policy. The 1960 Multiple Use-Sustained Yield Act directed the Forest Service to give equal consideration to range, timber, water, wildlife, fish, and outdoor recreation.⁸⁷

Nationwide, timber sales continued to expand after the war as a result of a housing boom and efforts to boost the gross national product. Many politicians tied the economic health of the

nation to the success of the U.S. in the Cold War, thus encouraging continued resource extraction in national forests. The Forest Service approached its holdings with the optimistic prediction that science and technology offered a way to manage sustained yield and restoration for the public good. Yet official decisions continued to emphasize use and resource extraction over conservation and rehabilitation. Short-sighted appropriations for resource conservation exacerbated the problem. The national forests in New Mexico provided sixty-five percent of the state's sawtimber, forty percent of cordwood, and sixty-seven percent of timber land in 1945, and these numbers remained high after the war. Although environmentalists stressed the forests' value as watersheds and wildlife habitat, economic concerns often triumphed.⁸⁸ The agency began to implement reforestation and reseeding efforts as a result of intensive resource use.

Reforestation brought its own perils. Incidents of insect damage in the forests increased in the 1950s as the intensively managed stands developed the ecological vulnerabilities of a monoculture crop. In New Mexico, pine bark beetles caused epidemic losses of ponderosa pine. Spruce budworm decimated mixed conifer and spruce-fir forests. Most Forest Service officials viewed the episodes as a loss of valuable timber and used salvage harvesting and pesticides to try and control the outbreaks. The agency undertook large-scale DDT treatments in 1950, 1953-56, 1958, and 1962. When Rachel Carson published *Silent Spring* in 1962, the book raised public awareness of the dangers of hydrocarbon-based pesticides and other chemicals. Despite such warnings, the Forest Service continued to use a combination of selective cutting and aerial spraying of DDT from 1963 until DDT was banned on January 1, 1973. The scientific community, however, responded to Carson's warning and began developing biological controls for use in integrated pest management, which minimized chemical use and targeted individual species at certain times in the growing cycle. The Forest Service did not readily adopt such methods, which required greater time and oversight, because the agency continued to operate from an industrial forestry mindset that emphasized market value of timber over forest health.⁸⁹

The timber industry remained an important part of the local economy, but grazing continued to have the most detrimental consequences for the Pecos environment. As it had throughout its history, the Forest Service relied on scientific disciplines to provide the solutions to degraded forest conditions. The science of range management, in particular, influenced agency policies. In 1948 professionals in range science and forestry formed the Society for Range Management in hopes of creating standards and objectives that would address deteriorating range conditions around the country. Within the Forest Service, these professionals recommended livestock reduction policies. These efforts often angered stockmen and their political representatives. As the Forest Service grew more insistent about range improvement measures, scientific management standards and inspections became more common in the 1950s. On the allotments surrounding Pecos, the result was improved, if imperfect, range conditions. A 1947 grazing inspection report estimated that grazing in the entire Santa Fe National Forest exceeded capacity by seventy-three percent. Range inspectors estimated capacity at 37,000 cow-months for the forest, while actual use was 64,000 cow-months. The Forest Service instituted new range management policies in the 1950s, but in 1964 a similar report noted that livestock remained overstocked by twenty percent, a problem exacerbated by lack of funds to improve and revegetate the range.⁹⁰

The Springs allotment on Glorieta (Rowe) Mesa, bordering the west side of the Pecos Pueblo grant, was in two separate allotments, "Ortiz Springs" and "Padre Springs," until 1968 (see Figure 21). Because the mesa has no perennial water source, ephemeral springs provided the only water for grazing animals. In the 1950s the few small ranching operations that shared



Figure 39. This 1955 aerial photo of the Panchuela Cabin, about seven miles east of Pecos village, was taken from a DG-2 aircraft spraying insecticide to fight spruce budworm on the Santa Fe National Forest. Note the cleared grazing pasture. Photo by C. C. Ketcham, FS#479333. Source: Santa Fe National Forest Historical Photographs, SWRO.

common grazing lands on the mesa failed due to drought and changing economic conditions, but other locals continued to use the mesa under Forest Service permits. Ortiz Springs, the southern half of the modern-day allotment, was named after the only water source at its northern end. The grasslands were mostly blue grama, invaded by rabbitbrush (*Chrysothamnus spp.*) and broom snakeweed (*Gutierrezia sarothrae*) in heavily used areas. The Forest Service considered it slightly overstocked in the early 1960s. There were three sheep camps to the east of the springs until Manuel Varela y Gonzales converted his operation from sheep to cattle and transferred to the Valle Grande Allotment in 1964.⁹¹

That same year the Forest Service created three separate pastures with new stock tanks and fences on Glorieta Mesa to create a rotation system that allowed rest and noxious plant eradication on one pasture each year. Forest Supervisor J. L. Perry hoped to turn the allotment into a “management showplace.” The new fencing allowed the Forest Service to proceed with mechanical removal of piñon and juniper, which temporarily increased the size of available grazing land. Unlike the intensive management related to mechanical removal on the Forked Lightning Ranch, the Forest Service’s chaining and bulldozing operation on Glorieta Mesa included no additional treatment, and so the piñon-juniper quickly recovered and increased in density. Soil erosion was an ongoing issue on the mesa just as it was in the Colonias allotment across the valley. The wagon and cow trails that had been converted to roads in the valley



Figure 40. A summer cattle roundup on Glorieta Mesa in 1957 included Charles Madrid's herd of 58 cattle, about half of his allotment of 113. The Lower Pecos District granted 50 permits that year, which resulted in 900 cattle grazing on a total of 150,000 acres. Photo by D. O. Todd, FS #483010. Source: Santa Fe National Forest Historical Photographs, SWRO.

bottoms were the primary contributors to soil loss and surface runoff. Records show a gully plugging project in 1963 using brush and small wooden check dams.⁹²

The Glorieta allotment, bordering the Pecos Grant on the northwest, was in the worst range condition of the three allotments surrounding the monument and Forked Lightning Ranch in the 1960s. The limited forage areas suffered from overgrazing and trespass. Conditions were so bad that the Forest Service considered ending permitted grazing altogether and reserving it for wildlife habitat and recreational use. Over the next fifteen years, the agency initiated range forage improvement projects involving a variety of mechanical piñon-juniper overstory removal techniques. More than 15,000 acres were treated, and the Forest Service declared excellent results in terms of increased forage production.⁹³ On both national forest lands and private property, range managers with science on their side seemed to be winning the battle with woody brush.

The intensive human activity along the riparian corridors in the national forests, including grazing and timber cutting, influenced the water supply and quality in the Pecos River watershed. By the time the United States entered World War II, the entire watershed from Northern New Mexico to Texas was used for farming and grazing. Agriculture in the Pecos village and farther north along the canyon remained at a subsistence level: corn, oats, barley, vine peas, and pinto beans required little irrigation, and some corn required no irrigation at all. A 1940 National Resources Planning Board map shows the types of water-consuming activities in the ciénega of the Pecos River and along the river up to Cowles (Figure 41). In general, the map indicates a

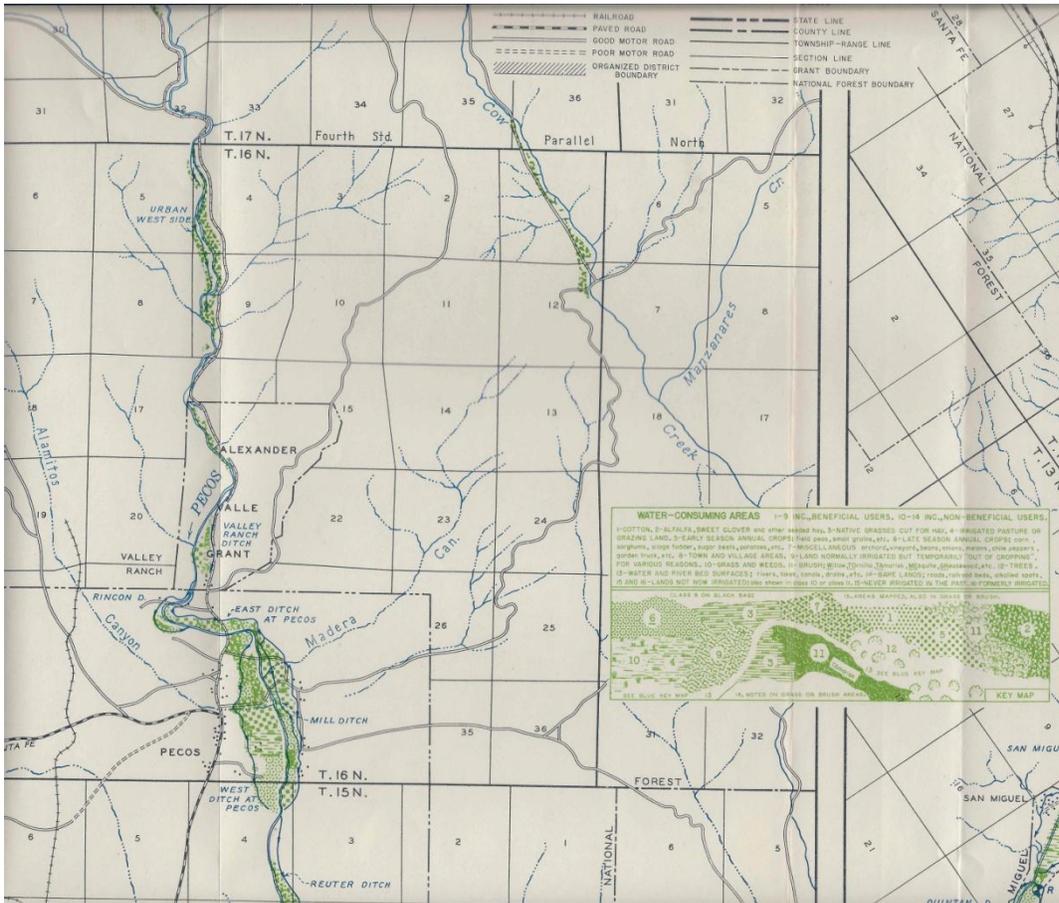


Figure 41. The Valley Ranch Unit base map, 1940. The acequia-fed areas in Pecos village and on the Valley Ranch contained a mix of annual crops, and irrigated pasture. The larger map indicates that several additional irrigated areas below Terroro grew beans, peppers, melons, onions, and orchard trees. Source: Natural Resources Planning Board, Pecos River Joint Investigation, 1942.

combination of early and late season annuals planted in the acequia-fed fields in the village (between the West ditch, west of the river, and the Mill ditch, east of the river), as well as “grass and weeds” and hay.⁹⁴ Some of the small subsistence farming operations shown on this map did not survive the drought, which began just a few years later. The residents of Pecos were not the only ones who depended on water from the Pecos River. Large livestock operations downstream required three to four irrigations for their alfalfa crops.⁹⁵

Although most use of the Upper Basin was divided into small, individually owned tracts of land, the density of farming activity and the locations of the tracts right on the stream banks, combined with overuse of adjacent range lands, filled the water with sediment and increased the possibility of damaging floods, particularly during summer rains. Water quality analysis at the Irvin Ranch gauging station nine miles north of the Pecos village indicated a slight increase in the volume of sediment in the water between the headwaters and Anton Chico. But concentrations increased dramatically downstream—when the water reached central New Mexico it was high enough in dissolved solids to make it undesirable for irrigation. The erosion upstream created downstream floods and buildup of silt in irrigation reservoirs. The Alamogordo and McMillan reservoirs in southern New Mexico both lost capacity due to the high levels of sediment.⁹⁶ The declining water quality also affected the native fish population, already suffering

from the introduction of exotic species such as rainbow and brook trout. The native trout species in the Middle Rio Grande Basin had been “decimated, or even extirpated” by the 1940s, and the fish in the Pecos River fared no better.⁹⁷

In 1949 New Mexico and Texas signed the Pecos River Compact, which provided for equitable apportionment of water between the two states and created more regulatory pressure for upstream management. However, many early management decisions were short-sighted or carried unanticipated consequences. The Forest Service experimented with watershed management techniques—primarily intensive forest management practices, including clearcutting—to increase streamflow yield as water demand grew and regional water supply considerations emerged.⁹⁸ Additionally, the Soil Conservation Service (SCS) planted trees, including non-native species, in the Santa Fe National Forest to reduce erosion in the early 1940s. In the northeastern part of the national forest near Holman, the SCS planted box elder (*Acer negundo*), honey locust (*Gleditsia triacanthos*), black locust (*Robinia pseudoacacia*), Russian olive (*Elaeagnus angustifolia*), and wild plum (*Prunus americana*), among others.⁹⁹ Russian olive *proved* to be particularly invasive due to its low seedling mortality rate—by 1960, the species had crowded out much of the native vegetation and was a major component of the riparian woodland understory on the Middle Rio Grande and presumably increasingly common on the Pecos River.¹⁰⁰

Stakeholders concerned with the management of the Pecos River watershed began to call for “good forestry practices, control of forest fires, and better cultural methods on upland farms,” and underscored the growth of the livestock industry after 1880 as the major culprit of watershed damage. The authors of the 1942 Pecos River Joint Investigation report recommended reducing livestock in all parts of the watershed except portions of the Santa Fe and Lincoln National Forests, with reductions averaging from fifteen to fifty percent. The highest amounts of silt entered the river in the Pecos headwaters area, so the report proposed acquisition of 10,000 acres held by larger commercial interests within the national forest. This acreage would be made available to those with limited numbers of livestock kept for subsistence or cultural purposes.¹⁰¹

Grazing, logging, and mining had long incurred the most substantial impacts on the Pecos River and its watershed. But people also used the forests for recreation. Elliott Barker had hunted in the Pecos high country, miners from Tererro fished in the river, and visitors at Tex Austin’s dude ranch enjoyed horseback riding through the forests. In the postwar era, as the numbers of tourists grew due to increased affluence and leisure time, the recreational use of the national forests also increased. In the Santa Fe National Forest, visitor numbers grew steadily from 78,200 in 1947 to 1.2 million in 1964.¹⁰² Recreational users traveled to the Santa Fe National Forest from other states, but most were urban dwellers seeking escape from New Mexico’s rapidly growing cities. In addition to the impact of trail and campground development, human-caused fires and erosion increased, and utilities created rights-of way to bring services to rural areas. Tailings from three Tererro mine dump sites served as a convenient source of fill material for new construction projects throughout the Upper Pecos watershed, including the Lisboa Springs Hatchery, Forest Service campgrounds, state campgrounds, roads, and private projects.¹⁰³ As with clearcutting and the introduction of non-native species, using the tailings had unforeseen consequences, leading to soil contamination that was not discovered until decades later.

In their attempts to improve forest health while maintaining economic opportunities, the Forest Service continued to come into conflict with locals over the use and control of the land. In the land grant communities of the Santa Fe National Forest, subsistence logging for fuel wood

and other needs did not coexist easily with the growth of timber sales and the demands of timber companies to have large areas of the forests opened to cutting. Geographer David Correia argues that the agency took a paternalistic approach to the problem by encouraging locals to take wage labor jobs in the timber harvests. Forest Service officials often argued that traditional Hispanic forest uses created unsustainable environmental conditions while ignoring the fact that Anglo timber and grazing operations were equally to blame.¹⁰⁴ Even as more people became involved in influencing forest management, Hispanos were often left out. During the debate over livestock reduction in the 1950s, the Forest Service hardly mentioned the subsistence permit holders. Although the Forest Service did try to keep forest resources available to locals, its emphasis on scientific management often excluded area residents from participating in management decisions in a meaningful way.

Timber cutting and grazing in the Pecos valley during the postwar era was not on the same scale as the intensive resource extraction operations of the late 1800s and early 1900s, but the cumulative effects of those operations still lingered. The postwar economy provided new opportunities for the timber and grazing industries, and the Forest Service wrestled with the problem of accommodating such uses while still improving forest conditions. Many Hispanos who continued to gather fuel wood and piñon nuts in the forests and relied on the forests for grazing land felt the professional bureaucracy of the Forest Service excluded their input. At the same time, recreational users of the forests and many environmental groups criticized the Forest Service for its management practices. The resources of the Upper Pecos valley continued to inspire conflict over who would control them. Although Moses and Gee-Gee may not have grazed on national forest land, the Pecos River that wound through the Forked Lightning Ranch carried with it the effects of environmental damage upstream.

As the inhabitants of the Pecos valley emerged from the Depression, they encountered both opportunities and challenges in the war and postwar years. The expansion of the military presence in New Mexico during the twentieth century was not unlike the influx of U.S. Army troops and their forts after the Mexican War. Both periods brought more Anglos to the state, increased production and the economic infrastructure, and demanded more resources from the environment. The Cold War defense industry brought jobs to the region, but the postwar economic recovery also encouraged increased exploitation of the resources in the Pecos region, particularly timber and grazing land. Overgrazed land, changing vegetation communities, and silt-filled rivers testified to decades of resource exploitation. A trend that had begun in the late nineteenth century—people relating to the Pecos valley primarily through leisure and recreation—also continued to affect the Pecos environment and grew even stronger in the postwar era. The Fogelsons exemplified the trend—they transformed the Forked Lightning Ranch into their ideal vacation retreat that reflected a mythic understanding of the past. As the tourism industry grew after the war, many other people came to Pecos to fish, hike, and explore the Pecos Pueblo ruins. The designation of the Pecos Pueblo ruins as a national monument in 1965 and its transfer to the National Park Service brought another powerful federal bureaucracy to the region. Like its predecessor, the Forest Service, the Park Service would become an important agent of change as it created a new cultural landscape in the Pecos valley.

Chapter Nine

Restoring and Managing the Landscape, 1965-2000

The car pulled onto the side of the state highway, its tires crunching through the gravel. The family of tourists inside immediately spilled out, eager to stretch their legs after a long drive on the interstate. The children scrambled down the bank to reach the Pecos River, splashing their hands in the cool water and collecting smooth pebbles. Their father thought longingly of the fishing rod stored in the trunk. His wife exclaimed over the sweet smell of piñon and juniper that permeated the air. She opened a brochure they had picked up entitled “New Mexico: Where the Fun Never Sets.” Inside, the brochure claimed that New Mexico was “exciting and beautiful, as action-packed as a cowboy movie, as new as tomorrow’s technology, as old as geology; a combination of cosmopolitan chic and Western expansiveness, warm days and cool nights, the industrial vigor of the modern Southwest and the restfulness of a mountain trout stream.”¹

When this tourist family—we will call them the Davidsons and consider them typical of many who traveled through Pecos in the late twentieth century—arrived in the Upper Pecos valley, they encountered an environment still in the midst of change. Their brochure hinted at many of the changes. Growing urban areas and technology that intensified and quickened Pecos’s connections to other regions modernized the environment of the Pecos valley. Yet people continued to find romantic, primitive values in the landscape. The “restfulness” and “expansiveness” referred to in the brochure, the hints of a mythologized Wild West—the tourism industry emphasized these attributes and capitalized on New Mexico’s history much as it had throughout the twentieth century.

When this family visited Pecos in the 1970s, the National Park Service managed the pueblo ruins site as a national monument and was struggling to build a visitor center within the monument boundary. The Fogelsons continued to breed Santa Gertrudis cattle on the Forked Lightning Ranch surrounding the Park Service site. Tom Greer no longer operated Pigeon’s Ranch as a tourist attraction, but the old adobe building was still there, a landmark for those few who knew the history of the Battle of Glorieta Pass. Now Highway 50 ran directly adjacent to the structure, and people drove past it at high speed while commuting to jobs in Santa Fe. Development crept from Santa Fe towards Pecos. A new conference center at Glorieta Pass hosted hundreds of people each year. The Forest Service and Park Service instituted new programs to reintroduce fire, clear piñon and juniper, and eliminate exotic species. The family of tourists, who stayed in the valley only a few days, were unaware of these changes. They viewed the mission ruins, ate in one of the small restaurants in Pecos, and fished in the river, enjoying a relaxed and rustic experience. The tourists may have believed Pecos was hardly changed from the days of the Santa Fe Trail, but the landscape reflected new cultural influences, as it had throughout its history. Many of those new influences emphasized attempts at preservation and restoration, yet these efforts to reverse or reduce change still required actions that affected the environment and created new cultural landscapes in the valley.

Pecos: 1965-2000

In the last decades of the twentieth century, the Upper Pecos valley supported a growing tourism and recreation industry but also retained traces of each preceding historic period on the landscape. When the National Park Service assumed stewardship of Pecos National Monument in 1965, the agency’s primary objectives were protection of the ruins, the creation of an interpretation plan, and the construction of visitor facilities. With the Park Service’s acquisition in 1990 of the Forked Lightning Ranch and two parcels of land connected to the 1862 Battle of

Glorieta Pass, the agency's responsibilities broadened. Under Park Service management, years of extractive use gave way to regulated management and restoration of the environment. Native trees and grasses returned and wildlife populations recovered. The creation of Pecos National Historical Park also granted the Park Service the opportunity to narrate the whole story of human activity in the valley, from the time of the first human settlements to the development of the late twentieth century.

Many of the narratives embodied in the park continued to influence the Upper Pecos valley. Control of the land still engendered conflict and dispute. Federal agencies, in particular the Forest Service and the Park Service, managed a high percentage of the land in the valley, and their management decisions sometimes provoked controversy. The Hispanic and Hispano-Indian descendents of the first wave of European settlers maintained a strong cultural connection to the land. In the 1960s during the nationwide civil rights movement, Hispanos in northern New Mexico began agitating for the return of their old communal lands. Descendants of the Pecos, particularly those at Jemez Pueblo, strove to maintain ties to their ancestral homeland as well. Other people, often from distant regions, sought to buy and develop land in the valley, angering those who wanted to protect and preserve the environment. Diverse cultures continued to meet at Pecos and find their own meanings in the landscape of the valley.

The preservation of land in the Pecos valley allowed for the idealization of the valley's environment. Wilderness areas in the national forest, the pueblo ruins in Pecos National Historical Park, the Forked Lightning Ranch house surrounded by piñon and juniper—these landscapes became increasingly important islands of retreat and reflection for locals and visitors seeking a reminder of the region's "simpler" past. Federal agencies and private landholders often engaged in related forms of preservation work. Whether protecting wilderness, preserving historic landscapes, or creating romantic private retreats, people tried to maintain the landscape in its most ideal form. Often, these attempts at preservation ignored or tried to erase much of the valley's history.

People may have yearned for a simpler past, yet their activities occurred in a rapidly modernizing economic context that often had immediate impacts on the environment at Pecos. A network of highways followed the ancient trade and travel routes that had passed through the region, connecting Pecos to the growing urban centers of the West. The construction of Interstate 25 both connected and divided communities, provided an opening for invasive species to spread, and disrupted sensitive riparian zones through the extraction of gravel and sand for fill material. New residential developments crept closer to Pecos as Santa Fe expanded. Residential and commercial development, in conjunction with the legacy of previous decades of mining, grazing, and logging, affected water quality. The physical effects of many decades of transformation and conflict contrasted sharply with romanticized notions of an untouched landscape.

In the last decades of the twentieth century a growing number of environmental restoration efforts, combined with protective regulatory oversight, slowed, arrested, and in some cases reversed the decline of grassland, forest, and riparian areas in the region. Managers tried to approach the land through new ecological principles, stressing the importance of natural processes, disturbances, and complex communities of flora and fauna. Federal agencies were able to influence the condition of the Pecos environment because they controlled a large portion of the land in the region. In the Pecos River watershed alone, the Forest Service managed 81.5 percent and the Park Service a further 1.8 percent. Although many initiatives focused on restoration, federal land management still introduced new disturbances and created a new cultural landscape in the Pecos valley.

As a new millennium approached, Pecos remained a crossroads based on its physical geography and the confluence of American Indian, Hispanic, and Anglo cultural elements and land use patterns. The major circulation routes established more than five hundred years before stayed in place, although the speed of travel and mode of transportation changed radically. The river corridors were still the vital link to survival for human and animal populations even as new housing developments in the village on the north and northwest boundaries of the park and the modern highway network tested the resiliency and capacity of the watershed. People continued to alter the landscape, but had different visions based on their cultural perspectives. Many sought to preserve and restore certain landscapes such as Pecos National Historical Park or the Pecos Wilderness, created by an act of Congress in 1964. These areas were meant to represent or return to earlier periods, yet people drew on current philosophies of ecology and preservation to manage the environment. Much as it had been throughout the twentieth century, the Pecos valley was shaped by modern influences even as people searched the landscape for evidence of an oft romanticized past.

