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A Poor Man's Cow: The Goat in New Mexico and the Southwest

DAN SCURLOCK

Various historians have published papers and books on sheep in New Mexico and the Southwest, but only a few investigators have dealt with goats in the region, and only in a limited way. Both animals were well adapted to the semi-arid and arid climates of the Southwest. Almost all Hispanic families had one or more goats. The market for textiles woven with sheep's wool was widespread and strong from the early colonial period to the early part of this century, especially in New Mexico and northern Mexico. Also, mutton was a more important protein source than goat's meat among both the Spanish and Native American populations during this period. These two factors, along with the extensive grasslands and favorable climate of New Mexico, Arizona, Sonora, and Chihuahua, accounted for the predominance of sheep over goats.

This paper deals with the origin of goats in the Old World, their natural history and uses, and introduction to the Southwest in the early colonial period. A general survey of the history and economics of the Spanish goat, and that of its replacement, the Angora, follow. Finally, an overview of the environmental history of goats in the region is presented.

Among the various kinds of livestock animals brought to the New World by the Spanish was the goat. The domestic goat (*Capra hircus*) is thought to have come from the wild bezoar goat (*Capra aegagrus*) stock 10,000 to 12,000 years ago in present-day Iran, Israel, and Jor-

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dan.¹ The earliest known remains of domesticated goats were recovered from an archaeological site near Bethlehem. This resourceful quadruped may have been the second domesticated animal; the dog, a major component in successfully raising goats, was the first species.²

Goat domestication may have unfolded around human campsites in this arid to semi-arid region where these ungulates scavenged plant remains including seed grains from agriculturalists and remains of wild animals that hunters killed and scattered. The next probable evolution was that Middle Easterners intentionally fed these goats and captured the offspring.³ During the period of domestication it was discovered that the milk and meat of goats were both tasty and nourishing, while the tanned skin was useful in making leather clothing, containers, and other manufactured items.

Humans tended the first breeding herds and later employed dogs to assist with herding and to fend off predators. Goats proved relatively easy to care for and would survive well on diverse types of terrain which supported a variety of small trees, shrubs, or grass. These animals were also more hearty and resistant to disease than sheep.⁴

Goats and associated husbandry techniques spread westward around the Mediterranean. Angoras, bred for their milk, originated in Asia Minor, while selectively bred Alpines and Nubians were raised for their long hair which was used in weaving. The Spanish goat also evolved in the region. A healthy goat might yield up to 1,400 pints of easily di-



Figure 1. Spanish goats near Las Vegas, New Mexico, ca. 1880? Photograph by James N. Furlong. Courtesy Museum of New Mexico, Santa Fe, negative no. 138858

gestible milk a year, from which cheese and butter were made. Importantly, these dairy products of the goat did not harbor tubercular infection as did cow's milk.⁵ The Spanish goat, brought to the Americas centuries later, had hides superior to the above mentioned and other domesticated varieties (figure 1).

At some point in the Old World it was also discovered that male goats were more dependable than sheep rams as leaders of sheep flocks. In Texas and northern Mexico these buck goats were called "point goats," or bell leaders, of sheep flocks. The latter name came about because of the necessity of hanging a bell around the goat's neck. The bell's clanging helped the *pastores* (herders) keep track of their animals and allowed the flock to follow the lead goat. Point goats were raised and trained from kidhood and were given a name in most cases.⁶ When predators approached the herds, lead goats would vocalize an alarm sound. These bucks would also respond better to the herder or his dog, and would not try to lead the flock onto perilous landscapes during inclement weather such as rain or fog. Furthermore, billys could mate with fifty or more nannys in a twenty-four-hour period, and nannys also gave birth to twins or even triplets more often than ewes. Nannys would also readily feed orphan lambs.⁷

In the Old, and later in the New World, goats were used to thresh grains and beans, separating the beans from the pods with their hoof action (figure 2). These pods were either fed to the herds or other livestock.⁸ As natural browsers of woody or semi-woody plants, goats were



Figure 2. Threshing wheat with goats, ca. 1905–06, Cordova New Mexico. Photograph by Carter H. Harrison. Courtesy Museum of New Mexico, Santa Fe, negative no. 5125.

sometimes used to remove small trees and shrubs; about four to six goats per acre were utilized for this. Removal of these plants would provide more water for grass and eliminate shade, resulting in the spread and more luxuriant growth of grasses on which other livestock could graze.⁹