“Conceived in Harmony”: The National Park Service at Pecos National Monument

After a picnic lunch by the Pecos River, the Davidsons decided to investigate the pueblo ruins at the national monument. Their brochures said that the monument was “one of the principal archaeological treasures of the Southwest,” and the family was eager to see it for themselves.² They may have been slightly disappointed in the facilities at the monument. They had just come south from Yellowstone, after all, which sported new visitor centers with extensive interpretive exhibits. At Pecos there were only a few aging exhibits, created when it was a state monument, and some picnic tables under the trees. Still, the family enjoyed walking the trail among the ruins and imagining Coronado riding up to the pueblo, the sun glinting off his armor.

In the 1970s Pecos National Monument had been a part of the national park system for only a few years—Congress had established it as a unit on June 28, 1965. The Fogelsons had donated an additional 278.7 acres of the Forked Lightning Ranch surrounding the original state monument boundary, bringing the total acreage of the monument to 341.3 acres.³ The Park Service tried to install visitor facilities quickly, but many obstacles stood in its way. Pecos entered the system near the conclusion of the Park Service’s Mission 66 program—a response to the tremendous increase in postwar tourism that created a pressing need for new visitor facilities at national parks. Mission 66 provided funding for extensive improvements to existing sites as well as support for expansion of the national park system. Pecos was one of fourteen new parks added to the Park Service in 1965, and one of eighty-seven units—historical parks, seashores, recreation areas, and larger national parks—added between 1961 and 1972 during the heyday of Mission 66.

Many Mission 66 projects, particularly in the “crown jewel” parks such as Yellowstone or Yosemite, aroused controversy. Environmentalists and wilderness advocates accused the Park Service of over-developing the national parks, recklessly building more roads and facilities to improve visitor access at the expense of the parks’ wilderness qualities. The modernistic designs used by architects for Mission 66 construction also upset those who preferred the older style of rustic architecture so prevalent in the parks. How much infrastructure development was appropriate to national parks and what form that development should take became an increasingly troubling question for Park Service officials. In addition, environmentalists urged the Park Service to prioritize scientific management principles that served the protection of

natural resources rather than privileging tourism and recreation.⁴ As the environmental movement gained nationwide public support, new laws, such as the 1969 National Environmental Policy Act (NEPA), began affecting Park Service management. A growing historic preservation community also succeeded in passing laws, particularly the 1966 National Historic Preservation Act (NHPA), that Park Service officials had to consider when they made management decisions. Although Pecos escaped most of the Mission 66 controversy, the tensions inherent in the program and the new management culture of the Park Service in the postwar era still influenced development and management at the national monument.

Upon assuming management of the monument, the Park Service determined priorities for interpretation and development at the site. In his initial assessment of the Pecos ruins, Park Service historian Robert Utley emphasized the period of Spanish colonial contact and settlement. The story provided “an opportunity to savor the gentle, hospitable setting of the upper Pecos Valley that influenced the ancient people to choose it as a site for their pueblo.” His interpretation reflected the mid-twentieth century consensus that contact between Europeans and Native Americans was primarily a tale of the “faith, courage, and purpose that motivated the early Spanish Christianizers.”⁵ When the Park Service finalized the first Master Plan for Pecos in 1965, the major interpretive themes encompassed “the life story of the Pueblo Indian” and “his conquest, revolt, and subordination by the Spaniards.” Minor themes included the decline and fall of the pueblo, early archaeological excavations, the Santa Fe Trail, and the history of the site as a monument. Plans for thematic interpretation, excavation, and ruins stabilization evolved throughout the first decade of Park Service stewardship at the site as the agency gathered more information about the history of the area and the extent of archaeological resources. Jean Pinkley’s 1967 discovery of the massive church built under the ministry of Fray Juárez was one of the most important archaeological discoveries.⁶

The dual mission of the Park Service required preservation of resources while simultaneously improving visitor access and maintaining adequate infrastructure. Unrestricted human access to the ruins had been a preservation issue at Pecos for many years. By 1962 the state monument received 14,000 visitors annually, mostly from out-of-state, with as many as 350 in a single day.⁷ The Museum of New Mexico had installed basic visitor facilities near the southeast corner of the ruins, including a superintendent’s residence, maintenance shed, checking station with exhibits, parking area, picnic site, and pit toilets.⁸ The Park Service immediately began designing and planning new facilities. A visitor center was the first priority, but the Park Service also wanted to build designated staff housing and maintenance facilities, located out of sight of the ruins, and an expanded “day use” picnic area.⁹

Although parks had featured museums and information centers before Mission 66, park planners developed the concept of the full-service visitor center during the program and soon it was considered a necessity for every park. The new visitor centers employed modern, minimalist architectural features and materials to facilitate a controlled flow of visitors through interior spaces without drawing attention to the building design itself. Some of the new visitor centers, such as the one located in Beaver Meadows in Rocky Mountain National Park, were considered tasteful constructions in harmony with the landscape. Others, particularly the Jackson Lake Lodge at Grand Teton National Park, were derided for being too modernist and departing from rustic designs of earlier eras. With so much attention focused on park architecture, Pecos officials approached their new visitor center carefully. The Washington office, the San Francisco Service Center (and later the Denver Service Center), the Southwest Region, and the Superintendent at Pecos, Thomas F. Giles (1966-1978), all cooperated on the design. In 1971

Buddy Fogelson offered \$600,000 in matching funds for the new visitor center. According to Superintendent Giles, Fogelson “made it clear that he liked to see things move with efficiency and dispatch—so that’s what I tried to do.” Giles soon discovered, however, that even at a small site like Pecos, this “golden opportunity” to develop a state-of-the-art visitor center and other needed services was subject to political negotiations and disagreements about the design concept—all taking place in the charged post-Mission 66 atmosphere.¹⁰

Architect Bill Lumpkin’s original visitor center design placed the facility on the east rim of the mesilla, in full view of the ruins, and incorporated indigenous building materials in the ubiquitous Spanish-Pueblo Revival style. As at many other Park Service sites, the Pecos visitor center was originally intended to provide an all-weather interpretive experience for those who might not wish to venture out onto the ruins trail on cold, windy days.¹¹ Early plans favored visitor access over concerns about impact and reflected a long history in the Park Service of accommodating tourists. The design directive hoped to encourage visitors to explore the ruins by enticing them with a carefully managed series of views as they approached the monument by vehicle from various directions. The ruins were the central component of those views, but the first master plan also included “interesting scenery” in the statement of significance. One document stated,

“Distant views of the great church ruin from approach highways will introduce Pecos to the visitor. He will lose sight of the ruins as he enters the National Monument and pulls into the parking area under the east scarp of the Visitor Center mesilla. A ramp brings him to the rim of the mesilla, whence he looks across a swale to the Pecos Ruins mesilla—getting a splendid, panoramic, impact view of the entire ruins complex . . . During his short walk to the Visitor Center, this fine prospect remains in view. This is an esthetic factor of great significance, reinforced by the striking background of looming mesas and far-off mountains; it is an interpretive factor, too—giving an awe-inspiring concept of the expanse of the ruins; and it is a lure to all visitors to get out to the ruins and explore them—a motivation that could be instilled in no better way.”¹²

The process for approving the design moved swiftly until a group of Park Service reviewers refused to support the plans because they felt the Master Plan and required environmental impact statement had been rushed and might violate NEPA and Section 106 of the NHPA. They also worried that the pseudo-historic design violated the Service’s new, modernistic design paradigm that, in part, was meant to ensure that tourists would not confuse the visitor center with a historic building. Park Service officials continued to debate the location and size of the visitor center as well, and considered off-monument sites in the village or on one of the interstate exchanges, on the mesilla, on the smaller mesilla (mesita) east of the ruins, in the grassy meadow east of the pueblo, and in the trees east of the meadow.¹³

At an impasse, the Denver Service Center hired another architect, Tony Predock, to develop an alternative plan with a modernistic design incorporating solar technology.¹⁴ Public reaction to that design, including the Fogelsons’, was predictably unfavorable compared to the original Spanish-Pueblo Revival design. The stalled planning process greatly frustrated Superintendent Giles, who felt “the original intent, direction, and momentum of the Pecos project has been perverted and destroyed.” He warned that Fogelson was threatening to pull his support for the project. “I think we have lost Fogelson and his donations,” he wrote. “These are two different things. Money might be provided through federal sources; but we can’t buy good will

from our only next-door neighbor. In the long run, that loss might be a greater one. It makes me sick.”¹⁵ Indeed, Fogelson had fully expected to use his considerable influence to foster a locally managed and contracted project, and he had supported the use of solar-assisted heating from the beginning. He remarked to the Southwest Regional Director, “I’m in the energy business myself; if the government doesn’t start moving on this soon it will be too late!”¹⁶

Solar energy was in abundance at Pecos, but water was not. Aridity had always been the limiting factor during the entire span of human settlement in the valley, and the Park Service operated within the same constraints. The visitor center and areas for housing, maintenance, and picnicking required a new well and water system with submersible pumps and pressure tanks. The planners were unsure about the effect of groundwater withdrawal on the recharge area. They also considered the potential effects of a new sewage system on vegetation types and quantity and surface water quality.¹⁷ To conserve water, the original visitor center design incorporated the use of runoff from the parking lot pavement and visitor center roof to encourage re-introduced native species of trees and shrubs to grow around the developed areas.¹⁸ The Park Service hoped the visitor center would provide an example to the community of good environmental management and “tie present day environmental concerns to the 700-year human history of Pecos.”¹⁹ With the assistance of modern technology, the Park Service staff strove to recognize the limits of the environment.

Although frustrated with the lengthy planning process, the Fogelsons maintained their support for the project, and by 1975 all of the decision-makers had agreed on a simple adobe structure utilizing solar panels. The building was to be located on the north side of the mesilla. Planners felt the design was “conceived in harmony with traditional materials and forms . . . sympathetic with the site, terrain, and historic influences at Pecos,” as well as “compatible with, but not imitative of, the architecture of the people who built pueblos and churches here.”²⁰ But the process was further delayed when the Advisory Council on Historic Preservation requested an in-depth comparative study of twelve potential visitor center sites. By 1976, the Park Service was responding to public feedback about some of the unpopular Mission 66 buildings and had moved towards limiting visual impact on the historic scene. A view of the ruins from within the visitor center was no longer considered essential. Giles’s successor, Superintendent John Bezy, signed the final recommendation for an unobtrusive location below and to the east of the rock escarpment of the mesita, which screened the building from the ruins and provided adequate sun exposure for a passive solar design.²¹ The delay and timing of the site selection, during which preservation interests within the Park Service gathered strength, thus determined how visitors experienced the landscape and ruins in the following decades.

The choice of Spanish-Pueblo Revival architecture for the visitor center situated the building comfortably within the aesthetics of the Forked Lightning Ranch. Like the Fogelsons, the Park Service initially proscribed to the view of New Mexico as a landscape that had remained unchanged for hundreds of years. In his assessment of the site, park historian Frank Wilson provided only a superficial description of broader landscape changes since the Spanish mission era. “The mountains and rivers are still here, the trees may be growing a little closer to the ruins mesa,” he wrote. “The ruts of the Santa Fe Trail are close by and the arroyo where the domestic water came from is still a short distance to the west. The many trails that must have led to the church are now covered over with grass. All is tranquil.”²²

The Park Service hoped to revive just enough evidence of the former pueblo community to keep it alive in the public imagination and connect it to occupied pueblos elsewhere in the region, while still protecting the archaeological resources at the site. In addition to rehabilitation

of the existing restored kiva, the national monument staff planned to restore entrances in the North Pueblo, outline the plaza and parts of the exterior walls of the quadrangle, expose terraced walls and a portal area, and restore the *Campo Santo* (cemetery) at the Mission. These projects would allow the visitor to “reconstruct in his imagination the living Mission and the living Pueblo.” Despite the desire to transport visitors to the past, Park Service interpretive planning in the Mission 66 era relied on the latest technological devices. The Pecos plans called for intrusive additions to the site, such as “strategically placed exhibits and message repeaters,” although those installations never occurred.²³ More appropriately for the site, Frank Wilson suggested the rehabilitation of the mission’s rain-fed kitchen garden near the cemetery. The staff planted the garden with vegetables the Spanish introduced to the area “to show a material contribution made by the priests to the Indian.”²⁴ The Park Service staff completed this project in 1968-69 and maintained it irregularly over the next two decades. In 1991 park staff installed a new drip irrigation system and planted a mix of European and native edible plants, including five varieties of ancient beans, five chiles, Spanish melons, Santo Domingo squash, a dozen or so modern vegetable varieties, and two beds of herbs.²⁵

Although some interpretive projects and the visitor center finally came to fruition, the new housing and maintenance facilities did not. In 1974 the Fogelsons donated another 23.5 acres to the national monument in two separate parcels, including a 3.5-acre site northeast of the ruins along Highway 63, which the Park Service initially reserved for a residential and maintenance area.²⁶ Although it did not construct the facilities, the Park Service installed fencing on the small strip of cleared pasture to keep out grazing cattle. The other 19.99-acre parcel of land on the southwest corner of the monument boundary had been part of the Forked Lightning Ranch’s West Pasture, which the ranch staff had cleared with bulldozers at least once in the early 1960s. Cattle grazed the parcel and accessed its stock tank until the Park Service installed fencing after the acquisition, although Park Service records state that the area was not overgrazed. The parcel also contained the exposed Forked Lightning ruins, which the Park Service backfilled. A planned hiking trail to the site was never completed.²⁷

By the early 1980s, the Fogelsons had spent more than thirty summers in Pecos, and they continued to support the installation of a visitor center. Unhappy with the long delay, the couple interacted less frequently with the Park Service, but their unswerving dedication to the visitor center project impressed the monument staff. The long-awaited groundbreaking for the visitor center took place on August 7, 1983, and the Park Service dedicated the completed visitor center on August 2, 1987. Buddy Fogelson could not attend the dedication of his namesake building—coincidentally, he was hospitalized that same morning and died four months later in Dallas at the age of eighty-seven. The visitor center became a tribute to his memory for his surviving widow and their family and friends. Greer proudly showed off the new visitor center during her remaining years on the ranch and narrated the introductory film for the park. Greer also asked her friend Ricardo Montalban to visit from Los Angeles and narrate the Spanish-language version of the film. “[The Fogelsons] had a goal, a dream, a vision,” remarked Superintendent John Bezy. “It was a personal commitment of the most significant kind. . . . The Rockefellers are responsible for the Grand Tetons. The Pecos National Monument is because of the Fogelsons.”²⁸

The Park Service assumed management of Pecos near the conclusion of its Mission 66 development program. Although some aspects of the program, such as visitor centers, became an integral part of a national park experience, Mission 66 also caused controversy and contention. Park Service officials struggled to reconcile the construction of new facilities with fears that parks were becoming overdeveloped. The modernist architecture initially favored by Mission 66

planners met with an unfavorable reception. At Pecos, officials grappled with how to develop the site appropriately. Initially, designs for the visitor center located it in full view of the ruins and contemplated using a modernist design. Ultimately, officials decided on a more discreet location and architecture that copied the prevailing design for all of New Mexico's tourist industry buildings. The choice reflected the new pressures against park development and also tourists' desire to find a romanticized landscape on their journeys to the Southwest.

“These Are Our Lands”: Conflict over land ownership in the Upper Pecos valley

After leaving the monument, the Davidsons started off for Santa Fe, reading about the capital city's tricultural heritage in their brochures. One pamphlet briefly discussed the Hispanic settlers and their land grants, stating that “great land holdings were sold with the coming of the Yankee traders,” and opining that “the native people of Santa Fe are quietly proud of their heritage, always courteous, dignified and well-mannered. Fortified by a strong religious faith, they now take their positions in the economic contest for survival with the same solid philosophy that has sustained them through 300 years of exploration, cattle raising and agriculture.”²⁹ The brochure glossed over the complicated and bitter legacy of land alienation felt by some members of both the Hispano and Pueblo communities.

Tourists came to New Mexico looking for things they believed had been lost in the disorienting swirl of modern life—peace, rusticity, a simple life. Hispano residents of New Mexico also sought something that had been lost—their control of the old Spanish land grants. In the 1960s a group of *valientes* (militants) known as *Alianza Federal de Mercedes* (Federal Land Grant Alliance) contested the unscrupulous transfer of Spanish land grant titles to U.S. interests. Members of the *Alianza* drew on a tradition of resistance that stretched back to the Treaty of Guadalupe Hidalgo. *Corridos*, historic ballads, were passed down as oral tradition through generations and provided testimony of a history of lost rights dating back to 1848, as well as moments of resistance such as San Miguel County's short-lived *Gorras Blancas* (White Caps) alliance in the late 1800s. The *Alianza* also occurred in the context of the civil rights movement. Like their African-Americans and Native American counterparts, Hispanic-American veterans returned from overseas service in World War II with new expectations about rising above minority status. The civil rights movement opened opportunities for ethnic groups to expose a long history of discrimination and prejudice. *Alianza* founder Reies Tijerina “prospected” for new members in villages around the state and was in Pecos and Rowe in the late 1950s, where he attracted followers. In one impassioned speech, Tijerina shouted, “They took your land and gave you powdered milk, took your grazing and gave you Smoky the Bear, took your language and gave you lies in theirs. There are 1,715 land grants in the United States, and we will get them back.”³⁰

Supporters of the *Alianza* not only contested issues of land control but also how that land was being used. Many protested when the Forest Service tightened restrictions on free-use subsistence grazing permits, which permit holders perceived as a threat to maintaining their ancestral way of life. The Forest Service policy reflected the agency's belief that the decline of subsistence practices meant that the grazing animals were essentially family pets kept for their traditional, symbolic value. The agency determined that the land degradation around village settlements was too high a price to pay for cultural preservation.³¹ Hispanic livestock owners, however, viewed the former land grant grazing commons as their birthright. The Forest Service policy privileged for-profit graziers and benefited commercial cattle operations.

While the Pecos area experienced nothing like the civil disobedience and violence associated with the Alianza that occurred in the Carson National Forest and the courthouse raid in Tierra Amarilla, tensions surrounding grazing and private versus communal property were higher than usual during the 1960s. In Pecos the Forest Service eventually eliminated free-use permits on some allotments. On the Colonias allotment east of the village, free-use permits had long been more common than grazing under paid permit. Because of this long period of traditional forest use, trespass grazing was a persistent management issue before and after the reduction of free-use permits.³² Only three free-use permits were issued in 1969, and by 1980 they were completely phased out. The allotment provided marginal grazing land even for permitted animals—it contained only 445 acres suitable for grazing out of more than 20,000 total acres. The range condition report in 1969 described open grasslands containing blue grama (*Boutelous gracilis*), galleta (*Hilaria jamesii*), and western wheatgrass (*Agropyron smithii*) invaded by piñon, juniper, cholla cactus, snakeweed (*Gutierrezia sarothrae*), and sleepy grass (*Stipa robusta*). After many decades of heavy use, the dense stands of piñon-juniper covering most of the allotment contained very little herbaceous understory for grazing.³³

The land showed the effects of decades of grazing, but many people continued to depend on its resources. Although there were penalties associated with trespass on Forest Service lands, many locals took their chances. On the Colonias allotment, the Forked Lightning property provided a boundary west of the forest, but trespass was inevitable from the east because no fencing separated private lands from the allotment. The Forest Service range managers believed that local cultural beliefs were the biggest challenge to resource protection. “Adjoining private land owners seem to feel that this area is theirs to use as they see fit, because they have historically done so,” one report noted.³⁴ Although rangeland health improved, cutbacks in herd size and loss of free-use permits affected local families and for some ended generations of ranching.

As the Anglo owners of the original Los Trigos grant, the Fogelsons found themselves in the middle of a tense political situation that affected their relationship with local residents. Trespass was an ongoing issue, and they understood that some locals resented Anglo land ownership in general and their holdings on the former Pecos and Los Trigos grants in particular. Some locations such as roads, fishing areas, and piñon nut-gathering sites on the former land grants had remained “communal property” in the eyes of Pecos residents. The road from Rowe to Colonias was one of these contested sites. In the 1930s the Civilian Conservation Corps (CCC) may have replaced the earlier bridge constructed by the AT&SF over the Pecos River. Locals continued to use it even though it traversed part of the Forked Lightning Ranch. In addition to travel between the villages, the residents of Rowe used the road to collect water from the river before the community water well was established in the 1960s. The stretch of river adjacent to the Colonias bridge was also a popular fishing area.³⁵

The Colonias bridge, now in disrepair, received only sporadic maintenance and was already in poor condition by the early 1960s, its lumber stolen or burned. In March 1963 ranch manager and veterinarian Dr. Hinderliter asked Fogelson’s attorney, F. A. Catron, to write to San Miguel District Attorney George Martinez and request that he recommend that the county commissioners close the unmaintained 1.5-mile portion of the Colonias Road across the ranch. Catron pointed out that locals used the road for “drinking parties and like activities.” Catron argued that abandonment of the road and bridge meant that the right of way had reverted to Fogelson as the property owner of all adjacent lands on both sides. Nothing came of the request.

District Attorney Martinez joined the Alianza movement, and the commissioners may have held Alianza sympathies as well because two years later they objected to closing the road.³⁶

A related dispute over former communal land erupted in the late 1960s when a group of local men from Pajarito, possibly affiliated with or inspired by the Alianza, began to interfere with access to the ranch's fenced, 4,000-acre Pajarito pasture. The community of Pajarito, southeast of Rowe, was an exception to Fogelson's purchased holdings within the original Los Trigos boundary. In 1958 Fogelson had expanded the Pajarito pasture with the purchase of an additional 608 acres on the west side of the AT&SF tracks and on the east side of the Pecos River.³⁷ The interstate divided the parcel after 1964, but local roads and a concrete underpass provided access to the pasture and the Pajarito community. Pajarito residents claimed that because they were descendents and heirs of the original settlers on the grant, they were entitled to the use of that portion of the grant they recognized as common, unallotted pasture. On April 28, 1969 some local men accosted ranch foreman Hamby on the pasture's access road and threatened him with injury if he returned. Three ranch employees returned one week later to repair the boundary fence, but six men turned them away with threats. The following spring, the same men turned away a surveyor hired by Fogelson to testify in the dispute. The locals also removed one-half mile of boundary fence and allowed their livestock to graze on the Forked Lightning property. As in similar Spanish land grant disputes, the court cared only that the Fogelsons could produce a chain of title for the land going back to the 1909 patent of the Los Trigos Grant, when the land was privatized by Congress. On April 8, 1970 H. Vearle Payne, a U.S. District Judge, ruled against the two Pajarito defendants, Frank Salmeron and Esquipula Padilla "and all persons in active concert and participation with them," declaring that their rights under Spanish or Mexican law were unproven and extinguished by U.S. acquisition of the lands. Payne ordered them permanently restrained from interfering with use of the access road to the pasture, entering Fogelson's property, damaging or removing fences, and placing livestock on the ranch without consent.³⁸

Tensions over inholdings and land access on the Los Trigos section of the ranch near Rowe were still a management concern in the 1980s. A 1984 Park Service management analysis of the ranch predicted future growth in the Rowe area and suggested that the ranch boundary should be modified "to exclude all undesirable inholdings" or the inholders should be bought out in the event that the land was ever donated to the Park Service.³⁹ The Hispanic residents of Anton Chico, Tecolote, and Gallinas all had active associations to represent the rights of land grant heirs at the time, and similar organizations formed in Pecos and Los Trigos in the 1990s.⁴⁰ These local residents also experienced increasing conflict with the growing number of newcomers, many from Texas and Oklahoma, who visited the area for recreation in the summer. Recreational users often opposed traditional uses of the forest such as ranching and wood gathering. Tourists who expected to find pristine, solitary forests often could not reconcile cattle or chainsaws with their view of the landscape.⁴¹

Like the Hispanos who remembered their claims to the land and their long struggle to retain those rights, the descendants of the Pecos also remembered their ties to their homeland. In 1951 the Pecos descendants at Jemez Pueblo had joined with that pueblo in a lawsuit to try and receive a higher monetary compensation for the Pecos grant than had been awarded by the Pueblo Lands Board in 1930. The lawsuit cited the fact that the Pueblo Lands Board had not given any compensation for the water rights at Pecos. Filed under the auspices of the Indian Claims Commission Act of 1946, the Pecos' claim was part of a larger claim by Jemez Pueblo to land in the Ojo del Espíritu Santo grant. In 1954 the United States government replied that Pecos

Pueblo had no right to file a claim because the pueblo no longer existed. The government pointed to Pecos' merger with Jemez Pueblo in 1936 as proof that Pecos was no longer a separate entity. The government ignored the fact that simply joining with another pueblo did not erase Pecos descendants' identity or connections to their homeland. The lawyer for the Pecos and Jemez added Jemez Pueblo to the suit but the commission ruled against the Pecos in 1959.⁴²

Despite official claims that Pecos Pueblo no longer existed, developments at Pecos in the 1970s provided new opportunities for Pecos descendants to access their ancient home. The Park Service's restoration of the mission ruins meant that the Feast of Nuestra Señora de los Ángeles de Porciúncula could once more be held at the old church. The Park Service also had commissioned historian John Kessell to write a history of Pecos Pueblo during the Spanish period. Although memories of this time had stayed alive in the oral traditions of Pecos descendants, Kessell's work, *Kiva, Cross, and Crown*, restored the history of the Pecos to the knowledge of a broader community. Spurred on by Taos Pueblo's success in achieving title to Blue Lake, a sacred site, the Pecos Pueblo clan at Jemez was able to negotiate with the New Mexico Department of Fish and Game regarding a cave at Tererro which had cultural significance to the Pecos. The Department acknowledged the Pecos' interest in the property. In 1979 the parish council in the town of Pecos formally invited any interested Pueblos at Jemez to attend the annual Feast of Nuestra Señora de los Ángeles de Porciúncula. At the mass, Jose Toya, a Pecos descendant who lived at Jemez Pueblo, requested the chance to speak to the audience. His words revealed how deeply conflict over land can be embedded in people's memories. Toya castigated the local Hispanics for the way their ancestors drove the Pecos away in 1838. "Your people poisoned our water, killed our animals, ruined our crops, and drove us from these lands. But these are our lands and we shall return to take them back," Toya said. During the speech, which Toya repeated in English, Spanish, and the Towa language, all of the Hispanos in the congregation left.⁴³

During the 1960s and 1970s, the civil rights movement created a space that allowed Hispanos and Pueblos to forcefully voice their conviction that their claims to land in New Mexico were still valid. Although their attempts at gaining control of their old lands were often unsuccessful, those attempts did bring their stories to the attention of the public and made it more difficult for the history surrounding land ownership in New Mexico to be obscured and ignored. At Pecos locals contested the Fogelson's ownership of the Forked Lightning Ranch, and Pecos descendants spoke bitterly about the past. These events revealed the tension and conflict over the environment in the Upper Pecos valley, conflict that had long been a part of Pecos history. In recent years the Park Service has attempted to renew connections between Pecos descendants and local residents to the land now enclosed in Pecos National Historical Park. Residents of the Pecos village and members of several pueblos, including Jemez, are identified as stakeholders in park management. In 1994 the Park Service completed an ethnographic overview that involved consultation with Pecos descendants and solicited their opinions about the interpretation of the Pecos story.⁴⁴ The 1990 Native American Graves Protection and Repatriation Act (NAGPRA; PL 101-601) required cultural consultations that presented new opportunities for Pecos descendants to participate in the preservation of their history. In 1993 the Smithsonian Institution returned eighty-six sacred objects and religious artifacts to Jemez elders of Pecos descent.⁴⁵ Six years later, Harvard University's Robert S. Peabody Museum repatriated the human remains that Alfred Kidder excavated in the 1920s to the Pueblo of Jemez, to be returned to their original location at Pecos Pueblo. The Pecos descendants walked from Jemez to Pecos with the remains, a reversal of the route the last Pecos residents used when they moved to Jemez in 1838.⁴⁶

“Here Land Is Not a Product Like an Automobile or a Hamburger”: The sale of the Forked Lightning Ranch

The large tracts of undeveloped land in New Mexico were an important selling point for the tourism industry. The Davidsons, visiting in the 1970s, probably read many statements such as “the forests are a haven from the summer heat, a remote primitive world, never more than an hour or two from any spot in New Mexico.” Beginning in 1964, the government began setting aside wilderness areas in national forests, “where mechanized equipment, logging and commercial development may not intrude.” In these areas, tourists could experience “America as it was when men first came here,” according to one brochure. After seeing the museums in Santa Fe, the Davidsons drove their car back up the Pecos Canyon, seeking retreat in the wilderness where they could hike and fish.⁴⁷

For many, limiting development in the Pecos area was a high priority, but not everyone felt that way. Predictably, Buddy Fogelson’s death led to ownership changes for the valley’s largest land tracts. The Fogelsons never considered returning the ranch lands to their old communal status, but there was the chance that the Park Service might acquire them. The Park Service already had studied the cultural and natural resources of the Forked Lightning Ranch in the hopes of eventually adding it to the park. The ranch would offer the Park Service the chance to interpret the history of cattle ranching in New Mexico and protect the archaeological ruins and Santa Fe Trail ruts on the property.⁴⁸ The Fogelsons had retained sizeable parcels surrounding the 1967 national monument boundary fence for their Santa Gertrudis operation. In the last decade of the cattle operation, which ceased in 1988, the Forked Lightning Ranch kept an average of 110 mother cows and at least five bulls, as well as frozen embryos from five more sires for artificial insemination.⁴⁹ Although ranch managers reported that rotation was practiced to protect the ranch lands from erosion, in 1995 Dr. Craig Allen, an ecologist with the National Biological Service, found evidence of damage on the ranch’s steepest grazed land east of the Pecos River and north of Cañon de Los Trigos. He documented erosion, exposure of bare soil, and lack of herbaceous cover, indicating “predominance of physical processes over biological processes which tend to stabilize site conditions.”⁵⁰ In the year after his death, Buddy Fogelson’s heirs sold the remaining Santa Gertrudis cattle, and the pastures on both parcels were empty by December 1988.⁵¹

The Fogelsons had considered donating the entire ranch to the Park Service when their involvement with the cattle operation declined during Buddy’s illness.⁵² However, in his will Fogelson conveyed the 5,500-acre northern parcel, which contained the ranch house, to Greer and left the southern, 8,000-acre Los Trigos Ranch to his nephew and adopted son, Gayle David Fogelson.⁵³ In 1989 controversy erupted when Greer and Gayle began to negotiate the sale of their combined acreage to a Florida-based developer, Jerry Crassas of Capital Developers International. Although Greer and Gayle were unaware of the company’s plans in the early negotiations, Crassas envisioned “Santa Fe East 2001,” a full-service resort community that would have rapidly urbanized the area. The exhaustive list of resort features included a ninety-two-acre hotel; Olympic-size swimming pool; extended-stay cabins; private airstrip; 160-acre convention center; medical services; a 7,000-acre residential development for 20,000 permanent residents; a 454-acre shopping center; two 18-hole golf courses; a 419-acre shooting range; a hunting preserve stocked with quail, dove, grouse, pheasant, deer, rabbit, and elk; a racetrack for cars and motorcycles; and a 729-acre recreational center and athletic fields. Crassas, a wealthy Greek citizen and self-described “wheeler-dealer,” was the latest in a long line of fortune-seekers

who approached the Upper Pecos valley with a limited understanding of the existing community and the ecological limits of the land. “I had never been west of the Mississippi River before,” Crassas told a local paper. “But my partner told me I had to come and see this land. When I did, I fell in love with it.”⁵⁴

Like the Spanish missionaries and the railroad, mining, and timber companies, Crassas believed growth and development would benefit the local community. When he publicly revealed his intentions for the property, some locals and environmentalists vehemently protested and organized to stop the development. The New Mexico Acequia Association’s board members expressed “grave concern” about the plan, which they felt would deplete the water table and pollute the water on which the existing community relied.⁵⁵ George Adelo, the Pecos mayor, worried that the village would lose its identity and the already overtaxed water and sewage systems could not support the sizeable new development.⁵⁶ Another local, A. Samuel Adelo, described Pecos as a refuge where people could live “under the cloak of its tranquility” and warned that the environment and culture in Pecos were fragile and worthy of protection. “In New Mexico, even today,” he wrote, “the land has spiritual and community values. Here land is not a product like an automobile or a hamburger that are simply used to make money.”⁵⁷ Just like the Pecos and the original Spanish settlers, the late twentieth-century Pecos valley residents continued to locate their cultural identity within the landscape.

Although Crassas failed to appreciate these long-held local values, he did make one correct assumption: the Pecos community understood that the resort would bring an abundance of wage-earning opportunities to the valley—an increase in jobs comparable to the timber and mining booms of the 1880s and early 1900s. The National Park Service had recognized the importance of providing jobs to the local community when they assumed management of the monument in 1965. A 1962 study completed by the Park Service found that the population of the village of Pecos numbered less than 600, and about 2,700 people lived in the general area. Although some local residents remained active farmers and ranchers, they did so to maintain their cultural heritage and quality of life and required local wage labor opportunities with the Forest Service and other entities to make ends meet. Winter employment was particularly scarce when seasonal jobs in recreation declined. The Park Service, however, could offer only a limited number of positions.⁵⁸

The relative isolation of the village created economic hardship, but it also preserved the sense of cultural continuity that inspired many to resist the resort plans in 1989. As a result, community opinion was split. The *Pecos Post* editors reasoned that change should be welcomed, because the pueblo’s first inhabitants had been the valley’s first “developers,” followed by the Spanish and Anglos. “Life goes on and things change with or without our consent,” the editors opined.⁵⁹ Cip Gonzales, a local school bus contractor and auto parts store owner, agreed. “What we have here is a lot of pretty country, and you can’t get much income from that,” he said. “So from the business standpoint, I’m in favor of it.”⁶⁰ Others pointed out that the new wage-earning opportunities would keep young people from moving away and help those residents forced to commute to Santa Fe or Las Vegas for work. Many, though, felt the development would be a disaster. Pecos resident Bob Hattle believed that the new jobs would not be worth the price of the impact on village culture and the environment. “That’s not the kind of job any of us wants to make a living—cleaning out a rich man’s sewer,” Hattle said.⁶¹ Another local resident, Richard Roybal, agreed that the potential for wages was akin to accepting scraps from “the rich man’s table” and not worth the price of losing their water, increasing air and noise pollution, and transforming the village into a slum section of the new city.⁶²

The “pretty country” Gonzales described had captivated the Fogelsons and their social circle since the 1940s. Like the Park Service, their approach to land stewardship fell somewhere between preservation and use. Although the Fogelsons defended their rights as private landholders and often mythologized local cultural traditions, they did value the long history of human activity in the valley and the living community still residing there. They steadfastly supported the national monument and had a strong philanthropic track record throughout the country. The monument staff and some residents feared the Fogelsons’ longstanding commitment was about to end abruptly. For a time, it appeared Greer might sell to Crassas. According to Greer’s employee, M. S. Disimone, “[Crassas] came up with a proposal and a figure you just have to take a look at. There are some things you can’t say no to.”⁶³ Linda Stoll, the superintendent at Pecos, expressed surprise that the monument’s main benefactor would consider the sale. She told the Santa Fe paper, “We have been fortunate that we have had a single landowner around us who has left the land alone. If the land is developed, it would put our viewshed at risk.” Stoll and her staff also wondered how the cultural resources on the Forked Lightning Ranch property, including Kozlowski’s Trading Post, the Santa Fe Trail ruts, the Hispanic homesteads, and additional pueblo remains could be protected in the midst of a large-scale development.⁶⁴



Figure 42. Local papers provided extensive coverage of the Forked Lightning land sale controversy. This feature includes a photograph of graffiti spray-painted on the ranch’s iconic adobe fence posts: “Don’t Mess with Pecos.” Source: *Albuquerque Journal North*, December 28, 1989.

Greer was eighty-one at the time of the pending land deal. Her own health had declined precipitously after Buddy's death. As news of the potential sale spread in New Mexico, she was recovering from a hospital stay and dealing with another loss: a catastrophic fire had destroyed her Beverly Hills home and much of her Hollywood memorabilia. As a result, she was unaware of the controversy. In their initial negotiations, she and Gayle believed that Crassas planned only to build a single home or a small-scale guest ranch, and if the *Santa Fe Reporter* had not leaked the resort plans, the transaction might have gone through. The village of Pecos passed a resolution opposing the new development and prepared to pressure Greer to change her mind. After she left the hospital she announced that she and Gayle were reconsidering the sale. Gayle told the media, "Down here [in Dallas] the worst thing you can say about a man is that he left a town dry and then moved. I don't know where they would get the water for one golf course, let alone two. I think the whole thing sounds ridiculous."⁶⁵ But in the face of public opposition, Crassas agreed to present a scaled-down plan for consideration, and both Gayle and Greer temporarily faltered in their commitment to end the deal.⁶⁶

The Pecos village resolution against the development also included a request to the Secretary of the Interior, Manuel Lujan, Jr., and their congressional delegation to "exercise all options" for the Park Service to take over the ranch and qualify the expanded site for national park status. Lujan, the newly appointed Secretary of the Interior under President George H. W. Bush, was born near the San Ildefonso Pueblo, grew up in Santa Fe as the son of the city's mayor, and graduated from the College of Santa Fe. He had served in Congress since 1968 as a prominent Hispanic Republican representing the concerns of New Mexico's American Indian population. Lujan labeled himself a moderate who balanced environmental protection with development, yet he advocated opening federal lands to mining, grazing, logging, and recreation as well as offshore oil drilling.⁶⁷ Although his reputation with the environmental community was mixed at best, Lujan had a special interest in the fate of the Pecos area, and he did not want the site developed. After Crassas's development plans leaked, Lujan visited Pecos to assess the site, but he was not forthcoming with funding for purchasing the land because the ranch did not fit into the department's two priority categories: wetlands and parklands in large urban areas. Further complicating the negotiation, the New Mexico Congressional delegation had recently requested purchase of two additional sites in New Mexico, and Lujan felt he could not support all three proposals. However, the Interior Department declared its willingness to accept the donation of the ranch for the national park system through an act of Congress.⁶⁸

In the midst of these negotiations, the *Santa Fe Reporter*, which broke the initial story of Crassas's grandiose plans for the ranch despite his attempts to bribe them to hold it until after the sale, discovered that Crassas was wanted by Florida police on a felony warrant, had forty-eight convictions in his native Greece related to failed business dealings, and had been wanted for fraud in Switzerland. The U.S. government considered him an "undesirable" alien and subject to deportation. The news about Crassas's record ended deal negotiations, and the *Reporter's* editor remarked, "Our local Greek tragedy has run its course."⁶⁹

Although Crassas was no longer a threat, Pecos residents and the monument staff feared new developers would approach the Fogelsons. A few weeks later, Maurice Tripp, a California inventor with a questionable business reputation, contacted the Fogelsons about purchasing the land for a proposed manufacturing plant, but nothing came of it. In a separate deal, Gayle Fogelson sold Los Trigos in two parcels to local residents, the Cowles and the Lyons, who planned to raise Norwegian fjord horses and operate a guest ranch.⁷⁰ Hoping a private foundation would purchase Greer's portion of the ranch and donate it to the federal government, New

Mexico's Congressional delegation introduced legislation to create the 5,865-acre Pecos National Historical Park. Prompted by the controversial Crassas deal, historian William deBuys, who was working with the Conservation Fund, arranged a visit to Pecos for the fund's president and the director of the Richard King Mellon Foundation. His prompt response led the foundation to purchase the ranch for \$4.5 million and lease it back to Greer Fogelson while Congress considered appropriations for operating funds.⁷¹

On June 27, 1990 Congress established the new boundaries of the park to include the original 365-acre national monument and the addition of the 5,500-acre ranch.⁷² The Mellon Foundation donated the land to the federal government in 1993. Significantly, the transfer of property required new enabling legislation, which called for "the preservation and interpretation of [both] the cultural and natural resources" of the re-designated Pecos National Historical Park.⁷³ When Pecos was a national monument, the Park Service had emphasized the Spanish-Colonial history of the site but with the new acquisitions came expanded interpretive possibilities—and more complicated management decisions. Greer retained lifetime rights to the ranch house complex and ten contiguous acres and continued to make seasonal visits until she died on April 6, 1996 in Dallas.⁷⁴ Her passing marked the end of luxury ranching on the Pecos grant, but the Los Trigos grant parcels eventually transferred to new owners, Jane Fonda and Val Kilmer, both Hollywood actors like Greer. Fonda and Kilmer continued the tradition of managing the Forked Lightning property as private refuges for both people and wildlife.

The new Pecos National Historical Park also included the two units encompassing part of the Glorieta Battlefield, totaling 682 acres and added via Public Law 101-536. The scope and mission of the park expanded to accommodate the act's purpose to "preserve and interpret the Battle of Glorieta for the benefit and enjoyment of present and future generations." The Pigeon's Ranch subunit included the ranch itself and the surrounding landscape, including Windmill Hill and Artillery Hill, both significant to the outcome of the battle. The development of Interstate 25 in the 1960s prompted the abandonment of sections of Highway 85 southeast of Pigeon's Ranch, creating a greater distance between the highway and the cultural resources on that subunit. Residential development and commuter traffic continued to grow along Highway 50 in the immediate vicinity of Pigeon's Ranch, though, which had not served as a private tourist attraction since the 1950s. The unoccupied site was vulnerable to development pressure. In the late 1970s, a mobile home park developer wanted to purchase the site and bulldoze the historic structures, but the property owner rejected the offer and another concerned local resident, Linda Frye, purchased the ten-acre ranch property. To protect the historic area, Frye granted a twenty-year covenant to the New Mexico Preservation Bureau in 1981. The following year, a severe snowstorm in Glorieta Pass collapsed the adobe building's north wall, which spurred Frye and local historian Marc Simmons to hire contractors for immediate repairs. The Pigeon's Ranch Preservation Committee at the New Mexico Historical Society raised more than \$10,000 to support their preservation work.⁷⁵

The ranch was just one component of the Glorieta Battlefield landscape. To interpret the full story, the park also added the Cañoncito subunit, which included the location of the Confederate camp. Four private homes, the AT&SF Railroad, and Interstate 25 provided unavoidable visual and auditory intrusions near the site.⁷⁶ In 1964 the remaining structure at Johnson's Ranch was bulldozed to make way for the interstate.⁷⁷ Both subunits contained management challenges for the Park Service: impact from feral and domesticated livestock on riparian areas; agricultural, commercial and residential activity within the units and on the borders; watershed quality issues; unprotected wetlands; and threatened buildings and

archaeological resources.⁷⁸ Inholdings presented another challenge—private owners held more than half of the land in each unit, which made any planning for interpretation development and access difficult. As a result, the park’s 1993 Land Protection Plan suggested purchase of thirty-eight inholdings through fee acquisition.⁷⁹

The National Park Service, local residents, developers such as Jerry Crassas—all envisioned different things for the Pecos environment. By 1993 the Park Service and those who sought to protect the Pecos landscape had triumphed, at least in part. Congress had placed the Forked Lightning Ranch, Pigeon’s Ranch, and Cañoncito within Pecos National Historical Park, preserving the land from development. Yet urban encroachment, watershed quality issues, inholdings—all signs of how Pecos had changed over the years—presented challenges for the Park Service. Lack of funding to open the new areas to visitors and interpret the history also hampered the Park Service’s vision. Much of the impetus for creating Pecos National Historical Park had come from a desire to protect the fragile ruins from the effects of urbanization and modernization. But by setting aside the land and managing it, the Park Service induced new alterations in the landscape.

“Management Without Knowledge Would Be a Dangerous Policy Indeed”: Changing National Park Service policy

Park Service historian Richard Sellars described Mission 66 as “the high point of what might be termed the ‘landscape architecture’ approach to national park management,” because the program emphasized site planning and recreational tourism over natural resource concerns.⁸⁰ For much of its history, the Park Service had given little thought to scientific management. Landscape architects traditionally held more power and influence than biologists or botanists within the Park Service. This changed in the postwar era as environmentalists pressured the Park Service to conduct scientific studies and monitor the ecological health of resources. The Park Service took over at Pecos as the agency itself struggled to adopt scientific management procedures and determine how to balance ecological concerns with visitor access and expectations.

The influential Leopold Report of 1963 countered the impetus towards recreational development and management that had long been a part of Park Service policy. Interior Secretary Stewart Udall assembled a committee of outside experts known as the Special Advisory Board on Wildlife Management, whose report explicitly urged the Park Service to adopt new management procedures that reflected and supported ecological complexity. The advisory board stated that “management without knowledge would be a dangerous policy indeed,” and called for scientific research in all parks that could then be applied to management decisions. The primary goal of the National Park Service, as stated in the report, should be “to preserve, or where necessary to recreate, the ecologic scene as viewed by the first European visitors.” The committee acknowledged that park landscapes had gone through tremendous changes but felt that these changes had been mostly negative and that parks should be returned to a “primeval” state. The Leopold Report focused on “natural parks” such as Yellowstone or Glacier. Sites primarily created to preserve history, such as Pecos, were not expected to serve as the “vignettes of primitive America” described in the report. Still, Udall championed the report and directed Park Service Director Conrad Wirth, and his successor, George B. Hartzog, Jr., to develop new policies and administrative units reflecting restoration strategies that provided equal consideration of park ecosystems and visitor needs. The management culture of the national park system was transforming and would eventually affect park units of every type.⁸¹

Many recognized that just because parks were categorized as “historic” did not mean they lacked plants or wildlife or rivers. All parks—not just ones encompassing large tracts of undeveloped land—were part of an ecological system. Ultimately, environmentalists pressured Congress to unite the three types of parks—natural, historic, and recreation areas—in the General Authorities Act of 1970.⁸² The Park Service would have to manage all of them under the same mandates. Scientific management and research in the Park Service remained hampered by internal dispute, but slowly the agency culture began changing towards a more accepting view of ecology. Yet despite the fact that Pecos—and all parks—possessed landscapes that reflected the overlap and interdependence of “natural” and “cultural” resources, the Park Service continued to separate the resources and parks into distinct management categories. Even if Pecos was managed under the same directives, the agency considered it a historical park, distinct from a place such as Yellowstone, a “natural” park. Both, of course, encompassed landscapes that had been profoundly influenced by humans over thousands of years.

Environmentalists also challenged both the Park Service and the Forest Service in regards to their management of wilderness. Mission 66 had infuriated many who felt the Park Service was recklessly developing national parks. The Park Service protested that many parks included vast areas of undeveloped lands, but wilderness advocates countered that no legal measures existed to stop the Park Service from developing that land in the future. The Forest Service also faced criticism from environmentalists as it tried to defend intensive resource use policies despite growing evidence of ecological damage. Wilderness advocates succeeded in passing the Wilderness Act in 1964, which created protected zones in national parks and national forests. The Wilderness Act reflected environmentalists’ distrust of the agencies’ stewardship. In 1964 Congress designated nearly 200,000 acres of land in the Santa Fe National Forest at the headwaters of the Pecos River and extending north into the Carson National Forest as the Pecos Wilderness. After the prohibition of domestic sheep grazing in the area, the Forest Service successfully re-introduced Rocky Mountain bighorn sheep, absent since 1903. In 1980 an additional 55,000 acres were added, bringing the total Pecos Wilderness to 223,667 acres. The first twenty miles of the Pecos River were designated as a National Wild and Scenic River in 1990.⁸³

Although the establishment of the Pecos Wilderness set aside a portion of the forest for special protection and recreational enjoyment in a “primitive” setting, the demands for public access, recreational use, and timber cutting immediately outside its boundaries continued. In the 1970s officials in the Santa Fe National Forest proposed a “scenic highway” on Elk Mountain from Las Vegas to the Pecos canyon, which would run along the southern boundary of the Pecos Wilderness. The proposal included access to potential ski slopes on Elk Mountain and additional logging of about sixty million board feet of old-growth ponderosa pine and Douglas fir. Environmentalists blocked the proposal using NEPA, which required the Forest Service to assess and manage the watersheds within the national forests and produce environmental impact statements for development projects.⁸⁴ When the Forest Service and the State of New Mexico abandoned the project, it was a clear concession to the growing political power of environmentalists, even in the economically depressed region of northern New Mexico. The 1976 National Forest Management Act created more restrictions on timber production and the definition of sustained yield. When the U.S. Fish and Wildlife Service declared the Mexican Spotted Owl an endangered species in 1993, environmental organizations used the 1973 Endangered Species Act’s mandate to protect critical habitat as another effective means to force

the Forest Service to consider broader ecological impact in its multiple-use management of New Mexico's forests.⁸⁵

As the Park Service took over management of Pecos National Monument and later Pecos National Historical Park, extensive reforms were sweeping public land agencies. The environmental movement forced the passage of laws that required agencies to consider the ecological impact of their actions. The addition of the Forked Lightning Ranch, Pigeon's Ranch, and Cañoncito units to Pecos in 1990 meant that the Park Service now managed a number of ecosystems within a region undergoing rapid changes. The creation of the Pecos Wilderness introduced more stringent standards of preservation into the headwaters region of the Pecos River. The environment—whether designated as wilderness, a national park, or a person's private property—had always been transforming. Many recent activities, including overgrazing, erosion, and fire suppression, had altered ecological dynamics and threatened the health of the environment. Direct and indirect drivers of ecosystem change continued as the population grew around Pecos and development increased. The Park Service could not manage the monument, and later the historical park, apart from its regional environmental context. As officials at the park strove to incorporate new federal mandates into their decisions, their actions contributed to further change at Pecos and were influenced by events in the wider Upper Pecos valley.