In Spain, goats were indeed the "poor man's cow," and their milk, cheese, and meat were commonly consumed by rural Spaniards. *Cabra*, or goat meat, was used to make *caldareta*, a stew which was an indispensable dish at fiestas and rural feasts.¹⁰ The cooked meat of a kid (a goat less than one year old) was called *cabrito*. The herder chose the fattest goat from a herd known as *cabra de pastor*. A goat skin was referred to as *piel de cabra*; the hair was known as *pelote*. A sheltered bedding ground for goats and sheep was called a *majada*. Male goats were called *chivatos*, and herds were referred to as *cabreros*.¹¹

Goat husbandry and associated terms used in ranching came, of course, from the Spanish homeland to the New World. Goats and similar size livestock, such as pigs and sheep, were referred to as *ganado menor*, and these smaller animals were found across Spain. In Spain and in the Southwest goats were commonly herded on lands with poor or little vegetation.¹²

The many useful attributes of goats explain why this hardy, adaptable animal was brought to various islands in the Caribbean in the holds of Columbus' ships on his second voyage.¹³ Subsequent Spanish expeditions to the New World introduced the goat to South America, Central America, Mexico, and eventually to the Southwest.

One source described Spanish goats brought to Texas as "long-legged and small of body" and consisting of three varieties. One "had short, coarse hair which was bright and glossy." A second also had short hair, but it was dark with a combed appearance. The last, said to be descended from the Maltese goat, sported long straight hair up to six inches in length.¹⁴

Coronado brought the first goats and sheep to New Mexico.¹⁵ None of these animals apparently survived, so resident goat herds were not established until the first successful colonists, led by Juan de Oñate, arrived at San Juan Pueblo in 1598. With these Spaniards were some 1,000 head of goats along with 4,000 sheep and smaller numbers of cattle and horses.¹⁶ These were the parent stock for mission, *hacienda*, or *estancia* herds which were established in the upper and middle Rio Grande basins and at western Pueblo villages between 1600 and 1680 (table 1).

In New Mexico a single black goat was placed with every 100 sheep; a number of these same-size flocks comprised a large flock. These dark goats were known as *marcaderos* (markers) which the herder could easily count to determine if the entire flock was present.¹⁷ This technique probably originated in the Old World.

Table 1:
Goat and Sheep Numbers in Spanish New Mexico, 1598–1820s^a

Year	Goats	Sheep	Totals
1598	1,000	4,000	5,000
1694	170	2,100	2,270
1697	—	4,000	4,000
1757	—	112,182 ^b	112,182
1779	—	69,000	69,000
1820s	—	240,000 ^b	240,000

^a Does not include Navaho herds.

^b Includes goats and Hopi stocks.

Source: John O. Baxter, *Las Carneradas: Sheep Trade in New Mexico, 1700–1860* (Albuquerque: University of New Mexico Press, 1987), 4, 14–16, 42, 52, 90.

Native American groups in the Southwest readily accepted Spanish goats as a source of protein (meat, milk, and cheese) and for their pelts. Among the earliest goat remains found in the Southwest were those recovered archaeologically at Awatovi in Hopi country. These skeletal remains were indistinguishable from the scimitar-horned goats belonging to the *Capra hircus* and *aegagrus* goats of Asia.¹⁸ At Awatovi and other mission sites in the region, the Pueblo learned goat husbandry from the Spanish conquerors.

Some goats at Pueblo villages may have survived the period between the Revolt of 1680 and the Spanish reconquest and resettlement of 1692–94 (cover photo). In 1693 more than 4,000 head of livestock, including 170 goats, came back up the Rio Grande with colonists led by don Diego de Vargas. By the middle of the eighteenth century there were more than 135,000 head of livestock in Spanish New Mexico, including the Hopi country; 112,182 were sheep and goats (table 1).¹⁹ Fray Dominguez recorded thirty milk goats at Santa Rosa de Abiquiu mission, ten head at Isleta Pueblo, and an unknown number at San Felipe Pueblo in 1776. He noted that nanny goats in the province were worth two pesos.²⁰