“National Parks Are Not Pictures on the Wall”: Resource management by the National Park Service

Pecos village in the 1970s must have seemed like a sleepy backwater to the Davidsons as they drove by the adobe houses and looked down the long, vertical fields to the Pecos River. Even in the late 1990s, brochures still described Pecos as “a charming collection of adobe shops and historic buildings—tied together by narrow, winding roads.”⁸⁶ Yet when the Park Service took over the national monument 1965, the demographics and infrastructure of the Pecos valley already were shifting dramatically. In addition to the construction of I-25, commuter traffic and construction increased along State Route 50 and US 285. The new road development converted Pecos into a bedroom community for the growing capital city of Santa Fe. By 1988 the population of Pecos had doubled to 1,200, and it grew another 42.4 percent in the 1990s.⁸⁷ Although developers could build new homes and highways according to demand, they could not expand the limited capacity of the arid environment at will.

The streams and riparian corridors at Pecos National Monument demanded particular attention due to their sensitivity and ecological importance. In the 1970s growth and development threatened both water quantity and quality, particularly in Glorieta Creek. As development near the creek continued outside of the monument boundaries, the threat of additional diversions on Glorieta Creek loomed. When the Park Service acquired the monument and later the Forked Lightning Ranch unit, these acquisitions did not include water rights to maintain adequate instream flows for habitat protection, and the state of New Mexico did not recognize wildlife habitat as a beneficial use of water. The lack of historical flow records and a supportive political climate hampered any potential application for water rights.⁸⁸

Upstream on Glorieta Creek, the Glorieta Baptist Conference Center, constructed in 1952, presented the greatest threat to water quality within the park boundaries. To meet the needs of its growing operation, the conference center expanded its wastewater treatment plant and added six sewage lagoons in 1977. The new lagoons malfunctioned and sewage effluent began to enter the creek, producing an overgrowth of algae and organic sludge deposits. After water quality tests in 1982, the New Mexico Environmental Improvement Division required the

conference center to clean up the effluent problem, which temporarily improved the stream's water quality, although the lagoons remained an ongoing threat to the health of the creek.⁸⁹

The Park Service had managed the 3.2-mile section of Glorieta Creek inside the national monument boundaries since 1965. When the park boundary expanded in 1990 to incorporate the former Forked Lightning Ranch property and the Glorieta Unit, the Park Service assumed management of four additional stretches of surface water: the stretch of Glorieta Creek east of Highway 63, the 2.9-mile stretch of the Pecos River running through the ranch unit; a one-mile section of Glorieta Creek near Pigeon's Ranch, and a half-mile stretch of Galisteo Creek—an ephemeral stream and part of the Rio Grande watershed—in the Cañoncito sub-unit.⁹⁰ As the most diverse and sensitive habitat in the region, these riparian areas required significant management attention. In addition to the ongoing threat to wetland and riparian areas from potential highway realignment and associated development, the private agricultural and ranching parcels between the separate park units contained unmanaged exotics such as mullein (*Verbascum* spp.), alfalfa (*Medicago sativa*), Scotch thistle (*Onopordo acanthium*), and sweet clover (*Melilotus officinalis*). The area along the La Joya road also contained many informal dump sites. Low streamflow in Glorieta Creek, essentially stagnant with the exception of the spring runoff period or intervals of high precipitation, combined with ongoing effluent from the Glorieta Baptist Conference Center to threaten water quality. By the 1990s, Glorieta Creek contained extreme eutrophication from the wastewater effluent.⁹¹ Because activity at the conference center and elsewhere in the vicinity of the creek continued to grow, the Park Service began a regular water quality monitoring program in the 1990s.

Until the late 1980s, the water quality of the Pecos River was comparatively good. A 1980-81 water quality study indicated low or non-existent levels of heavy metals in the Pecos River, and no other water quality indicators were above stream standards.⁹² But after vegetation began to die off inexplicably near campground roads in the Santa Fe National Forest in the late 1980s, a New Mexico Department of the Environment investigation revealed that the area's federal and state campgrounds and roads, as well as the Lisboa Fish Hatchery, contained waste rock tailings from the Tererro mine that had served as fill material from the 1950s until 1975. Samples of surface material, soils, and fish revealed heavy metal contamination, which forced the Forest Service to close the Panchuela, Jacks Creek, and Winsor Creek Campground and their associated roads in 1990. The State Highway Department posted signs along Highway 63 discouraging public use due to high levels of potentially toxic material on the road surface and adjacent soil. The Lisboa Fish Hatchery suffered several fish kills associated with upstream erosion of the toxic material. Heightened public concern temporarily affected tourism in the area. The mine owner, Cyprus American Minerals Corporation (AMAX), formed a coalition with the New Mexico highway and game and fish departments to administer the cleanup of the site.⁹³

Closer to the park, the Pecos River also received effluent from a sewage treatment plant two miles upstream. The village of Pecos built the plant in 1969, and improved it in the 1980s. The facility served most of the village residents except for some still using individual septic systems. On July 7, 1993, state officials responded to another fish kill on the river, and this time they believed that plant effluent containing excessive levels of chlorine or nitrates killed the fish.⁹⁴

In 2001 a more detailed study of the Upper Pecos watershed, including Glorieta Creek, indicated several problems downstream from the park, from Cañon de Manzanita just below the park's southern border to Santa Rosa Reservoir. Standards were exceeded for ammonia, aluminum, copper, mercury, total dissolved solids, conductivity, fecal coliform, temperature and turbidity, although none were significant enough to be classified officially as impairments. Other

portions of the Pecos River north of this stretch experienced impairments of temperature and turbidity. The study revealed that water pollution in Glorieta Creek from the conference center and other upstream users continued to be a problem. Glorieta Creek and Willow Creek were the two most impaired reaches of the Upper Pecos watershed. Effluent released into Glorieta Creek led to high levels of ammonia, nitrate and nitrite, dissolved oxygen, conductivity, temperature, and turbidity. Willow Creek contained stream bottom deposits and high levels of conductivity, zinc, cadmium, and toxic sediment.⁹⁵

Another pressing problem for the Park Service was the proliferation of exotic species. Ongoing disturbances such as grazing and excavations around the ruins on the mesilla invited invasive plants to establish themselves. Although the cessation of grazing allowed native grasses to return, *Kochia scoparia* (Mexican fireweed) and many other invasive herbaceous plants remained a problem. The Park Service attempted to eradicate kochia with burning, herbicides, and reseedling of native plants. Official Park Service policy in the late 1960s declared that nonnative plants and animals should be “eliminated where it is possible to do so by approved methods.”⁹⁶ Beginning in 1968, park employees conducted spot spraying on calm days with 2,4-D on approximately thirty-five acres. In just a few years the need for herbicide was “much reduced.”⁹⁷ But like the Forest Service’s use of DDT, chemical solutions carried environmental and public health hazards that federal agencies were obligated to address as regulations grew more stringent. In June 1981 the national monument staff stopped using 2,4-D and adopted a more moderate approach. Because potential damage to ruin walls and aesthetics by exotics was the primary concern, the monument staff shifted to cutting and hand pulling weeds, particularly in the convento. They also continued to encourage re-growth of native grasses to crowd out the kochia.⁹⁸

Other areas around the monument prone to heavy growth of invasives included the roadside rights-of-way and the gravel pits associated with highway construction. Scotch thistle (*Onopordum acanthium*), field bindweed (*Convolvulus arvensis*), and hoary alyssum (*Berteroa incana*) flourished along the edges of paved roadways, particularly in areas where rainwater collected.⁹⁹ Because of the scarcity of riparian habitat in the Southwest, native flora and fauna in these ecotones received particular attention. Regulation of stream flows in the twentieth century allowed the invasive tamarix (*Tamarix pentandra*), also known as salt cedar, to spread in major drainages and eventually to outlying ephemeral streams. The species was prolific in the western United States by the 1960s.¹⁰⁰ A 1968 plant survey, which established a baseline of native and introduced vegetation to guide future management decisions, noted that the riparian area of Glorieta Creek included a few salt cedar, only one young Fremont Cottonwood (*Populus Fremontii*), and a few Sandbar Willows (*Salix exigua*).¹⁰¹ By the 1990s, the park staff faced a serious tamarix problem: in 1995 they identified 200 tamarix near the trading post on Glorieta Creek. Cutting and spraying in 1999 eliminated 55 tamarix up to one-foot in diameter, as well as hundreds of shoots. Other than tamarix, the staff continued to monitor and remove Russian olive, Siberian (Chinese) elm (*Ulmus pumila*), Scotch thistle, and yellow sweet clover.¹⁰²

When grazing stopped on the Forked Lightning Ranch in 1988, the willows along the creek and river began to recover.¹⁰³ Geographer Donald Lee Burtchin, in a study of the physical geography of the area, noted that as early as 1983 willow had become the dominant species on the creek banks, with three varieties present. He also noted “a few” cottonwood trees in the Glorieta Creek riparian area. But Burtchin observed that regular floods in Glorieta Creek easily uprooted shallow-rooted plants growing in the floodplain and predicted this would limit the size of trees.¹⁰⁴ Downcutting from severe erosion also limited riparian vegetation recovery on Glorieta Creek, and the ecological legacy of cattle trampling continued. Although the

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cottonwood bosque on the Pecos River contained many mature trees in the 1990s, the previous decades of trampling and browsing limited the vigor of emerging trees. The recovering beaver population probably damaged young stands of trees as well.¹⁰⁵ Despite these factors, vegetation recovery began. The 1996 faunal survey described a recovering riparian zone on both Glorieta Creek and the Pecos River with “a lush growth of streamside vegetation,” small mammals, reptiles, and amphibians.¹⁰⁶



Figure 43. Grazing and wood harvesting left the riparian area along Glorieta Creek near the ruins nearly bare until the area became a protected monument. This 1915 photo looks to the northwest of the ruins. Source: Source: Cowley, Joseph, and Rhodes, *Cultural Landscape Overview*, 61, original at Museum of New Mexico, negative no. 12330e.



Figure 44. This 2009 photograph of Glorieta Creek, also looking to the northwest of the ruins, reveals dense recovery of willows and cottonwoods in the riparian zone as well as piñon-juniper west of the creek. Source: Public Lands History Center, Colorado State University.

Although vegetation in the riparian areas recovered under Park Service management, the stewardship ethic was not always consistent. The first monument superintendent purchased three horses for backcountry patrol and kept them at Kozlowski's Trading Post. Although the horses were rarely used, their pasture northeast of the trading post gave the animals access to the sensitive floodplain and riparian zone along Glorieta Creek, an area already compromised by gravel excavation in the 1980s. Bobbi Simpson, the park's natural resources specialist, argued that the pasture location violated the Park Service's wetlands and floodplains management guidelines. In 1995 the monument staff began a study to relocate the pasture and address negative impact issues such as erosion, cowbirds, and invasives in the vicinity of the pasture.¹⁰⁷ Simpson noted the predominance of exotic vegetation species inside the corral, weakened bank structure where the horses could access the west side of Glorieta Creek, and the recovery of mostly native vegetation outside of the corral. "Overgrazing exacerbates our already profound exotic species and erosion problems," she wrote.¹⁰⁸

Simpson suggested it might be necessary to sell the horses and keep no livestock at the park. Upon the recommendation of Judy Reed, the park's Cultural Resource Manager, the park also considered alterations to the existing management plan that would allow the park to keep the horses. "We suggest that the horses' contribution to the historic ranching landscape and usefulness to the staff in their performance of certain duties be compared to the animals' cost of maintenance when deliberating the fate of the Pecos horses," Reed argued. Suggested changes included expanding the size of the pasture, keeping the horses in the park only in the summer months, and corralling them away from the creek. Former Forked Lightning ranch manager Gilbert Ortiz, who had been hired by the Park Service after the ranch transfer, suggested moving the horses to a more ecologically stable portion of the park bordered by Highway 63 near the old Las Vegas Highway. This would have required installation of a water tank and additional fencing, as well as a survey for cultural resource impact.¹⁰⁹ The horses were briefly relocated to a re-fenced area of the Trap Pasture, but keeping the horses required an ongoing provision of water and weed-free hay. Ultimately the park staff decided to sell the horses.¹¹⁰

After the staff removed the horses, the park began a restoration project in 1999 on a 25-acre gravel quarry site along the same stretch of Glorieta Creek. The gravel pits dated to 1988 when the New Mexico Highway Department excavated gravel on the Forked Lightning Ranch.¹¹¹ The operation left two craters in the earth, and the workers bulldozed the remaining sand into levees and dams, creating two reservoirs that served as stock tanks for a few years until the ranch became part of the park. The earth moving operation also created a ten-foot-high pile of sand covering more than 15,000 square feet. The levees shed sediment into the creek as they slowly eroded. In August 1993 a severe flood on Glorieta Creek weakened the dike between the reservoirs. Three years later, low streamflow in the spring stranded about 4,000 fish in the western reservoir's rapidly evaporating pool. Although park staff transported half of the fish and a dozen tiger salamanders to the spring-fed eastern reservoir, the remaining fish died.¹¹²

In an effort to restore a self-regulating natural floodplain on the left bank of Glorieta Creek, the Park Service consulted with wetlands rehabilitation experts and reshaped the 5.6-acre site into ponds, wet meadows, willow thickets, and cottonwood groves. The restoration included upland slope stabilization and extensive seeding and planting of herbaceous wetland plants and trees, such as sedges, rushes, bulrushes, willow, and cottonwood.¹¹³ Although the floodplain and riparian corridor of the creek segment through the park already possessed more abundant and diverse vegetation than during recent historic periods, the restoration further improved conditions

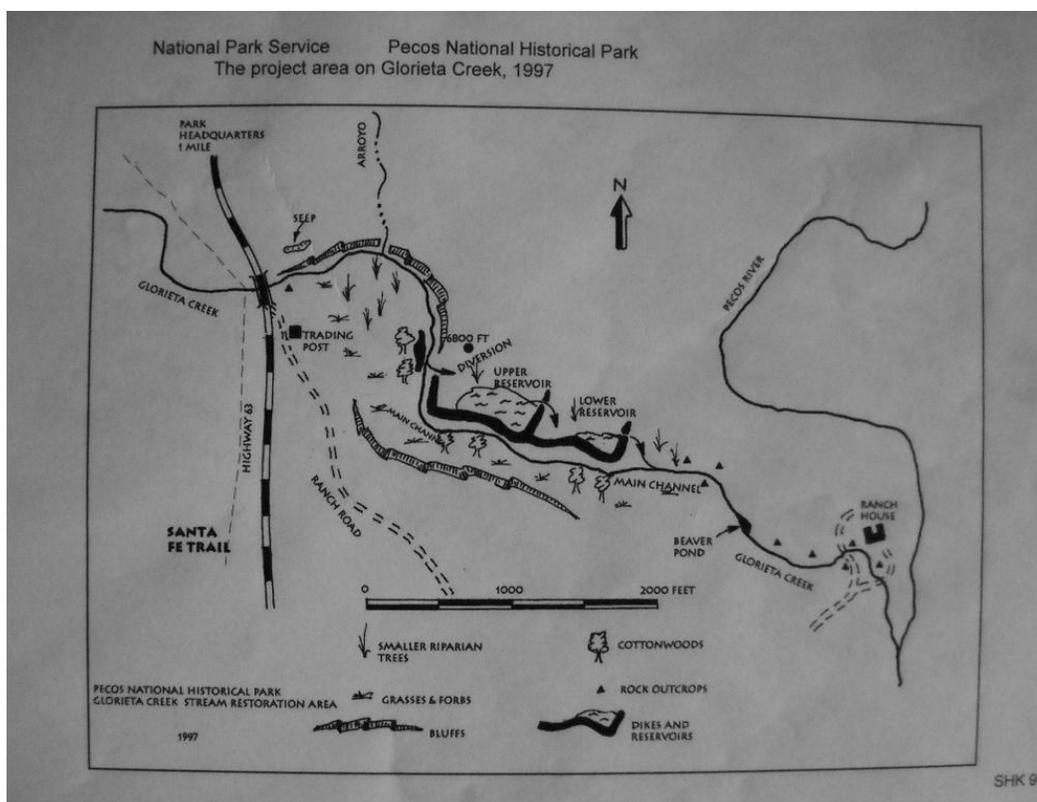


Figure 45. This diagram shows the dikes and reservoirs at the Glorieta Creek site prior to restoration. Source: “Glorieta Creek Restoration Project Planning Compliance Field Notes,” Box 1, Folder 4, PECO 175, PNHP.

along the entire corridor. Following the restoration, normal flood cycles stimulated the reproduction of woody riparian species and improved native biodiversity.¹¹⁴

The extensive restoration at the gravel pit site demonstrated the increasing use of scientific management techniques in the Park Service, including at historical parks such as Pecos. This evolution began in the early 1960s as environmentalists and scientists gained greater influence within the agency. In 1963, the same year that the Leopold Report was issued, the National Academy of Sciences released a report on scientific research in the national parks. The committee supported many of the goals of the Leopold Report, stating that “national parks are not pictures on the wall; they are not museum exhibits in glass cases; they are dynamic biological complexes with self-generating changes.”¹¹⁵ Thirty years later, the truth of this statement was evident to Pecos managers as they attempted to restore the park’s riparian ecosystems, manage threats to water quality, and remove exotic species. Pecos may have been a “historical” park, but its landscape reflected and was influenced by contemporary changes and management decisions.

“National Parks . . . Have a Complex Biological History”: Environmental change in the late twentieth century

National parks were not pictures on a wall, and the National Academy of Sciences committee also recognized in its 1963 report that “national parks as they now exist have a complex biological history ranging from indiscriminate exploitation by logging, burning, [and] livestock grazing. . . through artificial protection from fires. . . The activities of people within and in the vicinity of a national park have profoundly modified some of them.”¹¹⁶ That complex history had brought exotic species to Pecos and changes in the vegetation community due to

grazing and fire suppression. The Park Service chose to add a new chapter to that history when it began actively managing the environment, undertaking such projects as the restoration of Glorieta Creek. Park officials—and other land management agencies in the Southwest—also turned towards deliberately manipulating the densities of piñon and juniper.

Throughout the Southwest, the spread of piñon-juniper woodland was a central management issue for the Forest Service and the National Park Service in the twentieth century. In addition to the existing facilities and ruins on the mesilla, the several hundred acres of additional land added to Pecos National Monument in 1965 required management of piñon-juniper encroachment. When the employees on the Forked Lightning Ranch cleared pastures in 1962, they had eliminated trees from the southern portion of the mesilla now inside the monument boundary. However, aerial photographs reveal that piñon-juniper markedly increased around the monument from 1929 to 1973, particularly around the pueblo. The density of piñon-juniper in the area had always fluctuated over time due to both human and natural causes. Although the term “encroachment” was often used, the trees were not necessarily moving into areas they never had occupied before. Whether moving into new areas or returning to older vegetation patterns, by 1983, piñon and juniper trees dominated the vegetation within the national monument. Trees were abundant on the eastern and western slopes of the mesilla and on its northern edge, as well as along the eastern boundary fence. Individual trees were beginning to grow in the recently cleared grassland areas, fenced off by the Park Service in 1969 and 1974.¹¹⁷ Although the Park Service allowed these areas to fill in with trees, staff continued to remove piñon and juniper growing near the ruin walls. In 1978 these trees, along with other piles of slash from former land-clearing operations, provided material for brush-and-fill check dams used to control erosion in gullied ravines.¹¹⁸

Both the Park Service and Forest Service tried to balance grassland ecosystems with woodland vegetation. Because the Forest Service had decades of experience with grassland restoration efforts in northern New Mexico, the Santa Fe National Forest Ranger District provided expertise and equipment for restoration projects in the valley, including at the national monument and the Forked Lightning Ranch. In the summer of 1969 the Park Service began a grassland restoration project on the twenty-five acres in the historic trade encampment area east of the mesilla. Forest Service personnel used a drill and hydromulch machine to reseed the area.¹¹⁹ They tested three methods for establishing a mix of introduced and native perennial grasses, including western wheatgrass (*Pascopyrum smithii*), Russian wildrye (*Psathyrostachys juncea*), blue grama (*Bouteloua gracilis*), and spike muhly (*Muhlenbergia wrightii*). In subsequent years, the Park Service treated kochia in the meadow with the same methods used around the ruins. Burtchin, in his study of the physical geography of the area, notes that 1973 aerial photos reveal precise rows of grasses growing where they were seeded, indicating that the new grasses filled in and spread rather slowly. His random sampling in 1983 documented a similar species composition including blue grama, spike muhly, western wheatgrass, and sand dropseed (*Sporobolus cryptandrus*). Burtchin also noted that the full span of aerial photos suggested that “plants other than grasses do not easily become established in [the meadow east of the mesilla] for reasons that are not clear.”¹²⁰

The ratio of woodland to grassland remained relatively unchanged on the Forked Lightning Ranch through the 1980s. One former employee remembers that the extensively cleared areas required minimal maintenance. Another source suggests that the Fogelsons later expressed regret about the extensive clearing operation of the 1960s and said they had been influenced by federal programs that encouraged the clearing of native timber and re-seeding

grass.¹²¹ The ranch employees did conduct some additional tree removal with bulldozers on the land adjacent to the monument in the 1980s, “within view from the visitor use areas.” These activities worried park officials, who were concerned that the pasture clearing operations might destroy the viewshed and damage archaeological sites. Indeed, mechanical clearing did severely disturb many archaeological sites on the Forked Lightning Ranch.¹²²

By the time the Park Service took over the northern half of the Forked Lightning Ranch and the two Glorieta subunits in 1990, many new trees were sprouting on the nearly 1500 acres of formerly cleared pastures.¹²³ Photographs and satellite imagery revealed the bulldozed windrow areas on the Forked Lightning. Subsequent studies estimated and described the piñon-juniper cover. A 1993 vegetation map estimated that piñon-juniper covered approximately forty percent of the Pecos Unit, including the national monument and the Forked Lightning Ranch, although mature stands covered only sixteen percent of the unit.¹²⁴ A botanical inventory conducted just two years later concluded that ninety percent of the Pecos Unit was piñon-juniper grassland.¹²⁵ In 1995 Dr. Craig Allen of the National Biological Service conducted a site visit with park staff and recommended immediate implementation of a prescribed fire program. He suggested beginning with the natural meadows east of the Pecos River, on the ridge tops north of Cañon de Los Trigos. He also recommended imitating the Forest Service thinning program in the piñon-juniper to improve the recovery of herbaceous understory, which grazing cattle had eliminated.¹²⁶

The Forest Service had undertaken numerous clearing operations throughout the region, including on the Springs allotments on Glorieta Mesa in the 1960s and 1970s. The meadows gradually became dense stands of piñon-juniper over the subsequent decades, and in most areas were thicker than they were before mechanical removal fifty years before. Although tree thinning and livestock reduction were common Forest Service practices, the agency did not use prescribed burns as a vegetation management tool until the 1990s. The Southwestern Region of the Forest Service officially recognized the value of prescribed fire in its 1967 *Multiple Use Management Guide*, but the Santa Fe National Forest did not conduct controlled burns to reduce fuel load and improve wildlife habitat until 1989. In 1997 the Forest Service joined the Northern New Mexico Stockman’s Association, the New Mexico State University Cooperative Extension Service, and the Quivira Coalition to form the Valle Grande Grassbank, an effort to provide a model of cooperative landscape restoration primarily focused on bringing back the grassy component of the ecological mosaic using prescribed burning and mechanical thinning.¹²⁷

The increased use of thinning and prescribed burning to prevent large, uncontrolled fires emerged too late to prevent several large fires in the Pecos area. The year 2000 was the worst wildland fire year since 1910—there were 2,466 fires in New Mexico alone. In nearby Bandelier National Monument, the Park Service lost control of a prescribed burn and the resulting “Cerro Grande Fire” burned 47,650 acres and destroyed hundreds of homes in the Los Alamos area.¹²⁸ In the Pecos area, the “Monument Fire,” probably started by a burning tire rim that ignited grasses bordering the interstate, burned the southwest portion of the Forked Lightning Ranch and crossed both LaJolla Road and Highway 63, eventually covering 160 acres. East of the Pecos River, the “Viveash Fire” burned 160 acres in the Cow Creek watershed. Both fires contributed to erosion and fish kills in the streams. Cyanide present in subsequent Pecos River water samples was likely due to the retardant used on the fire.¹²⁹ On the positive side, locals noticed deer recovery after the Viveash Fire as more desirable forage became available. Deer prefer several species that tend to re-sprout after a fire, including mountain mahogany, Wright siltassel, antelope bitterbrush, desert bitterbrush, serviceberry, blueberry elder, and black chokecherry.¹³⁰

In addition to deer, the Upper Pecos valley experienced a general recovery of wildlife species in the latter decades of the twentieth century, and the protected Park Service lands became a refuge for mammals and birds. On the other hand, fencing around the Pecos Unit, sandwiched between the Santa Fe National Forest on Glorieta Mesa and the national forest land east of the park, served as a corridor obstruction for larger, wider ranging mammals such as elk, black bear, mountain lion, and mule deer. The state highway running through the unit exacerbated this problem.¹³¹ Although the 1973 Endangered Species Act required the Park Service to protect critical habitat for any identified endangered species within the monument boundaries, early surveys did not document any such species in the area.¹³²

In the early years of Park Service management, deer and coyotes would occasionally enter the monument boundaries. Other mammal species documented in those early years included rabbits, skunks, and gophers.¹³³ Pocket gopher burrows threatened archaeological resources around the ruins, and park employees began using snap traps in the burrows in 1994.¹³⁴ A faunal survey that same year documented twenty-four mammal species. Casual surveys in the early site planning phases noted bird species such as piñon jays, juncos, sparrows, towhees, phoebes, blue birds, meadowlarks, a covey of scaled quail, and more rarely, roadrunners.¹³⁵ The noted phoebe species was probably Say's phoebe (*Sayornis saya*), a common summer resident in arid, open terrain. The ruins provide welcome habitat for this species that prefers to nest on flat projections of vacant buildings.¹³⁶

In the mid-1990s, the park began summer surveys looking for nesting or migratory activity of the endangered Southwestern willow flycatcher (*Empodanax trailii extimus*) in the recovering willow stands under cottonwood overstory along Glorieta Creek and the Pecos River, but none of the birds were found within the park, perhaps because the willow stands had not yet achieved the desirable height of thirteen to twenty-three feet due to the lingering effects of cattle grazing. In 1992 someone spotted a nesting pair of willow flycatchers three miles upstream on the Pecos River near Monastery Lake. Because the ranch still contained short-grass grazing pastures, surveyors noted the problematic presence of brown-headed cowbirds (*Molothrus ater*), which practice brood parasitism on the flycatchers and other songbirds.¹³⁷

Although they did not find willow flycatchers, bird surveyors did note feral dog packs roaming Park Service land. The packs preyed on the protected wildlife within the park boundaries, and ranchers in the Santa Fe National Forest also reported loss of calves due to dog packs.¹³⁸ In 1999 Marten Schmitz, the Natural Resource Manager at the park, began a program in cooperation with San Miguel Animal Control to remove dogs from the park. Officials successfully removed 125 dogs in the first five years. As a result of the program, the park noted an immediate improvement in wildlife sightings, including gray foxes, bobcats, porcupine, jackrabbits, desert cottontail, and mule deer. A ranger spotted the first ringtail cat ever seen in the park.¹³⁹

In 1980 the brown trout stocking program ended on the Pecos River, and in the 1990s native Rio Grande cutthroat trout were successfully transplanted to the Upper Pecos. In the mid-1990s, non-native brown trout and rainbow trout continued to flourish in the park's stretches of Glorieta Creek and the Pecos River, but so did many native fish species including the Rio Grande chub, longnose dace, white sucker, and fathead minnow.¹⁴⁰ Beaver activity increased in the park in the mid-twentieth century. The population had recovered to 6,000 by 1967 after decades of effort to restore the population after they had been trapped out in the 1800s.¹⁴¹ The Fogelsons wrapped the base of cottonwoods with chicken wire mesh to prevent beaver herbivory, and in 1994 the park removed approximately one-third of the wire cages on some of

the larger trees. A 1991 riparian survey along the Pecos River suggested that the decline in cottonwood forest reproduction was likely the result of both beaver herbivory and impact from livestock grazing and erosion.¹⁴² Although the 1996 faunal survey did not find any beaver, they were already abundant in stretches of the river north of the park. Park Service employee Eric Valencia reported that one of his neighbors had trapped thirteen beavers on their land north of the fish hatchery in the spring of 2009.¹⁴³

The elk browsing in a meadow, the trout swimming in the Pecos River, the fragrant boughs of piñon pine—these were all important elements of the landscape, both to locals and tourists. The Davidsons, on their visit to Pecos in the 1970s read glowing descriptions of New Mexico’s environment in brochures. One described the area around Santa Fe in autumn, when “bright yellow chamisa lines the roadway; in the mountains behind, unbelievable stands of brilliant aspens take the color of the sun, all accentuated by the purplish shadows.”¹⁴⁴ Tourists found it easy to imagine a pristine landscape that had seen little change through the centuries. In reality, when the Park Service took over management of the national monument and later the additional units, the environment reflected centuries of human use and impacts. The Park Service staff added a new chapter to that history as they restored Glorieta Creek, cleared piñon and juniper, and built visitor facilities.

Although there is a growing interest in restoring local food production and acequia-centered communities, use of local resources for recreation and cultural preservation has replaced nearly all subsistence activities in the Upper Pecos valley. Traditional economic activities have shifted with the rise of consumerism and tourism in the twentieth century. The landscape reflects the ongoing clashing and blending of cultures meeting at a crossroads.¹⁴⁵ The Pecos descendants’ sense of place and their physical relationship to the pueblo ruins remain even though they have not lived at Pecos for over a century. The local Hispanic community members retain their own sense of place based on their cultural heritage and are still invested in the fate of former land grant property.¹⁴⁶ Federal agencies such as the Park Service bring their own perspectives on the environment as they restore riparian corridors and preserve historic structures. Travelers and new arrivals in “The Land of Enchantment” build their own sacred landscapes when they speak of feeling intimately connected to the beauty of the environment. “This vast and beautiful state casts spells on a visitor,” a tourism brochure read in the 1970s, and the same holds true for many visitors and residents today.¹⁴⁷ The landscape of the Upper Pecos valley is a site that brings together many stories, values, and beliefs that create a different vision for each person who gazes out from the mission ruins on a sunny day or drives their car past old adobe buildings and tumbled fences.

Conclusion

We stood next to the Pecos River, pondering the old metal bridge stretched over the water. No road led up to the bridge or extended past it on the other side. It was a forgotten remnant of some earlier time, left behind on the river. The three of us—Mark Fiege, Maren Bzdek, and I—had come to Pecos to begin an environmental history for the National Park Service. We were walking the landscape, trying to get a feel for the environment, observing evidence of past land use in the area. At the time we had not encountered Hobe-wagi, Helen Kozlowski, Juan de Dios Peña, Greer Garson, or any of the others who had lived in or traveled through Pecos over the centuries. We did not know that a bridge had first been built in this location when the Atchison, Topeka, & Santa Fe Railroad laid tracks through Pecos in 1880 and needed to transport railroad ties down from the mountains. We did not know that Hispanic homesteads once dotted the slopes above the river or that Greer Garson and her friends had picnicked along its banks.



Figure 46. Remains of the Colonias bridge over the Pecos River. Source: Public Lands History Center, Colorado State University.

As we learned more about the Pecos environment, a picture of a complex landscape emerged, a landscape that had experienced continuous change over time. Some of those changes arose from the environment itself—the effects of drought or fire, the slow erosion of rock and soil. Other changes occurred due to the influence and presence of humans, who arrived at Pecos with distinct cultural systems that governed perceptions of the environment and land use. People created cultural landscapes in the Upper Pecos valley that reflected those perceptions—the Pecos who hollowed out kivas and planted fields of maize, the Spanish who brought sheep and built homesteads, the Americans who constructed a railroad and created forest reserves. Yet the history of Pecos is also about the intersections between these cultural systems. The conflict and

compromises between the different people who met at Pecos transformed the landscape. Pecos was never an environment influenced by only one cultural group. Because of Pecos's geographical position and the resources located in the valley, it always served as a point of trade and contact where cultures met and melded.

Today, the National Park Service manages and interprets the many landscapes in the park—the pueblo ruins, the Glorieta Pass battlefield, the Forked Lightning Ranch. These landscapes, situated in different points in time, offer a unique opportunity for visitors to grasp the many changes that have occurred at Pecos. Although each landscape may feature elements from one period in Pecos history, they are not frozen in time. The Forked Lightning Ranch landscape, for example, which features structures from the twentieth century, also includes segments of the Santa Fe Trail and prehistoric archaeological sites. Ultimately, Pecos is a landscape situated in the present. It is actively managed and continues to respond to change. People still place Pecos within their cultural system, whether they are Pecos descendants, tourists, local residents, Park Service officials, or visiting researchers.

Although we can imagine Hobe-wagi or Helen Kozlowski standing by the Pecos River, we can never completely see the Pecos environment through their eyes. Inevitably, present perceptions and our own cultural biases color our interpretations of the past. And although the environment itself still harbors evidence of past change—fire-scarred trees, the ruts of a wagon road, the proliferation of exotic species—such clues are often fragmentary or elusive. In some ways, the Pecos River is the same river for us that it was for people in the past. But in other ways, both environmental and cultural, the river is reborn with each new cultural landscape it flows through.

Chapter Six

¹ Bandelier, *Historical Introduction*, 38.

² *Ibid.*, 39-40.

³ See William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W. W. Norton, 1991) for an excellent discussion of the railroad's transformative impacts on Western economies. Robbins, *Colony and Empire* also discusses the economic results of railroads and how they created eastern and global connections in the West.

⁴ Cronon, *Nature's Metropolis*, 97-259.

⁵ *Ibid.*, 99-147.

⁶ John V. Bezy and Joseph P. Sanchez, eds., *Pecos: Gateway to Pueblos and Plains; the Anthology* (Tucson: Southwest Parks and Monuments Association, 1988), 112-114.

⁷ John Brinkerhoff Jackson, "Looking at New Mexico," in *Landscape in Sight: Looking at America*, ed. Helen Lefkowitz Horowitz (New Haven: Yale University Press, 1997), 65.

⁸ Amy C. Earls, "Historic Land Use in the Rowe Area," 1980, report on file, PNHP, 15-17.

⁹ Head and Orcutt, *From Folsom to Fogelson*, 2: 403.

¹⁰ Bandelier, *Historical Introduction*, 40.

¹¹ U.S. Department of Agriculture Forest Service, "Santa Fe National Forest, Pecos/Jemez Division, Temporary Base Map," 1915, in "Pecos River Forest Reserve Maps," Drawer 10, Folder 49, New Mexico State Archives, Santa Fe, NM (hereafter, NMSA).

¹² Head and Orcutt, *From Folsom to Fogelson*, 2:400-405.

¹³ David "A" Gillio, "Santa Fe National Forest Area: An Historical Perspective for Management," Cultural Resources Report No. 30 (Albuquerque: U.S. Department of Agriculture Forest Service Southwestern Region, 1979), 25-26.

¹⁴ Bezy and Sanchez, *Pecos: Gateway to Pueblos and Plains*, 114.

¹⁵ Hall, *Four Leagues of Pecos*, 176, 188-89.

¹⁶ Bandelier, *Historical Introduction*, 100-101.

¹⁷ Hall, *The Four Leagues of Pecos*, 146.

¹⁸ "Economic Features Part of Central New Mexico, Atlas Sheet No. 77 (B); Issued May 7th 1877; Weyss, Herman & Lang Del. Expeditions of 1871 & 1876 Under the Command of 1st. Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army. U.S. Geographical Surveys West Of The 100th Meridian," available at <http://www.davidrumsey.com/directory/where/New+Mexico/> (accessed September 16, 2009).

¹⁹ Scurlock, "From the Rio to the Sierra," 128-129.

²⁰ The remains of the bridge that are visible today do not represent the earliest construction. The current bridge may have been constructed by the Civilian Conservation Corps during the 1930s or it may have been installed earlier, in the period from 1913 to 1929. Highway department employees remembered working on the bridge around 1944. Head and Orcutt, *From Folsom to Fogelson* 2: 417; Authors' interviews with former ranch employees, June 12, 2009; Handwritten notes presumably from the 1960s when E.E. Fogelson's lawyer, John S. Catron, was investigating the possibility of getting the state to close the Colonias road, in Folder 22, Box 1, PECO 380, PNHP. Head and Orcutt include a detailed overview of the remains of historic roads in the Pecos vicinity.

²¹ U.S. Forest Service, "Santa Fe National Forest, Pecos/Jemez Division, Temporary Base Map" 1915.

²² Jill Cowley, Maureen Joseph, and Diane Rhodes, "Cultural Landscape Overview: Pecos National Historical Park, New Mexico," 1998, report on file, PNHP, "Railroad and Tourism" map supplement.

²³ A map from the 1877 Wheeler survey shows that earlier the road went in a more northwesterly direction, splitting off from the Santa Fe Trail at Kozlowski's, continuing up to Pecos, and then heading east to Colonias. The later road, though, went directly north from Rowe to Pecos, bypassing Kozlowski's, to what was now the center of the town of Pecos before following the old route east Wheeler, "Economic Features Part of Central New Mexico, Atlas Sheet No. 77 (B); Issued May 7th 1877."

²⁴ In the 1920s a formal highway took the place of the trail when U.S. Route 85 was constructed. The route may have been built in 1924—it appears on road maps by 1930. Route 85 generally paralleled the Santa Fe Trail in the Pecos area. Route 66 merged with Route 85 around Bernal, NM and split off from Route 85 again past Santa Fe around Los Lunas, NM. By 1941, Route 85 was known as Route 84/85. "New Mexico State Highway System," 1912; "Sketch Map Showing El Camino Real and State Highways," 1900; "Map Showing Condition of State Roads," 1920, State Highway Commission; "Road Map of New Mexico," 1930, State Highway Commission;

“Official Road Map of New Mexico, 1941,” State Highway Commission. All available at <http://www.nmshtd.state.nm.us/main.asp?secid=16119> (accessed August 20, 2009).

²⁵ Cronon, *Nature's Metropolis*, 74-81.

²⁶ Hall, *Four Leagues of Pecos*, 179-91.

²⁷ Sarah Deutsch, *No Separate Refuge: Culture, Class, and Gender on an Anglo-Hispanic Frontier in the American Southwest, 1880-1940* (New York: Oxford University Press, 1987), 24-26.

²⁸ Hall, *Four Leagues of Pecos*, 200.

²⁹ The Gross Kelly Company, after obtaining title to the grant in 1898, constructed a spur railroad line extending northwards from the main AT&SF railroad to reach their sawmills and tie cutting operations in the northern portions of the grant. The spur may have been constructed around 1910 and remained in use until the 1940s. The spur appears on a BLM survey map from 1934. Probably the spur began at Decatur, which would have provided switching and unloading services. Vincent K. Jones, “Report on the Pecos Pueblo Grant, New Mexico, 1913, p. 18, in Folder 21, “Real Estate-Land Grants: Pecos Pueblo Grant, 1913,” Francis C. Wilson papers, NMSA; Cowley, Joseph, and Rhodes, “Cultural Landscape Overview,” “Railroad and Tourism” map supplement; “Supplemental Plat, Private Claims within the Pecos Pueblo Grant Sections 1,5, and 6,” Approved 2/23/1934, Township 15 N, Range 11 and 12 E, available at <http://www.glorerecords.blm.gov/SurveySearch/Results.asp?QryId=48444.87> (accessed August 20, 2009).

³⁰ Hall, *Four Leagues of Pecos*, 193-196, 209-213.

³¹ *Ibid.*, 202-207.

³² *Ibid.*, 216-17, 264.

³³ Head and Orcutt, *From Folsom to Fogelson*, 2: 389-397; Jones, “Report on the Pecos Pueblo Grant” 4.

³⁴ Bandelier, *Historical Introduction*, 113-114.

³⁵ deBuys, *Enchantment and Exploitation*, 219-222, 247; Burtch, “The Physical Geography of Pecos National Monument,” 66.

³⁶ Hall, *Four Leagues of Pecos*, 144, 177.

³⁷ Young, “History of Ranching and Trading,” 6-7, 34-37; Peggy A. Gerow, “Cultural Resources Inventory of Pigeon’s Ranch Subunit, Pecos National Historical Park, Santa Fe County, New Mexico,” 2010, report on file, PNHP, 103.

³⁸ See for example, “Glorieta Battlefield, Glorieta, NM, June 1880,” photo by Ben Wittick, original negative at Museum of New Mexico (hereafter, MNM), negative no. 15788, copy on file at PNHP; also “Pigeon’s Ranch, Glorieta, NM, 1880,” photo by Ben Wittick, original negative at MNM, negative no. 015781, copy on file at PNHP.

³⁹ “Field Notes of the Official Survey of Lands Subject to Taxation of Precinct No. 13.---(Glorieta), Santa Fe County, New Mexico, as surveyed by John L. Zimmerman, esq., County Surveyor,” 1901, 1973-002, Santa Fe County Records, Series 9—County Surveyor, Subseries 9.1.1 Survey Notes, Box 22, Folder 22/13: Precinct 13, Glorieta, 1901, NMSA.

⁴⁰ Simmons and Jackson, *Following the Santa Fe Trail*, 215.

⁴¹ Spude, “Pigeon’s Ranch Historic Structure Report,” 9-10; “Old Stagecoach Relay Station on the Santa Fe Trail near Santa Fe, NM,” original negative at MNM, negative no. 47936, copy on file at PNHP; “Canyoncito, NM, 1914,” photo by Waldo Twitchell, original negative at MNM, negative no. 8834, copy on file at PNHP.

⁴² National Register of Historic Places Inventory-Nomination, “Nuestra Señora de Luz Church and Cemetery, Cañoncito, NM,” 1995, p. 5.

⁴³ “Canyoncito, NM, 1914,” photo by Waldo Twitchell, original negative at MNM, negative no. 8834, copy on file at PNHP.

⁴⁴ Young, “History of Ranching and Trading,” 8.

⁴⁵ Head and Orcutt, *From Folsom to Fogelson* 2:404; Hall, *Four Leagues of Pecos*, 124.

⁴⁶ Jones, “Report on the Pecos Pueblo Grant” 14; Vincent K. Jones, “Plat Showing the Cultivated Land of Tomas Koslosky within the Pecos Grant,” 1913, in Folder 67, Drawer 12, Maps: Pueblo Land Grants, NMSA; Young, “History of Ranching and Trading,” 8; Head and Orcutt, *From Folsom to Fogelson* 2: 402.

⁴⁷ Head and Orcutt, *From Folsom to Fogelson* 2:404-406.

⁴⁸ “Pecos River Farmers to Place Head Lettuce on Market in Next Week,” *Las Vegas Daily Optic*, June 27, 1925; “Pecos River Farmers to market High Grade Crop of Lettuce First Time,” *Las Vegas Daily Optic*, July 7, 1925.

⁴⁹ Deutsch, *No Separate Refuge*, 13-40, 124.

⁵⁰ Carol Raish and Alice M. McSweeney, “Economic, Social, and Cultural Aspects of Livestock Ranching on the Española and Canjilon Ranger Districts of the Santa Fe and Carson National Forests: A Pilot Study,” General

- Technical Report RMRS-GTR-113 (Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station, 2003); Deutsch, *No Separate Refuge*, 51-52.
- ⁵¹ Courtney White and Earl Porter, “The Catanach Mill: A Grist Mill in the Upper Pecos Valley,” 1996, report on file, PNHP, 2-1 through 2-2.
- ⁵² White and Porter, “The Catanach Mill,” 2-3 through 2-4.
- ⁵³ *Ibid.*, 1-1 through 1-5.
- ⁵⁴ Quoted in White and Porter, “The Catanach Mill,” 2-4.
- ⁵⁵ White and Porter, “The Catanach Mill,” 2-4 through 2-6.
- ⁵⁶ Jones, “Report on the Pecos Pueblo Grant,” 11.
- ⁵⁷ White and Porter, “The Catanach Mill,” 2-4; Jones “Report on the Pecos Pueblo Grant.”
- ⁵⁸ Cowley, Joseph, and Rhodes, “Cultural Landscape Overview,” 31, 35.
- ⁵⁹ Bandelier, *Historical Introduction*, 101.
- ⁶⁰ Copy of photo printed in deBuys, *Enchantment and Exploitation*, 90.
- ⁶¹ Cowley, Joseph, and Rhodes, “Cultural Landscape Overview,” 39.
- ⁶² deBuys, *Enchantment and Exploitation*, 221-222, 233.
- ⁶³ E.O. Wootton and Paul C. Standley, *Flora of New Mexico*, vol. 19, *Contributions from the United States National Herbarium* (Washington D.C.: Government Printing Office, 1915), 427, 199-200, 100, 577. See Appendix C for a more thorough overview of non-native and invasive species at Pecos.
- ⁶⁴ Bandelier, *Historical Introduction*, 41.
- ⁶⁵ “Glorieta Creek from Pecos Pueblo, Looking Northwest,” 1915, Lothrop photo, original in MNM, negative no. 12330e, copy in Cowley, Joseph, and Rhodes, “Cultural Landscape Overview,” 61; “Glorieta Creek Floodplain, Looking West Toward Glorieta Mesa,” 1915, Lothrop photo, original in MNM, negative no. 12325, copy in Cowley, Joseph, and Rhodes, “Cultural Landscape Overview,” 61.
- ⁶⁶ Kidder, *Pecos, New Mexico*, 3.
- ⁶⁷ *Ibid.*, 131.
- ⁶⁸ Head and Orcutt, *From Folsom to Fogelson*, 1:13.
- ⁶⁹ Bandelier, *Historical Introduction*, 88-89.
- ⁷⁰ Kidder, *Pecos, New Mexico*, 118.
- ⁷¹ deBuys, *Enchantment and Exploitation*, 216.
- ⁷² *Ibid.*
- ⁷³ Rose, Dean, and Robinson, *The Past Climate of Arroyo Hondo*, 94.
- ⁷⁴ Ronald U. Cooke and Richard W. Reeves, *Arroyos and Environmental Change in the American South-West* (Oxford: Clarendon Press, 1976), 1.
- ⁷⁵ Cooke and Reeves, *Arroyos and Environmental Change*, 1-20.
- ⁷⁶ *Ibid.*
- ⁷⁷ Milton W. Callon, *Las Vegas: The Town that Wouldn't Gamble* (Las Vegas, NM: Las Vegas Publishing Co., Inc., 1962), 250; NPS, “Water Resource Management Plan,” 8.
- ⁷⁸ deBuys, *Enchantment and Exploitation*, 280.
- ⁷⁹ White, “*It's Your Misfortune and None of My Own*,” 406-409; see Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge: Harvard University Press, 1959) for an overview of the movement; Karl Jacoby, in *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley and Los Angeles: University of California Press, 2001), provides an insightful overview of how the conservation movement often deprived local residents, particularly Native Americans, of their lands and livelihoods—similar to what occurred in New Mexico as communal lands passed to government ownership.
- ⁸⁰ Harold K. Steen, *The U.S. Forest Service: A History*, Centennial Edition (Durham, NC: Forest History Society, 2004), 26.
- ⁸¹ Gillio, “Santa Fe National Forest Area,” 26.
- ⁸² Quoted in Steen, *The U.S. Forest Service*, 36.
- ⁸³ Gillio, “Santa Fe National Forest Area,” 26-29; Steen, *The U.S. Forest Service*, 71-75; Robert D. Baker et al., *Timeless Heritage: A History of the Forest Service in the Southwest* (N.p.: USDA Forest Service, 1988), 28.
- ⁸⁴ Hays, *Conservation and the Gospel of Efficiency*, 2-4; Steen, *The U.S. Forest Service*, 3-20, 47-68, 78-81.
- ⁸⁵ Jon T. Coleman, in *Vicious: Wolves and Men in America* (New Haven: Yale University Press, 2004), discusses the history of extermination campaigns against wolves. The USDA Biological Survey undertook many of the predator control activities in the twentieth century but Forest Service rangers and local hunters and ranchers

followed many of the same practices and held the same beliefs. Stephen Pyne, in *Year of the Fires: The Story of the Great Fires of 1910* (New York: Penguin Books, 2001), argues that the agency's policies of fire suppression originated as a way to justify their existence and thus became an unquestioned tenet of the agency.

⁸⁶ deBuys, *Enchantment and Exploitation*, 219-222; Burtchin, "The Physical Geography of Pecos National Monument," 66.

⁸⁷ Gillio, "Santa Fe National Forest Area," 29.

⁸⁸ deBuys, *Enchantment and Exploitation*, 210.

⁸⁹ Elliott S. Barker, *Beatty's Cabin: Adventures in the Pecos High Country* (Santa Fe: W. Gannon, 1977), 45-46.

⁹⁰ U.S. Forest Service, "Springs Allotment, Pecos District," in Folder 2210: Range Management Planning, Folder 515: Springs Allotment Pecos District, at USDA Forest Service, Forest Supervisor's Office archives, Santa Fe, NM, hereafter FSO. The majority of the surviving data on these allotments, consisting of planning and analysis reports, begins in the late 1940s, although some references are made to earlier conditions.