Livestock numbers in New Mexico continued to increase over the last two decades of the eighteenth century and into the early part of the nineteenth. Zebulon Pike recorded “numerous herds of goats, sheep and asses” between Cochiti and Santo Domingo and “large flocks of goats” between the latter pueblo and San Felipe in 1807.²¹ The exact number of goats in the next decade is unknown, but there were about 240,000 sheep and goats in the province by the 1820s.²² Later Anglos in north-

ern and central New Mexico, like Josiah Gregg in the 1830s and Lt. James W. Abert in 1846, found goat herds of varying sizes virtually everywhere in New Mexico. Gregg observed that goat meat, especially cabrito, was generally consumed by the poor.²³

In 1857 U.S. Attorney for New Mexico W. W. H. Davis wrote this about goats in the territory:

Goats are also numerous in the country but they are not raised in such numbers as sheep. Their milk, which is sweeter and richer than that of the cow, is in very common use among the inhabitants. In one respect they are a very desirable domestic animal, inasmuch as they can live upon the most sparse pasture, where a cow could hardly subsist, at least to be worth much. The flesh is also in quite common use; it is cheaper than mutton, but is not so well flavored.²⁴

Another Anglo, Samuel W. Cozzens, observed there were thousands of sheep and goats in the Rio Puerco Valley west of Isleta Pueblo in 1860.²⁵ Vast herds of goats and flocks of sheep were found in the entire reach of this drainage over the remainder of the century. Their numbers peaked across the territory by the end of the century (table 2).²⁶

Mexican emigrants brought more goats to southern New Mexico and Arizona in the 1860s–70s, especially to the Gila River basin. By 1886 herds grew in the region, partly due to the subjugation of the various bands of Chiricahua Apaches.²⁷ Ranchers from west Texas began to move their herds into the Gila country in the early part of this century. By the 1920s–30s there were more than 100,000 goats in the region.²⁸

Table 2:

Livestock Numbers in New Mexico, 1850–1900^a

Year	Sheep ^b	Cattle	Totals
1850	377,000	—	377,000
1860	830,000	—	830,000
1870	619,000	137,314	756,314
1880s	2,000,000 to 5,000,000	400,000	2,400,000 to 5,400,000
1890	4,000,000	210,000	4,210,000
1900	3,500,000	843,000	4,343,000

^a Does not include Navaho flocks.

^b Includes goats.

Sources: Alvar Ward Carlson, "New Mexico's Sheep Industry: Its role in the history of the territory," *New Mexico Historical Review* 44 (January 1969), 25–44; Marc Simmons, "The Rise of New Mexico Cattle Ranching," *El Palacio* 93(3): 4–13.

In the early 1900s J. Frank Dobie recorded centuries-old folklore and herding techniques among pastores along the border. One example was the belief that goats kept in the house would prevent the human occupants from contracting consumption. Another was the belief that coyotes could be repelled if skulls of their departed kind were tied around the necks of goats. One technique used to get a nanny to recognize its new offspring by smell was to tether the kid or kids with a cord tied to a lower leg and the other end of a stake. If this tethering was not carried out, the kids might rub against other newborns, masking their smell, which would preclude the nanny from identifying her offspring.²⁹

In 1920–22 a resident of the middle Puerco River Valley described his responsibilities and herding techniques as a young goat herder:

I took care of a herd of goats. That was my responsibility. Dad had, oh, about eighty, one hundred goats. On a donkey ..., on a donkey saddle ... I'd take off very early in the morning and there I was taking care of the goats....

In the summer that's all I did. Understand that I was small. There I went; I remember I'd go take care of the goats and then my dad would make me a slingshot. I'd spend my time hunting.... There were times that by noon I'd return home, lock up the goats in the corral, like now during the summer when the days are long, eat, rest, and as soon as it was cool, I'd take the goats out again.³⁰