⁹¹ William D. Rowley, *U.S. Forest Service Grazing and Rangelands: A History* (College Station: Texas A&M University Press, 1985), 60-75.

⁹² Baker, et. al, *Timeless Heritage*, 50.

⁹³ "Elk Herd Found in Good Shape at Valley Ranch," *Las Vegas Optic*, April 23, 1915.

⁹⁴ John W. Johnson, *Reminiscences of a Forest Ranger, 1914-1944* (Dayton: Brown and Kroger Publishing Co., 1976), 43.

⁹⁵ deBuys, *Enchantment and Exploitation*, 280.

⁹⁶ "More Fish, More Fun," in *New Mexico Wildlife*, New Mexico Department of Fish and Game Newsletter, vol. 54, no. 2, summer 2009, available at: <http://www.wildlife.state.nm.us> (accessed October 19, 2009).

⁹⁷ Barker, *Beatty's Cabin*, 18.

⁹⁸ Baisan and Swetnam, "Interactions of Fire Regimes," 14.

⁹⁹ Adolf F. Bandelier, *The Delight Makers* (New York: Dodd, Mead and Company, 1890); John Urry, *The Tourist Gaze: Leisure and Travel in Contemporary Societies* (London and Newbury Park: Sage Publications, 1990).

¹⁰⁰ Magoffin, *Down the Santa Fe Trail*, 99-100.

¹⁰¹ Victoria E. Dye, *All Aboard for Santa Fe: Railway Promotion of the Southwest, 1890s to 1930s* (Albuquerque: University of New Mexico Press, 2005), quote on page 27.

¹⁰² Sylvia Rodriguez, "Tourism, Difference, and Power in the Borderlands," in *The Culture of Tourism, the Tourism of Culture: Selling the Past to the Present in the American Southwest*, ed. Hal K. Rothman (Albuquerque: University of New Mexico Press, 2003), 185-188.

¹⁰³ *Ibid.*, 194.

¹⁰⁴ Head and Orcutt, *From Folsom to Fogelson* 1:21-27; Richard B. Woodbury, "From Chaos to Order: A. V. Kidder at Pecos," in *Pecos Ruins: Geology, Archaeology, History, and Prehistory*, ed. David Grant Noble (Santa Fe: Ancient City Press, 1993 and 1981), 15.

¹⁰⁵ Dye, *All Aboard for Santa Fe*, 44-53.

Chapter Seven

¹ "Tex Austin and His Pecos Ranch" photocopy in PNHP; "Annual Chicago Rodeo Expected to Go Over Big," *Las Vegas Daily Optic*, June 2, 1927.

² Climax was a tobacco brand and Panatella a cigar brand.

³ "Clem Yore Writes of Early Life of Austin in Entertaining Way," *Las Vegas Daily Optic*, October 24, 1927;

"Good Time Had by All During Austin Dinner," *Las Vegas Daily Optic*, October 22, 1927; "Tex Austin Day to be Asked in Paper Presented Council," *Las Vegas Daily Optic*, September 22, 1927; Victoria Carlyle Weiland, *100 Years of Rodeo Stock Contracting* (Reno, NV: The Professional Rodeo Stock Contractors Association, 1997), 26.

⁴ "Clem Yore Writes of Early Life of Austin in Entertaining Way;" Weiland, *100 Years of Rodeo Stock Contracting*, 26. Another reference to Tex Austin riding with Pancho Villa occurs in a biographical sketch written for the program of the rodeo held in London in 1924—again, a context where myth was far more important than fact. "First International Rodeo or Cowboy Championships," 1924, located in Austin, Tex, Rodeo Honoree Vertical Files, Dickinson Research Center, National Cowboy & Western Heritage Museum, Oklahoma City, OK (hereafter, DRC).

⁵ Lizabeth Cohen, *A Consumer's Republic: The Politics of Mass Consumption in Postwar America* (New York: Knopf, 2003); Foner, *The Story of American Freedom*, 146-147; Paul S. Sutter, *Driven Wild: How the Fight Against Automobiles Launched the Modern Wilderness Movement* (Seattle: University of Washington Press, 2002), 19-27.

⁶ Sutter, *Driven Wild*, 19-27; Lawrence M. Lipin, in *Workers and the Wild: Conservation, Consumerism, and Labor in Oregon, 1910-30* (Urbana and Chicago: University of Illinois Press, 2007), provides a specific case study of how

automobiles altered workers' experience of the environment; Peter J. Schmitt, in *Back to Nature: The Arcadian Myth in Urban America* (New York: Oxford University Press, 1969), discusses the development of the outdoor recreation movement.

⁷ Sutter, *Driven Wild*, 27-30.

⁸ "Tex Austin's Forked Lightning Ranch," DRC.

⁹ Louis S. Warren, *Buffalo Bill's America: William Cody and the Wild West Show* (New York: Alfred A. Knopf, 2005), 425. Warren discusses people's fascination with the frontier, in particular as it related to spectacles like rodeos or the Wild West Show.

¹⁰ Young, "Ranching History," 10-11.

¹¹ "Austin Buys a 6,000 Acre Tract of Land within Pecos Grant," *Las Vegas Optic*, September 15, 1925.

¹² Head and Orcutt, *From Folsom to Fogelson 2*:389, 393-395.

¹³ "Supplemental Plat, Private Claims within the Pecos Pueblo Grant Sections 2-11, 14-17, and 20-23," Approved 2/23/1934, Township 15 N, Range 12 E; "Supplemental Plat, Private Claims within the Pecos Pueblo Grant Sections 1-2, 6-8, 11-14, and 17-24," Approved 2/23/1934, Township 15 N, Range 12 E, both available at <http://www.glorerecords.blm.gov/SurveySearch/Results.asp?QryId=38970.6> (accessed October 2, 2009).

¹⁴ James Ivey, "A History of the Establishment of Pecos National Monument," 1987, report on file, PNHP, 5.

¹⁵ Some historical and archaeological reports state that the site of the ranch house had also accommodated a Hispanic settlement as early as the 1860s. The authors of the Cultural Resources Inventory called this a "rumor." Their investigation only found artifacts associated with the Tex Austin period at the ranch house but noted that they did not do any extensive digging, so it is possible that the site was occupied by Hispanic settlers at some point.

Sloan, "Historic Structures Report," 28; Head and Orcutt, *From Folsom to Fogelson 2*: 383.

¹⁶ Sloan, "Historic Structures Report," 11-22; Chris Wilson, *The Myth of Santa Fe: Creating a Modern Regional Tradition* (Albuquerque: University of New Mexico Press, 1997); David Kammer, "Buildings Designed by John Gaw Meem, 1925-1959," available at <http://www.newmexicohistory.org/filedetails.php?fileID=9972> (accessed September 14, 2010).

¹⁷ White and Porter, "The Catanach Mill," 1-2 to 1-3.

¹⁸ "It's Always Cool at the Forked Lightning Ranch," Folder 1, Box 39, Real Estate Case Files, Tex Austin's Ranch, The Forked Lightning, 1933-37, Francis C. Wilson papers 1981-017, NMSA.

¹⁹ "Tex Austin and His Pecos Ranch" photocopy in "Tex Austin's Forked Lightning Ranch" folder, PNHP.

²⁰ "It's Always Cool at the Forked Lightning Ranch."

²¹ "Eatments and Libations... at Tex Austin's," photocopy in "Tex Austin's Forked Lightning Ranch" folder, PNHP.

²² "Tex Austin and His Pecos Ranch."

²³ "It's Always Cool at the Forked Lightning Ranch"; "Tex Austin's Forked Lightning Ranch."

²⁴ "Tex Austin's Forked Lightning Ranch."

²⁵ Young, "Ranching History," 48; "Tex Austin and His Pecos Ranch."

²⁶ "Tex Austin and His Pecos Ranch"; "Tex Austin's Forked Lightning Ranch."

²⁷ Letter, From: The Reconstruction Finance Corporation, To: Mr. Gregson, Examiner, Re: Central Republic Trust Company, Chicago, IL (closed), Tex Austin Ranch, October 1, 1935, p. 3, PECO unprocessed, Francis Wilson papers, PNHP.

²⁸ "Tex Austin's Forked Lightning Ranch." A letter written in 1935, during the bankruptcy proceedings for Tex Austin's ranch, stated that a flood that summer had destroyed the bridge over Glorieta Creek that went to the ranch house. The letter continued to say that the creek was "dry for practically the entire year," and thus the arroyo was "always passable." Around 1937 a new road to the ranch house was built that struck directly east from the main road as opposed to circling around Kozlowski's Trading Post. Letter, From: The Reconstruction Finance Corporation, To: Mr. Grover Conway, State Highway Engineer, March 16, 1937, PECO unprocessed, Francis Wilson papers, PNHP; Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," Railroad/Tourism map; Letter, From: The Reconstruction Finance Corporation, To: Mr. Grover Conway, State Highway Engineer, March 16, 1937, PECO unprocessed, Francis Wilson papers, PNHP.

²⁹ Barker, *Beatty's Cabin*, 91-93.

³⁰ Photos in Kidder, *Pecos, New Mexico*, 11-12, 57, 150, 205, 337.

³¹ In 1937 Route 66 was realigned to pass directly from Santa Rosa to Albuquerque and no longer went through Pecos. Young, "History of Ranching," 9, 38-39; Bill Greer, interview by Andrew Young, January 12 and 13, 1998, transcript, Folder 17, Box 2, PECO 380, PNHP; Spude, "Pigeon's Ranch Historic Structures Report," 12-13; Jerry McClanahan, "The Lost Highway," *Route 66 Magazine* (Winter 1994/1995): 25-30; Peter B. Dedek, *Hip to the Trip: A Cultural History of Route 66* (Albuquerque: University of New Mexico Press, 2007).

³² Another business serving tourists in the Pigeon's Ranch area was the Arrowhead Lodge, built in the 1930s by an unknown entrepreneur. Serving the tourists who came to the valley to hunt, fish, and visit the area attractions, the complex consisted of a main lodge and seven cabins. In the 1960s it became a Methodist camp but by the early 1970s was a private residence. Young, "History of Ranching," 9, 38-39; Bill Greer, interview by Andrew Young; "Pigeon's Ranch, Glorieta, NM, ca. 1925," copy of photo in PNHP, original negative at MNM, negative #51739; "Glorieta, NM, ca. 1935," photo by T. Harmon Parkhurst, copy of photo in PNHP, original negative at MNM, negative #9690; "Pigeon's Ranch, Glorieta, NM, ca. 1935," photo by T. Harmon Parkhurst, copy of photo in PNHP, original negative at MNM, negative #9689; Gerow, "Cultural Resources Inventory of Pigeon's Ranch Subunit," 103,106; Spude, "Pigeon's Ranch Historic Structures Report,"13.

³³ Hall, *Four Leagues of Pecos*, 256.

³⁴ See Hall, *Four Leagues of Pecos*, 221-278 for a complete discussion of the 1924 Pueblo Lands Act as it pertained to Pecos; Levine, *Our Prayers Are in this Place*, 124-125.

³⁵ Hall, *Four Leagues of Pecos*, 221-278.

³⁶ *Ibid.*, 267.

³⁷ *Ibid.*, 221-278.

³⁸ *Ibid.*, 221-278.

³⁹ Letter from Cotton, Cotton Exchange Building, Oklahoma City to Francis C. Wilson, March 8, 1936, Folder 2, Box 39, Real Estate Case Files, Tex Austin's Ranch—The Forked Lightning, 1933-1937, Francis C. Wilson papers 1981-017, NMSA.

⁴⁰ "First International Rodeo or Cowboy Championships."

⁴¹ "Tex Austin and His Pecos Ranch."

⁴² Johnson, *Reminiscences of a Forest Ranger*, 29.

⁴³ "Allotment Analysis: Ortiz Spring Allotment: Reanalysis, 1966," Folder 2210 Range Management Planning, Folder 510, Springs Allotment, Pecos Ranger District, FSO.

⁴⁴ "Springs Allotment Management Plan, 1973," Folder 2210 Range Management Planning, Folder 515 Springs Allotment, Pecos Ranger District, Santa Fe National Forest office, Santa Fe, NM; Handwritten notes of range inspection by F.N. Newnkam, 1947, Folder 2210 Range Management Planning, Glorieta and Apache Canyon Allotments, Forest Service Pecos District Office, Pecos, NM (hereafter, FSPD).

⁴⁵ "Narrative report of recommendations to close to all grazing the Apache Canyon allotment, Tesuque Ranger District, Santa Fe National Forest," Folder 2210 Range Management Planning, Glorieta and Apache Canyon Allotments, FSPD.

⁴⁶ Rowley, *U.S. Forest Service Grazing and Rangelands*, 92.

⁴⁷ Johnson, *Reminiscences of a Forest Ranger*, 42-57.

⁴⁸ Burtchin, "Physical Geography of Pecos National Monument," 66.

⁴⁹ "Men Face Double Counts as Result of Taking Sheep," *Las Vegas Optic*, July 22, 1927.

⁵⁰ "In the Matter of the Unlawful Detention of John Condon, 1926," in Folder 177, Box 5, John Noble Papers 1973-044, NMSA.

⁵¹ Johnson, *Reminiscences of a Forest Ranger*, 39-41, 76-77.

⁵² Romme, et al., "Historical and Modern Disturbance Regimes, Stand Structures, and Landscape Dynamics in Piñon-Juniper Vegetation of the Western U.S.," 1-2, 19. For a selection of other studies of piñon juniper woodlands and various opinions on the issue of encroachment see Stephen T. Gray, et al., "Role of Multidecadal Climate Variability in a Range Extension of Pinyon Pine," *Ecology* 87, no. 5 (2006):1124-1130; M. R. Schott and R. D. Pieper, "Succession of Pinyon-Juniper Communities after Mechanical Disturbance in Southcentral New Mexico," *Journal of Range Management* 40, no. 1 (Jan. 1987): 88-94; B. F. Jacobs, W. H. Romme, and C. D. Allen, "Mapping 'Old' vs. 'Young' Piñon-Juniper Stands with a Predictive Topo-Climatic Model," *Ecological Applications* 18, no. 7 (2008): 1627-1641; Brian K. Hastings, Freeman M. Smith, and Brian F. Jacobs, "Rapidly Eroding Piñon-Juniper Woodlands in New Mexico: Response to Slash Treatment," *Journal of Environmental Quality* 32 (2003): 1290-1298; A. Thomas Harris, Gregory P. Asner, Mark E. Miller, "Changes in Vegetation Structure after Long-Term Grazing in Pinyon-juniper Ecosystems: Integrating Imaging Spectroscopy and Field Studies," *Ecosystems* 6, no. 4 (June 2003): 368-383; Dale G. Brockway, Richard G. Gatewood, and Randi B. Paris, "Restoring Grassland Savannas from Degraded Pinyon-juniper Woodlands: Effects of Mechanical Overstory Reduction and Slash Treatment alternatives," *Journal of Environmental Management* 64 (2002): 179-197.

⁵³ "Aerial View Dick's Ruin, NM, 1929," photo by Charles Lindbergh, original on file at MNM, negative no. 130332, copy on file PNHP; "Aerial View Pecos Ruin, Pecos, NM, 1929," photo by Lindbergh, original on file at MNM, negative no. 130352, copy on file PNHP; "Aerial View Pecos Ruin, Pecos, NM, 1929," photo by Lindbergh,

original on file at MNM, negative no. 130368, copy on file PNHP; “Aerial View Forked Lightning Ruin near Pecos, NM, 1929,” photo by Lindbergh, original on file at MNM, negative no. 130324, copy on file PNHP; “Aerial View Pecos Ruin, Pecos NM, 1929,” photo by Lindbergh, original on file at MNM, negative no. 130325, copy on file PNHP.

⁵⁴ “Wounds are Fatal to Forest Ranger,” *Las Vegas Daily Optic*, March 21, 1927.

⁵⁵ Head and Orcutt, *From Folsom to Fogelson* 2:382.

⁵⁶ Information on the Tererro Mine is drawn from Virginia T. McLemore, “Pecos Mine and Alamitos Canyon Mill,” 1995, p. 1-2, Folder 2, Box 1, PECO 384, PNHP; Wes Darden, “Boom Camp of the Thirties,” *New Mexico*, January 1967, photocopy in PNHP; Alice Bullock (?), “A Virtual Depression Goldmine,” source unknown, October 17, 1976, photocopy of article in PNHP.

⁵⁷ “Much Timber Used by Metal Company Forester Reports,” *Las Vegas Optic*, August 31, 1927.

⁵⁸ Darden, “Boom Camp of the Thirties,” 28.

⁵⁹ *Ibid.*

⁶⁰ Bullock, “A Virtual Depression Goldmine,” 16.

⁶¹ Darden, “Boom Camp of the Thirties,” 28.

⁶² Barker, *Beatty’s Cabin*, 94-97.

⁶³ *Ibid.*, 207.

⁶⁴ Letter from D. J. Leahy, Lawyer to Francis C. Wilson, Attorney at Law, May 11, 1933, Folder 44, Box 12, Corporations, Tex Austin’s Forked Lightning Ranch, Francis C. Wilson papers 1981-017, NMSA.

⁶⁵ Sloan, “Historic Structures Report,” 12.

⁶⁶ Deutsch, *No Separate Refuge*, 162-164.

⁶⁷ Aspectos Culturales, *Pecos, Mi Pecos*, 62-68.

⁶⁸ Deutsch, *No Separate Refuge*, 162-164.

⁶⁹ *Ibid.*, 167.

⁷⁰ Johnson, *Reminiscences of a Forest Ranger*, 68.

⁷¹ John R. Van Ness, foreword to *The Preservation of the Village: New Mexico’s Hispanics and the New Deal*, by Suzanne Forrest (Albuquerque: University of New Mexico, 1989), vii.

⁷² Deutsch, *No Separate Refuge*, 174-199.

⁷³ Johnson, *Reminiscences of a Forest Ranger*, 77, 85. The camp was designated New Mexico F-53-N, Company 2868. We found a reference to an archaeological report completed in 1993 that may contain information about the CCC camp but have not been able to locate a copy of the report. The full reference is: Michael L. Elliott, “Archeological Investigations near Glorieta, New Mexico: The Glorieta Tract Land Exchange,” archaeological report 88-7 (Albuquerque: Jemez Mountains Research Center, 1993); Cowley, Joseph, Rhodes, “Cultural Landscape Overview,” Railroad/Tourism map, marks the location of the CCC camp, but it is not clear what source the authors are basing their information on.

⁷⁴ Letter from Francis C. Wilson to Messrs. Fisher, Boyden, Bell, Boyd and Marshall, August 1, 1934, Folder 1, Box 39, Real Estate Case Files, Tex Austin’s Ranch—The Forked Lightning, 1933-1937, Francis C. Wilson papers 1981-017, NMSA.

⁷⁵ Letter from Cotton, Cotton Exchange Building, Oklahoma City to Francis C. Wilson, March 8, 1936, Folder 2, Box 39, Real Estate Case Files, Tex Austin’s Ranch—The Forked Lightning, 1933-1937, Francis C. Wilson papers 1981-017, NMSA.

⁷⁶ Young, “Ranching History,” 48.

⁷⁷ *Ibid.*, 49.

⁷⁸ Johnson, *Reminiscences of a Forest Ranger*, 41, 66.

⁷⁹ Young, “Ranching History,” 49.

Chapter Eight

¹ Linkletter is quoted in Michael Troyan, *A Rose for Mrs. Miniver: The Life of Greer Garson* (Lexington: University of Kentucky Press, 1999), 281. Troyan also provides a description of how the Fogelsons entertained at the ranch, which is summarized and embellished here.

² *Ibid.*, 209-212.

³ Jerry Dorbin “History and Archaeology of the Forked Lightning Ranch,” 1991, report on file, Folder 22, Box 1, PECO 380, PNHP.

⁴ Young, “History of Ranching and Trading,” 12-14.

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- ⁵ National Resources Planning Board, "The Pecos River Joint Investigation: Reports of the Participating Agencies" (Washington, D.C.: U.S. GPO, 1942), 248-249.
- ⁶ National Resources Planning Board, "Pecos River Joint Investigation," 248-249; Troyan, *A Rose for Mrs. Miniver*, 213.
- ⁷ Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," 71.
- ⁸ National Resources Planning Board, "Pecos River Joint Investigation," 248-249.
- ⁹ Kenneth Ray Weber, "A New Mexico Village and the Metropolis: A Study of the Economy and Social Organization of a Rural Satellite" (Ph.D. diss., University of Oregon, 1972), 32-35.
- ¹⁰ Robert Kern, *Labor in New Mexico: Unions, Strikes, and Social History since 1881* (Albuquerque: University of New Mexico Press, 1983), 298-299; 1960 Census Preliminary Reports: Population Count for States, August 1960, available at <http://www.census.gov/prod/www/abs/decennial/1960.html> (accessed April 20, 2010).
- ¹¹ Troyan, *A Rose for Mrs. Miniver*, 13; Authors' interviews with former ranch employees, June 12, 2009.
- ¹² Troyan, *A Rose for Mrs. Miniver*, 226.
- ¹³ *Ibid.*, 236, 243; Young, "History of Ranching and Trading," 16.
- ¹⁴ Troyan, *A Rose for Mrs. Miniver*, 225.
- ¹⁵ Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," 71; Forked Lightning Ranch notes, Folder 10, Box 1, PECO 313, PNHP.
- ¹⁶ Dorbin, "History and Archaeology of the Forked Lightning Ranch," n.p.; Authors' interviews with former ranch employees, June 12, 2009; Sloan, "Historic Structures Report," 24.
- ¹⁷ NPS, "Water Resources Management Plan, "1995, 24; Sloan, "Historic Structures Report," 38-39.
- ¹⁸ Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," 71.
- ¹⁹ Head and Orcutt, *From Folsom to Fogelson*, 1:12.
- ²⁰ Authors' interviews with former ranch employees, June 12, 2009.
- ²¹ Meszaros, "Vegetation and Land Use," 14-15, 55; 1954 Land Use Map, Folder 22, Box 1, PECO 380, PNHP; Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," Austin Period map; Head and Orcutt, *From Folsom to Fogelson*, 2:389 and figure 10.6.
- ²² Troyan, *A Rose for Mrs. Miniver*, 259-260; Young, "History of Ranching and Trading," 16; "Purebred Santa Gertrudis Herd Established on Forked Lightning Ranch at Pecos, N.M." in *The New Mexico Stockman*, September 1959, 40.
- ²³ "The History of Cherokee Ranch and Castle," <http://www.cherokeeranch.org/history.htm> (accessed February 7, 2010); Authors' interviews with former ranch employees, June 12, 2009.
- ²⁴ Scurlock, "From the Rio to the Sierra," 77-80; Boaz Long, "Pecos Monument . . . Well Water," August 21, 1950, Folder 1950, Box 2, PECO 464, PNHP.
- ²⁵ Scurlock, "From the Rio to the Sierra," 265.
- ²⁶ Thomas W. Swetnam and Julio L. Betancourt, "Mesoscale Disturbance and Ecological Response to Decadal Climatic Variability in the American Southwest," *Journal of Climate*, 11, no. 21 (Dec. 1998), 3128-3147.
- ²⁷ Aldo Leopold, "Review of H.M. Bell and E.J. Duksterhuis, 'Fighting the Mesquite and Cedar Invasion on Texas Ranges,'" *Journal of Forestry* 42, no. 1 (January 1946):63.
- ²⁸ Robert E. Williams, "Modern Methods of Getting Uniform Use of Ranges," *Journal of Rangeland Management*, 1954, 77-81.
- ²⁹ Head and Orcutt, *From Folsom to Fogelson*, 1:101; National Park Service, "Final Environmental Statement: Proposed Master Plan and Development Concept Plan, Pecos National Monument," 1975, report on file, PNHP, 17.
- ³⁰ Authors' interviews with former ranch employees, June 12, 2009; "Range Management Before and After Brush Control (Part V)," Range Technical Note No. 21, USDA Soil Conservation Service New Mexico, February 28, 1967, available on www.nm.nrcs.usda.gov, (accessed April 15, 2010); Richard S. Aro, "Evaluation of Pinyon-Juniper Conversion to Grassland," *Journal of Range Management*, 1971, 188-197.
- ³¹ Head and Orcutt, *From Folsom to Fogelson*, 1:103-104, figure 5.3.
- ³² Burtchin, "The Physical Geography of Pecos National Monument," 80, 94-96.
- ³³ Scurlock, "From the Rio to the Sierra," 273; Authors' interviews with former ranch employees, June 12, 2009; Aro, "Evaluation of Pinyon-Juniper Conversion," 193.
- ³⁴ Cowley, Joseph, and Rhodes, "Cultural Landscape Overview," 71; M.R. Schott and R.D. Pieper, "Succession of Pinyon-Juniper Communities after Mechanical Disturbance in Southcentral New Mexico," *Journal of Range Management*, 40, no. 1 (January 1987): 88-94.
- ³⁵ Aro, "Evaluation of Pinyon-Juniper Conversion," 193.

- ³⁶ Troyan, *A Rose for Mrs. Miniver*, 237.
- ³⁷ Authors' interviews with former ranch employees, June 12, 2009; Young, "History of Ranching and Trading," 16; Troyan, *A Rose for Mrs. Miniver*, 280; "Purebred Santa Gertrudis Herd Established on Forked Lightning Ranch at Pecos, N.M." in *The New Mexico Stockman*, September 1959, 40.
- ³⁸ For more information about AI, see R. H. Foote, "The History of Artificial Insemination: Selected Notes and Notables," *Journal of Animal Science* 2002. 80:1-10.
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Chapter Nine

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Crossroads of Change: An Environmental History of Pecos National Historical Park



Appendices and Bibliography

Colorado State University

PUBLIC LANDS HISTORY CENTER

By Cori Knudten

With two chapters by Maren Bzdek

Foreword by Dr. Mark Fiege

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Appendix A.

Summary Historical Overviews of Pecos Natural Resource Condition Assessment Reporting Areas¹

Pueblo Unit

Comprising the area immediately around the pueblo and mission ruins, the Pueblo Unit borders Glorieta Creek on the west and includes the meadow on the east side of the mesilla. Constructed in 1425 C.E., Pecos Pueblo served as a habitation site until 1838 when the last Pecos emigrated to Jemez Pueblo. Following Spanish contact in 1540, Pecos became a Franciscan mission. Beginning in the 1600s, four churches were constructed and either destroyed or abandoned on the mesilla. The mission and pueblo ruins became a popular tourist attraction in the late 1800s. In 1935 the ruins were designated a state monument and, in 1965, were designated a national monument under the management of the National Park Service (NPS). The ruins were incorporated into Pecos National Historical Park in 1990.

The Pueblo Unit has experienced intensive human presence and use for centuries, and its environment has always reflected the effects of that use. Density of piñon and juniper around the mesilla before the arrival of humans is uncertain; however, the Pecos probably chose the mesilla as the site for a pueblo in part because the rocky outcrop offered a clear view of the surrounding valley. Following the construction of the pueblo, vegetation around the mesilla diminished rapidly. The Pecos used wood for firewood and construction, and human traffic prevented the growth of herbaceous species. The Apaches participated in an annual trade fair and camped in the meadow east of the mesilla, a short term, but intensive use of the area. Spanish sources suggest that the mesilla was clear of substantial vegetation for approximately one-and-a-half miles around the pueblo.

The Spanish introduced livestock, including sheep, into the Pecos environment. From the early 1600s through the mid-1900s, livestock grazing occurred on the Pueblo Unit. Numbers of livestock waxed and waned. In the 1600s, the Franciscan friars owned fairly large herds. These numbers diminished during the 1700s due to Comanche raids. During the 1600s and 1700s, the Pecos kept livestock close to the pueblo in corrals on the mesilla. Numbers rose once again in the mid-1800s as Pecos was integrated into the American capitalist economy. Grazing continued on the Pueblo Unit until 1967 when the NPS installed a boundary fence around the national monument.

The Pecos planted numerous fields throughout the valley, including some directly west and northwest of their pueblo. The easily irrigated land alongside Glorieta Creek supported agriculture, and the Pecos probably maintained fields there until the 1800s. The Franciscan priests at Pecos cultivated a kitchen garden directly west of their mission. Archeological investigations and accounts of standing water among the ruins suggest that the Pecos engineered a system of water supply and control on the mesilla. Ditches, check dams, grid gardens, and other methods were employed to control the water flowing to their crop fields.

¹ The Natural Resource Condition Assessment (NRCA) for Pecos National Historical Park was conducted during the same time frame as the environmental history. Providing brief historical summaries of the reporting areas used in the NRCA was an idea that arose from discussions we had with the NRCA team. Throughout the process, we tried to address specific questions asked by the NRCA researchers and shared information and sources. See K. Johnson, T. Neville, and R. E. Bennetts, "Natural Resource Condition Assessment for Pecos National Historical Park," Natural Resource Technical Report NPS/SOPN/NRTR-XXXX/XXX (Fort Collins: National Park Service, forthcoming).

Archeological excavations of the ruins, beginning in 1915 and occurring at intervals through the 1960s, disturbed the soil on the mesilla. While the excavations were being conducted, plant growth was inhibited. However, the disturbed soil proved to be a perfect host for weedy species, many of them exotics. *Kochia scoparia*, Mexican fireweed, became a particularly troublesome weed on the ruins. Both state and Park Service land managers have undertaken numerous weed-control programs on the ruins. In 1969 the Park Service initiated a grassland restoration project in the meadow east of the mesilla.

Pecos River Corridor

The Pecos River descends from its headwaters in the Sangre de Cristo Mountains, rushes through a steep canyon, and hurries into the valley. Many tributary streams, including Glorieta Creek, feed into it. The river and the fertile lands along its banks first attracted humans to the valley thousands of years ago and continued to encourage settlement in the valley for both practical and aesthetic reasons through the centuries that followed. Because riparian corridors are sensitive environments yet also conducive to human settlement and use, they are quick to exhibit the effects of environmental change. The Pecos River is no exception—many of the land use and management activities that have occurred in the valley have affected the riparian ecosystem.

The Pecos used many of the plants that grow along the river, including willows, and also fished in its waters for Rio Grande cutthroat trout, among other species. Most of the Pecos' fields were located in the low-lying, fertile area along the river to the northeast of the pueblo, known as a *ciénega*. Acequias, or irrigation ditches, were constructed by the Pecos and also by Hispanic farmers to divert water to their fields. The majority of the ditches were in the *ciénega*; however, minor ones existed further down the Pecos River. One directed water to a grist mill, constructed during the early 1900s and located on the east bank. An apple orchard was also planted along the river, probably around the same time. When livestock arrived along with the Spanish in the early 1600s, cattle and sheep began grazing along the riverbanks, creating erosion and denuding riparian plants. Once Hispanic settlers started building homes along the river in the early 1800s, numbers of livestock increased sharply and the effects of grazing accelerated. Grazing continued through much of the twentieth century, including during Tex Austin's ownership of the Forked Lightning Ranch in the 1920s and 1930s, and the subsequent ranch managed and owned by E. E. Fogelson and his wife, Greer Garson Fogelson.

Fur trapping in the 1820s caused the local extinction of beaver in the Pecos River, which affected ecosystem dynamics. Beaver had returned, however, by the 1930s. In 1921 the state of New Mexico constructed the Lisboa Springs Fish Hatchery to the north of the village of Pecos and began releasing brown and rainbow trout into the river. The Forest Service may have undertaken similar fish stocking enterprises earlier as well. Following the introduction of non-native species, the numbers of Rio Grande cutthroat trout declined sharply. By the twentieth century, fishing was a popular leisure activity and remains important today. In the 1990s the Rio Grande cutthroat trout was reintroduced into the upper reaches of the river.

Extensive timber cutting in the Pecos canyon during the late 1800s and early 1900s caused upstream erosion and contributed to more severe flooding. The worst flood of the twentieth century occurred in September of 1904 and caused widespread destruction along the river. The operation of the Tererro mine along Willow Creek up the Pecos canyon in the late 1920s and 1930s also negatively affected the river. Mining, as well as the extraction of ore at a mill, leached heavy metals, particularly lead, into the water. Following a fish kill at the Lisboa Hatchery in 1991, remediation efforts began to clean up the toxic remnants of the mining

activity. Following the cessation of mining, and extensive grazing and timber cutting, the riparian corridor along the Pecos River began to recover. In 1990 the first twenty miles of the river from its headwaters to just above Tererro were designated as a National Wild and Scenic River.

Glorieta Creek

Glorieta Creek parallels the Pecos River before turning to the east and joining the river directly below the Forked Lightning Ranch house. Kozlowski's Trading Post, constructed in the early 1800s, is also included in the Glorieta Creek Unit. By the twentieth century, Glorieta Creek was sometimes described as an intermittent stream, but water flow has been constant, if variable, over the past fifty years. Accounts from the Spanish period and early American period suggest a more consistent water level; however, it is sometimes uncertain if the source refers to the creek or the Pecos River, as specific names are rarely used. A diminishing water flow over time is a possibility, as increasing human population, erosion, and denuded vegetation may have lowered the water table.

The Forked Lightning Ruin, an early habitation site dating to the Coalition Period (1200-1325 C.E.), is located along the creek banks a short distance south of Pecos Pueblo. The Pecos themselves cultivated fields along Glorieta Creek and utilized many of the plant species that grew along the banks. During the Spanish Colonial period at Pecos Pueblo, livestock corrals were built on both sides of the creek. Because the Pecos kept livestock close to the pueblo, particularly during periods when Comanche or Apache raiding occurred frequently, the riparian vegetation probably suffered from overgrazing and erosion. The Kozlowskis also possessed some small fields irrigated by the creek during the mid-1800s and early 1900s. Grazing associated with Kozlowski's Trading Post during the nineteenth century, and with Tex Austin and E. E. Fogelson during the twentieth century, also negatively affected riparian vegetation. Photos from the early twentieth century show a general lack of riparian vegetation on the banks of Glorieta Creek.

The extensive timber cutting and overgrazing in the area during the late 1800s and early 1900s contributed to more severe floods, which deepened the Glorieta Creek arroyo. Alfred Kidder recorded one specific flood event in 1927 that widened the creek channel. A flood in 1935 destroyed the bridge that crossed Glorieta Creek below the Forked Lightning Ranch house. Following the construction of I-25 in the late twentieth century, arroyo formation and erosion increased to the west of the creek, affecting the creek environment as well.

The National Park Service kept several horses at the Trading Post during the 1990s and documented extensive degradation along the creek. The horses were removed after a few years. Two gravel beds along the creek, directly below the Trading Post, used during the twentieth century, also harmed riparian vegetation and water quality. During the late 1990s, the Park Service undertook an extensive restoration project on Glorieta Creek that involved removing the gravel beds and replanting native species. The project proved successful. Riparian vegetation along the creek has flourished in the late 1990s and early 2000s due to this project and the cessation of grazing.

Forked Lightning Ranch East Unit

The east Forked Lightning Ranch Unit currently encompasses a mix of grassland and woodland habitats. The site of the Forked Lightning Ranch house, constructed in 1926, is also located on this unit. In recent years, National Park Service officials have been concerned with the

issue of piñon-juniper encroachment onto grassland areas and have undertaken several projects to clear away trees and restore pastures that were present on the Fogelsons' Forked Lightning Ranch. E. E. Fogelson initially cleared these pastures in the 1960s using bulldozers and chaining—a method that severely damaged many archaeological sites. Aerial photos taken in 1929 during Tex Austin's management of the ranch also show a mix of grassland and piñon-juniper woodland. It is unknown, however, if Austin actively maintained or created pastures on his ranch.

The ratio of piñon-juniper woodland to grassland over time in the Pecos area is difficult to determine. Although some grassland existed naturally, tree densities were also influenced by human activities. Particularly during the 1800s and early 1900s, when populations of both humans and livestock increased rapidly, many trees were consumed for firewood, charcoal production, and construction, or cleared to make pastures. Grazing affects woodland density as well by diminishing herbaceous species and encouraging tree growth. The sudden cessation of heavy grazing, in particular, may trigger woodland expansion. Fire, too, influences the process. Although the role of fire in piñon-juniper woodlands is uncertain, human actions have altered the fire regime in the Southwest. Particularly in the early 1900s, when the Forest Service instituted a policy of fire suppression in the national forest surrounding Pecos, the natural role of fire was virtually eliminated. Before these policies, ranchers and farmers in the Upper Pecos valley, as well as the Pecos before them, may well have used fire to rejuvenate grasslands and prevent tree infill. No specific historical evidence exists, however, to support the role of anthropogenic fires at Pecos.

Besides fire, other factors, particularly disease and climate, affect woodland density. A number of influences have acted together throughout the history of the Pecos area to determine the ratio of woodland to grassland in the valley. It is probably impossible to say for certain what the valley looked like before extensive human occupation began in the Early (1325-1400 C.E.) and Middle (1400-1525 C.E.) Classic Periods. The piñon-juniper infill observed in the twentieth century simply may be trees returning to areas they occupied before human activities changed the environment of the valley now that intensive grazing and tree removal has ceased.

The Pecos hunted and gathered plants and piñon nuts in the meadows and woodlands around their pueblo. They also undertook dry farming, using a variety of methods to trap and distribute water. When the pueblo reached its height of population in the 1400s, every patch of land that had the potential to produce crops needed to be utilized. Beginning in the early 1800s, Hispanic settlers began building homesteads in a few locations in this unit, often close to the Pecos River. These settlers kept small numbers of livestock and attempted to cultivate gardens and crop fields. The Santa Fe Trail, opened in 1821, cut through the Forked Lightning Ranch East Unit, passing by Kozlowski's Trading Post. After 1848 when New Mexico became a U.S. territory, traffic on the Trail became particularly heavy. The thousands of animals and the lumbering wagons driven by traders severely affected the environment on either side of the Trail—denuding vegetation, increasing erosion, and polluting water sources. Ruts from the Santa Fe Trail remain visible on the unit today.

Through the 1800s, livestock was allowed to wander and graze freely in the Upper Pecos valley. By the late 1800s and early 1900s, though, land ownership in the valley was solidified through surveys and legal titles to tracts of property. In the late 1800s, the owner of the parcel of land that became the Forked Lightning Ranch began posting signs warning against trespassing. Under Tex Austin and E. E. Fogelson, fences were put up to define ranch boundaries, and grazing was limited to the livestock owned by Austin and Fogelson. Grazing continued on the

unit until December of 1988 when the last of the Fogelsons' cattle were sold. In 2000 the Monument Fire burned across the southern portion of this unit.

Forked Lightning Ranch West Unit

This unit, which comprises the area of the Forked Lightning Ranch to the west of Glorieta Creek, has experienced much the same history as the Forked Lightning Ranch East Unit. The Santa Fe Trail also passed through this unit. Several other important transportation routes were located on or adjacent to this unit as well. In 1880 the Atchison, Topeka, & Santa Fe railroad constructed its tracks close to the unit's western boundary. In the 1920s and 1930s, Route 66 was constructed and brought growing numbers of tourists to the valley in their automobiles. By the late twentieth century, I-25 had replaced earlier highways and the railroad as the main transportation route through Pecos.

Backcountry Unit

The Backcountry Unit encompasses the piñon-juniper woodland to the east of the Pecos River. Little specific information exists for the backcountry; however, it was affected by many of the same influences as the Forked Lightning Ranch Units. The Pecos, as well as later settlers of the valley, hunted in the woodland. Gathering firewood and piñon nuts were also important activities. Grazing has also occurred in the woodland, probably from the mid-1800s through the Fogelson period at the Forked Lightning Ranch. Three small pastures date to the Fogelson ranch era and currently are maintained by the Park Service.

Pigeon's Ranch Unit

The Pigeon's Ranch Unit includes the remains of Alexander Valle's Santa Fe Trail hostelry as well as the majority of the battlefield where Union and Confederate armies clashed during the Battle of Glorieta Pass on March 26-28, 1862. The area around Pigeon's Ranch and Glorieta Pass was not settled until the 1800s, although the Pecos certainly hunted and traveled through the area. Glorieta Pass served as a natural route into the Rio Grande drainage and many travelers crossed over it. The Santa Fe Trail crested Glorieta Pass before continuing to Santa Fe. Alexander Valle built Pigeon's Ranch in the early 1850s as a hostelry serving travelers on the Trail. Pigeon's Ranch was an extensive ranch complex. Valle owned livestock himself and also housed the animals of travelers and traders. Valle probably cultivated a few crops in the vicinity as well. Civil War accounts refer to a logging road, and by the 1880s extensive logging was conducted in the vicinity. Photos from the 1880s show an open landscape immediately around the ranch. In the photos, the banks of Glorieta Creek are fairly barren, with only a few cottonwoods growing—the result of years of grazing and heavy traffic along the Santa Fe Trail.

Pigeon's Ranch was used as a headquarters and hospital by both Union and Confederate troops during the battle that raged in the hills around the ranch in March 1862. Valle sold his ranch in 1865 and by 1887 it had ceased operation as a hostelry. Pigeon's Ranch slowly fell into decay until 1925 when it was purchased by Tom Greer and turned into a tourist attraction. Highway 84/Route 66 passed directly through the old Pigeon's Ranch complex. During the twentieth century, riparian vegetation along Glorieta Creek recovered. Trees and shrubs began encroaching on many of the fields around the ranch, particularly those to the north that were specifically mentioned in Civil War accounts. As in other units, grazing, fire suppression, and tree cutting influenced woodland density over the years.

Cañoncito Unit

The Cañoncito Unit encompasses the location of the Confederate's camp during the Battle of Glorieta Pass, March 26-28, 1862. A hostelry owned by Anthony Johnson stood nearby along the Santa Fe Trail. On March 28 Union troops descended Glorieta Mesa, which rises sharply to the east, and destroyed the Confederates' supplies while the main force was occupied in the fighting around Pigeon's Ranch. Two days before, on March 26, Union and Confederate forces fought in Apache Canyon, a short distance up Glorieta Pass from their camp.

Settlement around Cañoncito probably began in the late 1700s after the Spanish government awarded the Cañada de los Alamos grant, located a short distance to the west. Anthony Johnson either bought or built his ranch and hostelry in 1858. By the early 1900s, the ranch had been abandoned and was falling into decay. Known as Cañoncito by the late 1800s, between 1880 and 1891 locals built the Nuestra Señora de Luz church, located directly north of the unit. The Atchison, Topeka, & Santa Fe railroad tracks, built in 1880, pass through the unit, and by the late twentieth century, I-25 had been constructed, replacing an earlier highway.

Photos from the late 1800s and early 1900s taken around Johnson's ranch and in Apache Canyon show a severely eroded landscape with sparse vegetation due to overgrazing and heavy traffic through Glorieta Pass. Reports from Forest Service rangers in the early twentieth century also refer to the poor condition of land around Cañoncito. One report recommended completely closing the Apache Canyon allotment to grazing.

Appendix B.

Environmental History Timeline

This timeline lists important events in Pecos history, as well as a more detailed overview of climatological data and recorded disease epidemics.

10,000 B.C.E. to 1200 C.E.

- 10,000-5500 B.C.E.:** Climate growing drier, but still wetter and cooler than today
- 5500 B.C.E. – 600 C.E.:** Climate continues to grow warmer and drier
- 5500 B.C.E. – 600 C.E.:** Over this period, corn is introduced to the Southwest from Mexico and Puebloan culture transitions to a sedentary, agricultural lifestyle
- 600-1200 C. E.:** Humans begin building long-term sedentary habitation sites in the Pecos valley

1200 C.E. to 1400 C.E.

- 1005-1014:** Intense, low period of spring precipitation recorded at Arroyo Hondo²
- 1130-1139:** Intense, low period of spring precipitation recorded at Arroyo Hondo
- 1200-1325:** Several early pueblos built in the Pecos valley, including the Forked Lightning, Rowe, and Black-on-White House
- 1215-1231:** PDSI recorded dry period³
- 1234-1240:** PDSI recorded dry period
- 1248-1267:** PDSI recorded dry period

² “Spring” precipitation encompasses the period from March to June. The authors argue that spring precipitation is generally more variable than annual (July through February) precipitation and thus is a good indicator of drought periods. Located 4.5 miles south of Santa Fe, the Arroyo Hondo Pueblo is near Pecos and precipitation would probably have been similar at both sites. (Rose, Dean, and Robinson, *The Pat Climate of Arroyo Hondo*, 92-93. All precipitation data for Arroyo Hondo comes from this source.

³ PDSI—Palmer Drought Severity Index. The PDSI, “which is ‘an index of meteorological drought, as opposed to a specific biological or hydrological measure,’ is calculated using estimates of potential evapotranspiration and is based on tree-ring indices.” It offers a general measure for the Southwest as a whole. Head and Orcutt, *From Folsom to Fogelson*, 1:165. All PDSI data comes from this source.

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- 1250-1255:** Intense, low period in spring precipitation recorded at Arroyo Hondo
- 1274-1298:** PDSI recorded dry period
- 1275-1300:** Known as “The Great Drought” in the Southwest. At Arroyo Hondo, annual precipitation showed more variability in this period, but spring precipitation did not exhibit an appreciable low.
- 1295-1335:** Above average spring precipitation recorded at Arroyo Hondo
- 1304-1310:** PDSI recorded dry period
- 1316-1319:** PDSI recorded dry period (mild)
- 1324-1331:** PDSI recorded dry period
- 1335:** High in spring precipitation recorded at Arroyo Hondo
- 1336-1356:** PDSI recorded dry period
- 1360-1370:** PDSI recorded dry period
- 1365:** Low in spring precipitation recorded at Arroyo Hondo)
- 1370:** High in spring precipitation recorded at Arroyo Hondo
- 1377-1386:** PDSI recorded dry period
- 1380:** Low in spring precipitation recorded at Arroyo Hondo
- 1390-1394:** PDSI recorded dry period (mild)
- 1397-1403:** PDSI recorded dry period

1400 C.E. to 1500 C.E.

- 1400-1415:** Extended high in spring precipitation recorded at Arroyo Hondo
- 1415-1428:** PDSI recorded dry period
- 1420:** Intense, ten year low in spring precipitation recorded at Arroyo Hondo centered on this date
- 1425:** Pecos Pueblo constructed
- 1445-1465:** PDSI recorded dry period

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- 1450:** Population has aggregated at Pecos Pueblo; all other pueblos in valley abandoned
- 1450-1475:** Population peaks at Pecos Pueblo
- 1471-1484:** PDSI recorded dry period
- 1495-1501:** PDSI recorded dry period

1500 C.E. to 1600 C.E.

- 1506-1510:** PDSI recorded dry period (mild)
- 1516-1520:** PDSI recorded dry period
- 1523-1528:** PDSI recorded dry period
- 1540:** Coronado's expedition arrives in New Mexico. Delegation under Hernando de Alvarado arrives at Pecos in September or October.
- 1542-1553:** PDSI recorded dry period
- 1558-1566:** PDSI recorded dry period
- 1573-1577:** PDSI recorded dry period (mild)
- 1579-1591:** PDSI recorded dry period
- 1582:** Antonio de Espejo expedition
- 1590-1591:** Castaño de Sosa expedition
- 1598:** Don Juan de Oñate establishes Spanish colony in New Mexico

1600 C.E. to 1700 C.E.

- 1600-1605:** PDSI recorded dry period
- 1608-1610:** PDSI recorded dry period (mild)
- 1610:** Spanish capital moves to Santa Fe
- 1617:** Franciscans establish mission at Pecos Pueblo
- 1622:** Franciscans order construction of second, largest church at Pecos Pueblo

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- 1625-1629:** PDSI recorded dry period
- 1640s-1670s:** Recurring Apache raiding at Pecos
- 1644-1652:** PDSI recorded dry period
- 1658-1673:** PDSI recorded dry period
- 1667-1672:** Severe famine strikes the Spanish and Pueblos of New Mexico
- 1678-1680:** PDSI recorded dry period (mild)
- 1680:** Pueblo Revolt—Spanish driven from New Mexico
- 1685-1689:** PDSI recorded dry period
- 1692:** Diego de Vargas leads the Reconquest of New Mexico
- 1694:** Franciscan ministry at Pecos resumes
- 1695:** First *recorded* disease epidemic at Pecos Pueblo
- 1696-1699:** PDSI recorded dry period

1700 C.E. to 1800 C.E.

- 1704:** Disease epidemic at Pecos Pueblo
- 1705:** Franciscans order construction of fourth and final church at Pecos
- 1706:** First accounts of Comanche raiding in New Mexico
- 1728:** Disease epidemic at Pecos Pueblo
- 1730:** Disease epidemic at Pecos Pueblo
- 1730s:** Comanche raiding severe and recurrent at Pecos
- 1738:** Disease epidemic at Pecos Pueblo
- 1739:** French traders from Louisiana arrive at Santa Fe
- 1740:** Major low in spring precipitation at Arroyo Hondo
- 1745-1765:** High interval of spring precipitation at Arroyo Hondo
- 1746:** Severe Comanche attack at Pecos

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- 1748:** Severe Comanche attack at Pecos—Spanish and Pecos fight Comanches before walls of pueblo. Disease epidemic at Pecos Pueblo.
- 1750:** Squad of Spanish soldiers garrisoned at Pecos
- 1752-1767:** Alternating periods of peace and war between Spanish and Comanches. Peace broken in 1767.
- 1771:** Severe Comanche attack at Pecos
- 1774:** Severe Comanche attack at Pecos
- 1776:** Fray Domínguez refers to the “drought of the past years” during his visit to New Mexico
- 1779:** Juan Bautista de Anza defeats the Comanche leader Cuerno Verde
- 1780:** Smallpox epidemic in New Mexico, including at Pecos Pueblo
- 1782:** Franciscans declare Pecos a visita of Santa Fe—friar no longer in permanent residence
- 1786:** Peace agreement between Spanish and Comanches—lasts until 1821
- 1794:** San Miguel del Vado land grant awarded

1800 C.E. to 1900 C.E.

- 1800:** Disease epidemic strikes Pecos Pueblo and Hispanic community
- 1802:** Disease epidemic strikes Hispanic community
- 1803:** The United States purchases the Louisiana Territory
- 1810-1814:** Spanish Cortes meets—passes law regarding unused Pueblo lands
- 1815:** Los Trigos and Cañon de Pecos (Alexander Valle) land grants awarded
- 1816:** Disease epidemic strikes Pecos Pueblo and Hispanic community
- 1821:** Mexico declares its independence from Spain. William Becknell opens the Santa Fe Trail.
- 1821-1840s:** Comanche raiding at Pecos resumes
- 1823:** Unused Pecos Pueblo land granted to Hispanic settlers

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- 1825:** Beaver trapped out of southern Sangre de Cristo Mountains
- 1838:** Remaining Pecos emigrate to Jémez Pueblo
- 1846-1848:** Mexican War
- 1847:** First sawmill in New Mexico begins production
- 1848:** Treaty of Guadalupe Hidalgo makes New Mexico a U.S. Territory
- 1850s:** Pigeon's Ranch, Kozlowski's Trading Post, and Johnson's Ranch built/opened as hostleries on Santa Fe Trail. Army records mention drought in early 1850s, ending with heavy rains in 1852.
- 1858:** Pecos Pueblo grant confirmed by Congress
- 1861-1865:** American Civil War
- 1862:** Battle of Glorieta Pass fought at Pecos, March 26-28
- 1877:** *United States v. Joseph* finds that Pueblos are not "Indians" and thus Hispanic and Anglo settlement of their lands is legal
- 1880:** Atchison, Topeka, & Santa Fe railroad lays tracks through Pecos
- 1886:** Pecos River floods
- 1888:** Elk hunted out of Pecos region
- 1890-1900:** Sustained low in spring precipitation at Arroyo Hondo
- 1892:** Pecos River Forest Reserve created
- 1897:** *United States v. Sandoval* finds that Hispanic communal lands belong to U.S. government

1900 C.E. to 2000 C.E.

- 1903:** Bighorn sheep hunted out of Pecos region. Timber wolves also hunted out by early 1900s.
- 1904:** Pecos River floods
- 1905:** USDA Forest Service created
- 1905-1945:** Sustained high in spring precipitation at Arroyo Hondo

Appendix B

- 1905-1920:** Unusually high period of precipitation
- 1912:** New Mexico achieves statehood
- 1914:** Gross Kelly Company quiet title suit settles titles of land in Pecos
- 1915:** Pecos River Forest Reserve renamed the Santa Fe National Forest. Elk reintroduced into Pecos region.
- 1915-1929:** Alfred Kidder conducts archeological excavations at Pecos
- 1916:** National Park Service created
- 1917-1919:** U.S. involvement in World War I
- 1920:** Pecos Pueblo and mission ruins donated to Archbishop of Santa Fe
- 1921:** Lisboa Springs Fish Hatchery constructed north of village of Pecos
- 1923:** Last grizzly bear in Pecos region killed
- 1924:** Pueblo Lands Act passed
- 1925:** Tex Austin purchases land in Pecos and starts the Forked Lightning Ranch. Tom Greer purchases Pigeon's Ranch and turns it into a tourist attraction. The Fred Harvey Company and the AT&SF railroad begin their Indian Detours business.
- 1927:** The American Metal Company begins operation of the Tererro Mine
- 1929:** Pecos River floods
- 1930s:** The Great Depression causes economic hardships for many residents of the Pecos valley. Beaver return to Pecos River watershed.
- 1931-1932:** Extremely heavy snowfalls in northern New Mexico
- 1935:** The State of New Mexico obtains ownership of Pecos Pueblo and mission ruins—declares the site a State Monument. Slight dip in spring precipitation at Arroyo Hondo
- 1939:** Tererro Mine shuts down
- 1941:** E. E. "Buddy" Fogelson purchases the Forked Lightning Ranch
- 1941-1945:** U.S. involvement in World War II
- 1950-1955:** Intense low in spring precipitation at Arroyo Hondo. Other sources record a severe drought in New Mexico in the 1950s.

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- 1950:** First on-site caretaker installed at Pecos State Monument
- 1956:** The National Park Service's Mission 66 program begins
- 1958:** Santa Gertrudis cattle introduced on Forked Lightning Ranch
- 1965-1970:** Major pasture clearing operations on Forked Lightning Ranch
- 1964:** Passage of the Wilderness Act; Pecos Wilderness established; Interstate 25 constructed
- 1965:** Pecos National Monument established
- 1966:** Passage of the National Historic Preservation Act (NHPA)
- 1969:** Passage of the National Environmental Policy Act (NEPA); Park Service begins grassland restoration project east of the mesilla at Pecos
- 1971:** Pecos River freezes in March
- 1973:** Passage of the Endangered Species Act
- 1983:** Construction of the Pecos National Monument Visitor Center begins
- 1988:** Livestock grazing halted on Forked Lightning Ranch
- 1990:** Pecos National Historical Park established
- 1991:** Remediation efforts at Tererro Mine begin
- 1999-2000:** Glorieta Creek restoration project
- 2000:** Monument Fire; Viveash Fire

Appendix C.

Historical Information Regarding Non-Native, Invasive, and Extinct Plant Species

Table 1. Non-native or invasive species mentioned in E. O. Wooton and Paul C. Standley, “Flora of New Mexico,” in *Contributions from the United States National Herbarium*, volume 19 (Washington D.C.: Government Printing Office, 1915) that occur in Pecos National Historical Park.⁴

Species	Remarks
<i>Tamarix gallica</i> (salt cedar) ⁵	“A cultivated plant, used very effectively for hedges in many places, often escaped.” (427)
<i>Salsola tragus</i> (prickly Russian thistle)	“Common at lower altitudes throughout [New Mexico]. One of the commonest introduced weeds on waste lands, along roadsides, and to some extent in fields on the open range. In some places it covers cultivated fields as closely as to appear like a sown crop. It was first noticed about fifteen years ago at Lamy by Prof. T. D. A. Cockerell... It is now to be found in practically every locality in the State except in the higher mountains” (199-200).
<i>Chenopodium album</i> (lambsquarters)	Grows on “cultivated and waste ground throughout [New Mexico]. The young plants are gathered and cooked as greens. Among the native people they are known by the name of ‘quelite’” (208).
<i>Kochia scoparia</i> (Mexican fireweed)	“Has been cultivated at Albuquerque, and probably will be found escaped” (209).
<i>Ulmus pumila</i> (Siberian elm)	Not mentioned by Wooton and Standley
<i>Bromus inermis</i> (smooth brome)	“Native of Europe, locally established in the United States.” New Mexico: found in Farmington and Mesilla Valley (97)
<i>Dactylis glomerata</i> (orchardgrass)	“Widely distributed in North America, introduced from Europe and often cultivated. New Mexico: Shiprock; Cedar Hill; Chama; Winsor’s Ranch; Mesilla Valley.” Winsor’s Ranch was on the Upper Pecos River (98).
<i>Poa compressa</i> (Canada bluegrass)	“Native of Europe and Asia, widely naturalized in the U.S. New Mexico: Harvey’s Upper Ranch; Raton” (100).
<i>Poa pratensis</i> (Kentucky bluegrass)	New Mexico: “Tunitcha Mountains; Chama; Santa Fe Canyon; Truchas Peak; Rio Pueblo; Reserve; Cloudcroft;

⁴ This list is not comprehensive.

⁵ Later inventories of New Mexican flora refer to both *Tamarix gallica* and *Tamarix pentandra*; William C. Martin and Charles R. Hutchins, *A Flora of New Mexico*, vol. 2 (Vaduz, Liechtenstein: J. Cramer, 1980), 1284.

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Species	Remarks
	Raton; Albuquerque; White Mountains. Meadows and woods, in the Transition Zone” (100).
<i>Phleum pratense</i> (Timothy grass)	Found in “fields and meadows nearly throughout North America, introduced from Europe and often cultivated for hay....New Mexico: Chama; Raton; Cedar Hiss; Fort Bayard; Santa Fe; Ruidoso Creek; Gilmore’s Ranch” (73).
<i>Agrostis stolonifera</i> (creeping bentgrass)	“Range: California and Texas to Mexico....New Mexico: Carrizo Mountains; Farmington; Sandia Mountains; Santa Fe; Las Vegas Hot Springs; Burro Mountains; Socorro; Fort Bayard; Berendo Creek; Rincon; Cloverdale; Mesilla Valley; Organ Mountains; Malone’s Ranch; Roswell. Wet ground and borders of streams, in the Upper Sonoran and Transition zones” (78).
<i>Conium maculatum</i> (poison hemlock)	Not mentioned
<i>Cirsium arvense</i> (Canada thistle)	Not mentioned
<i>Cirsium vulgare</i> (bull thistle)	Not mentioned
<i>Agropyron desertorum</i> (desert wheatgrass)	Not mentioned
<i>Agrostis gigantea</i> (redtop)	Not mentioned, although <i>Agrostis alba</i> is mentioned
<i>Bromus catharticus</i> (rescue grass)	Not mentioned
<i>Bromus japonicus</i> (Japanese brome)	Not mentioned
<i>Bromus tectorum</i> (cheatgrass)	Not mentioned
<i>Festuca aruninaceae</i> (tall fescue)	Not mentioned
<i>Psathyrostachys juncea</i> (Russian wildrye)	Not mentioned
<i>Lactuca serriola</i> (prickly lettuce)	Not mentioned
<i>Leucanthemum vulgare</i> (oxeye daisy—called <i>Chrysanthemum leucanthemum subpinnatifidum</i> in Wooton and Standley)	“New Mexico: Near Pecos....In the East it is a troublesome weed, but it is still very rare in most parts of the West” (734)
<i>Sonchus asper</i> (spiny sowthistle)	“New Mexico: Farmington; Carrizo Mountains; Pecos; Santa Fe; Sandia Mountains; Mangas Springs; Berendo Creek; Cloverdale; Mesilla Valley; Fresnal; Round Mountain. A common weed in gardens and cultivated fields, widely introduced into North America from Europe” (623).
<i>Onopordum acanthium</i> (Scotch thistle)	Not mentioned
<i>Taraxacum officinale</i> (common dandelion)	“New Mexico: Santa Fe; Las Vegas; Farmington; Chama; Raton. Open fields and waste ground” (626).

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Species	Remarks
<i>Scorzonera laciniata</i> (cutleaf vipergrass)	Not mentioned
<i>Tragopogon dubius</i> and <i>Tragopogon pratensis</i> (yellow salsify and meadow salsify)	Not mentioned; however, <i>Tragopogon porrifolius</i> is mentioned—"New Mexico: Pecos; Santa Fe; Ramah; Mesilla. The plant is frequently cultivated in gardens and often escapes" (621).
<i>Alyssum simplex</i> (alyssum)	Not mentioned
<i>Barbarea vulgaris</i> (garden yellowrocket)	Not mentioned
<i>Camelina microcarpa</i> (littlepod false flax)	"New Mexico: Pecos National Forest" (289).
<i>Cardaria draba</i> (hoary cress)	"New Mexico: Mesilla Valley. An introduced weed...it probably occurs elsewhere in the State, since the seeds are often distributed with those of garden or field crops or with grass seeds. It has been well established in the Mesilla Valley in alfalfa fields for several years" (271).
<i>Chorispورا tenella</i> (crossflower)	Not mentioned
<i>Nasturtium officinale</i> (watercress)	"New Mexico: Farmington; Pecos; Santa Fe; Las Vegas; Mogollon Mountains; Berendo Creek; Gilmore's Ranch; Roswell" (284).
<i>Roripa sylvestris</i> (creeping yellowcress)	Not mentioned
<i>Sisymbrium altissimum</i> (tall tumbled mustard)	"New Mexico: San Juan Valley. A native of Europe, widely introduced in the U.S., a noxious weed in the Northwest" (286).
<i>Thlaspi arvense</i> (field pennycress)	Not mentioned
<i>Convolvulus arvensis</i> (field bindweed)	"In New Mexico introduced from the east or from Europe. New Mexico: Farmington; Cedar Hill; Raton; Santa Fe; Chama; Clovis; Kingston; Silver City; Rio Gila; Mesilla Valley. This is a very variable species, but it seems ill advised to attempt to separate any of the forms. In New Mexico it is common in some localities in cultivated fields, where it is evidently introduced, as it doubtless is everywhere in the Rocky Mountain region" (519).
<i>Dipsacus fullonum</i> (Fuller's teasel)	Not mentioned
<i>Euphorbia davidii</i> (David's spurge)	Not mentioned
<i>Lathyrus latifolius</i> (perennial pea)	Not mentioned
<i>Medicago sativa</i> (alfalfa)	"Escaped in cultivated and waste ground in nearly all parts of the State" (343).
<i>Medicago lupulina</i> (black	"New Mexico: "Tesuque; Taos; Santa Fe; Pecos; Mangas

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Species	Remarks
medick)	Springs. And introduction from Europe, occasional along irrigating ditches and in wet fields” (343).
<i>Melilotus officinalis</i> (yellow sweetclover)	“New Mexico: Mesilla Valley; Farmington; Cedar Hill. The plant is well established in orchards in the Mesilla Valley” (343). <i>Melilotus indica</i> is also mentioned with the note that, “No weed is more common in alfalfa fields. Its seed is a common adulterant of alfalfa seed, and frequently the sweet clover seedlings are more numerous than the alfalfa plants” (343).
<i>Trifolium pratense</i> (red clover)	“New Mexico: Harvey’s Upper Ranch; Winfields Ranch; Winsor’s Ranch; Mesilla Valley; Pecos; Raton Farmington. Red clover has been noticed in only a few places in the State. Occasionally it appears in alfalfa, but it does not seem to survive long. It has been tried in cultivation at various places, but cannot compete with alfalfa on the market and has been cultivated but little” (345).
<i>Trifolium repens</i> (white clover)	“New Mexico: Chama; Winsor’s Ranch; Santa Fe; Pecos; Farmington; Shiprock” (345).
<i>Erodium cicutarium</i> (redstem stork’s bill)	“Introduced into nearly all parts of [New Mexico]. . . . In certain parts of the Southwest it has been found to be a valuable forage plant, but it has never been utilized in New Mexico. Nowhere is it very abundant” (381).
<i>Marrubium vulgare</i> (horehound)	“In all the moister parts of [New Mexico]; often abundant, especially where sheep range” (556).
<i>Asparagus officinalis</i> (garden asparagus)	“New Mexico: Farmington; Santa Fe; Mesilla Valley. The cultivated asparagus thrives in New Mexico and is a not uncommon escape in the valleys” (139).
<i>Plantago lanceolata</i> (English plantain)	“New Mexico: Farmington; Mesilla Valley; Lake Valley. . . . It grows in New Mexico chiefly in alfalfa fields, where it spreads rapidly” (603).
<i>Plantago major</i> (common plantain)	“Nearly cosmopolitan; a common weed throughout the U.S. New Mexico: Nearly throughout the State” (603).
<i>Rumex crispus</i> (curly dock)	Called yellow dock. “New Mexico: Common nearly throughout the State. The plant is often a troublesome weed in alfalfa fields and along ditch banks. The leaves are sometimes gathered and cooked as ‘greens’” (192).
<i>Verbascum thapsus</i> (common mullein)	“New Mexico: Cedar Hill; Pecos; Mogollon; Ruidoso Creek” (577).

Appendix C

Table 2. Non-native or invasive species mentioned in E. O. Wooton, *Trees and Shrubs of New Mexico*, Bulletin 87 (Albuquerque: New Mexico Agriculture Experiment Station, 1913).

Species	Remarks
<i>Tamarix gallica</i> (salt cedar)	“One of the most satisfactory introduced plants in cultivation in this state....Once established it is almost impossible to kill it. As a plant to be used upon alkaline soils where other plants do poorly or in situations where too little water is available, there is no other plant which is quite so satisfactory” (124).
<i>Elaeagnus angustifolia</i> (Russian olive)	Not mentioned

Table 3. Non-native or invasive species mentioned in E. O. Wooton, *The Range Problem in New Mexico*, Bulletin 66 (Albuquerque: New Mexico Agriculture Experiment Station, 1908).

Species	Remarks
Sheep weed or snake weed or <i>yerba del vibora</i> (possibly <i>Gutierrezia sarothrae</i> [broom snakeweed]?)	It “is taking over thousands of acres of our higher plains” (18-19).
<i>Salsola tragus</i> (prickly Russian thistle)	“The Russian Thistle has been introduced practically all over the Territory and seems to be taking possession of some ranges where the grass is badly killed out. ...It is now too late to hope to eradicate it, as might have been done years ago....These plants can hardly be called weeds, for they are not displacing better plants, but their room might be occupied by others of value if these latter could once be introduced” (18-19).

Table 4. Non-native or invasive species not mentioned by Wooton (1915) that are or are not mentioned in Ivar Tidestrom and Sister Teresita Kittell, *A Flora of Arizona and New Mexico* (Washington, D.C.: The Catholic University of America Press, 1941).

Species	Remarks
<i>Conium maculatum</i> (poison hemlock)	Not mentioned
<i>Cirsium arvense</i> (Canada thistle)	Introduced from Europe. Weed (499).
<i>Cirsium vulgare</i> (bull thistle)	Not mentioned
<i>Agropyron desertorum</i> (desert wheatgrass)	Not mentioned

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Species	Remarks
<i>Agrostis gigantea</i> (redtop)	Not mentioned, although <i>Agrostis alba</i> is mentioned.
<i>Bromus catharticus</i> (rescue grass)	“Open ground and waste places. New York to Oregon, southward to Florida and California. Native of Argentina (858).
<i>Bromus japonicus</i> (Japanese brome)	“Waste places; Vermont to Washington, southward to North Carolina and California” (860).
<i>Bromus tectorum</i> (cheatgrass)	“Open ground and waste places. Nearly throughout the United States; introduced from Europe” (860).
<i>Festuca aruninaceae</i> (tall fescue)	Not mentioned
<i>Psathyrostachys juncea</i> (Russian wildrye)	Not mentioned
<i>Lactuca serriola</i> (prickly lettuce) – called <i>Lactuca scariola integrata</i> here	“Introduced weed” (359).
<i>Onopordum acanthium</i> (Scotch thistle)	Not mentioned
<i>Scorzonera laciniata</i> (cutleaf vipergrass)	Not mentioned
<i>Tragopogon dubius</i> and <i>Tragopogon pratensis</i> (yellow salsify and meadow salsify)	Not mentioned
<i>Alyssum simplex</i> (alyssum)	Not mentioned
<i>Barbarea vulgaris</i> (garden yellowrocket)	Not mentioned, although <i>Barbarea verna</i> and <i>Barbarea stricta</i> are mentioned
<i>Chorispورا tenella</i> (crossflower)	Not mentioned
<i>Thlaspi arvense</i> (field pennycress)	“Introduced weed in waste places. Labrador to British Columbia, southward to Florida and Utah” (55-56).
<i>Dipsacus fullonum</i> (Fuller’s teasel)	Not mentioned
<i>Euphorbia davidii</i> (David’s spurge)	Not mentioned
<i>Lathyrus latifolius</i> (perennial pea)	Not mentioned

Table 5. Non-native or invasive species not mentioned by Tidestrom and Kittell (1941) that are or are not mentioned by William C. Martin and Charles R. Hutchins, *A Flora of New Mexico*, 2 vols. (Vaduz, Liechtenstein: J. Cramer, 1980).

Species	Remarks
<i>Conium maculatum</i> (poison hemlock)	“Introduced from Eurasia; now widely established in the United States” (1432).
<i>Cirsium vulgare</i> (bull thistle)	“Introduced from Europe, now widespread in North America” (2000-2001).
<i>Agropyron desertorum</i> (desert wheatgrass)	“Introduced from Eurasia; now occasional in the U.S., especially in the western states” (260-261).
<i>Agrostis gigantea</i> (redtop)	Not mentioned, although <i>Agrostis alba</i> is mentioned.

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Species	Remarks
<i>Festuca aruninaceae</i> (tall fescue)	Not mentioned
<i>Psathyrostachys juncea</i> (Russian wildrye)	Not mentioned
<i>Onopordum acanthium</i> (Scotch thistle)	Not mentioned
<i>Scorzonera laciniata</i> (cutleaf vipergrass)	Not mentioned
<i>Tragopogon dubius</i> and <i>Tragopogon pratensis</i> (yellow salsify and meadow salsify)	Both introduced from Europe (1952-1954)
<i>Alyssum simplex</i> (alyssum)	Not mentioned
<i>Barbarea vulgaris</i> (garden yellowrocket)	“New Mexico: Wet meadows and waste places; occasional; 3,00-6,500 ft” (821).
<i>Chorispora tenella</i> (crossflower)	“Introduced from Asia; now occurring sporadically in western United States” (849).
<i>Dipsacus fullonum</i> (Fuller’s teasel)	Not mentioned
<i>Euphorbia davidii</i> (David’s spurge)	Not mentioned
<i>Lathyrus latifolius</i> (perennial pea)	Not mentioned

Table 6. Non-native or invasive species not mentioned by Martin and Hutchins (1980) that are or are not mentioned by Robert Sivinski, “A Botanical Inventory of Pecos National Historical Park, New Mexico.” Report on file, Pecos National Historical Park, Pecos, New Mexico, 1995.

Species	Remarks
<i>Agrostis gigantea</i> (redtop)	Mentioned
<i>Festuca aruninaceae</i> (tall fescue)	Mentioned
<i>Psathyrostachys juncea</i> (Russian wildrye)	Mentioned
<i>Onopordum acanthium</i> (Scotch thistle)	Mentioned
<i>Scorzonera laciniata</i> (cutleaf vipergrass)	Mentioned
<i>Alyssum minus</i> (alyssum)	Mentioned
<i>Dipsacus fullonum</i> (Fuller’s teasel)	Not mentioned
<i>Euphorbia davidii</i> (David’s spurge)	Not mentioned
<i>Lathyrus latifolius</i> (perennial pea)	Mentioned

Table 6. Extirpated grass species. Taken from Dan Scurlock, “From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin,” General Technical Report, RMRS-GTR-5 (Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 1998), 293.

Species	Location	Year Last Collected
<i>Setaria verticillata</i> (bristlegrass)	Mesilla Valley	1907
<i>Sporobolus vaginiflorus</i> (Sacaton or dropseed)	Las Cruces and Bernalillo County	1895
<i>Bothriochloa wrightii</i> (Wright’s Bluestem)	Grant County (two locations)	1885, 1904

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Species	Location	Year Last Collected
<i>Spartina gracillis</i> (cordgrass)	Santa Rosa	1945
<i>Tripsacum lanceolatum</i> (gamagrass)	Guadalupe Canyon	1915 pre
<i>Muhlenbergia arsenei</i> (muhly)	Soda Dam, Sandoval County	1938
<i>Muhlenbergia andina</i> (muhly)	Upper Pecos River	1908
<i>Bromus brizaeformis</i> (rattlesnake chess)	Pecos National Forest	1913 pre
<i>Eragrostis hypnoides</i> (lovegrass)	Elephant Butte Dam	1941

Table 7. Plant species extensively decimated or extirpated. Taken from Dan Scurlock, “From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin,” General Technical Report, RMRS-GTR-5 (Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 1998), 293.

Species	Range
<i>Mentzelia albicaulis</i> (stickleaf)	NW and W New Mexico
<i>Portulaca</i> spp. (purslane)	NW and NC New Mexico
<i>Cycloloma atriplicifolium</i> (winged pigweed)	NW and NC New Mexico
<i>Kallstroemia</i> spp. (contrayerba)	NW New Mexico
<i>Allium macropetalum</i> (wild onion)	NW New Mexico
<i>A. cernuum</i> var. <i>obtusum</i> (nodding onion)	C and W New Mexico
<i>Tradescantia occidentalis</i> (spiderwort)	NW and C New Mexico

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