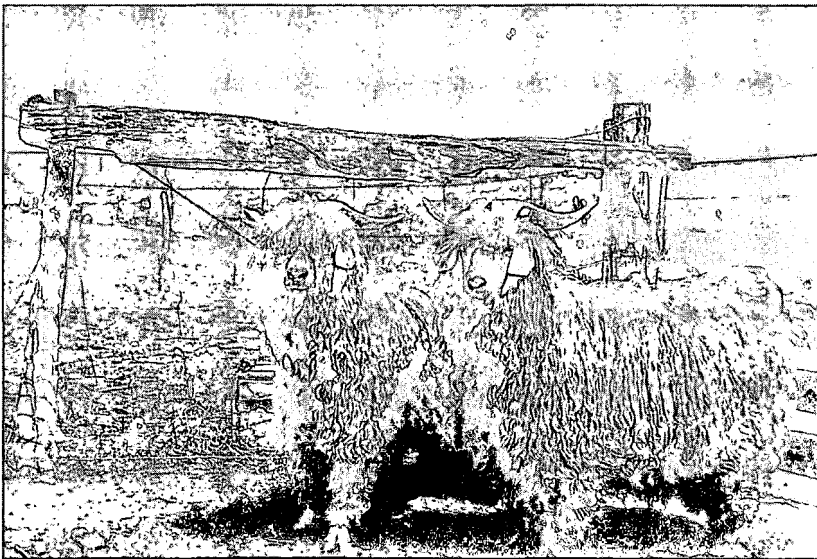


Figure 3. Angora goats owned by Aubrey Grist, 9 May 1925. Photograph by Ralph H. Anderson. Courtesy Museum of New Mexico, Santa Fe, negative no. 129941.

By the late nineteenth century the Angora (figure 3) began to replace the Spanish goat. Its hair was longer and more easily processed and woven than the hair of the Spanish goat. Lucien Maxwell may have brought the first Angoras to New Mexico in 1872. As the Santa Fe Railroad was expanded in 1879–81, opening new rail markets with midwestern and eastern U.S. markets, the Angora spread across the New Mexico Territory. By the early 1900s some 30,000 Angoras were in New Mexico; in west Texas and Arizona, the first Angoras arrived in 1882–85.³¹ Some Anglos and a few Hispanos, as well as Navajos, began to raise these goats as their pelts brought higher prices and their hair could be used in rugs for which there was an expanding market in the remaining years of the nineteenth century.³²

One such Anglo operation, the Onderdonck Livestock Company, a ranch located near Lamy, New Mexico, was switching from “common goats” to Angoras in 1902. At the time, this operation included 3,000 to 4,000 of the first breed and 650 Angoras. These were driven into corals every night near the adobe ranch headquarters. The ranch also included a two-story storehouse containing goat pelts, breeding pens, stables, and supplies and groceries for the herders. Windmills pumped water into tanks scattered around the ranch and into troughs in the corals.³³

During this period of railroad expansion, various mercantile businesses purchased goat and sheep hides from ranchers in northern New Mexico and the surrounding region. Two of the best known stores were the Gross and Blackwell Company at Las Vegas, New Mexico, and the Gross, Kelly, and Company in Trinidad, Colorado. In the late 1800s, business in hides, mohair, and wool was brisk. Some of these products were brought from relatively great distances to the mercantile establishments. For example, a rancher from Chihuahua, Mexico, brought an ox-train carrying goat skins, wool, and sheep pelts over the old Chihuahua Trail to the Las Vegas store. Here and at Trinidad “green hides were salted and cured” and placed in packs; dried skins were trimmed and baled. Goat hides were purchased for as little as two cents a pound in the late 1800s and as high as \$1.25 a pound in the early 1900s. Some skins were sold to drum makers in the region.³⁴

The shearing of mohair goats was done in a way similar to that of sheep, except that they were sheared in both the spring and the fall. One technique, employed to protect the animal in winter weather, involved leaving an unsheared strip of hair three to four inches wide, running along the goat’s back. The long hair of this “cape,” as it was called, afforded some protection against cold weather. Other ranchers used raised combs in shearing, and this left about a quarter-inch of hair on the goat’s body.³⁵

Table 3:
Goats on the Navaho Reservation, 1868–1959

Y e a r	N u m b e r
1 8 6 8	9 4 0
1 8 7 0	2 , 3 0 0
1 8 8 1	2 0 0 , 0 0 0
1 8 8 6	3 0 0 , 0 0 0
1 8 9 0	2 0 0 , 0 0 0
1 8 9 4	2 5 0 , 0 0 0
1 9 0 2	6 7 , 0 0 0
1 9 0 3	6 0 , 0 0 0
1 9 0 4	1 0 8 , 0 0 0
1 9 1 3	2 5 5 , 4 5 5
1 9 3 1	3 9 3 , 8 8 5
1 9 3 2	3 4 7 , 1 6 9
1 9 3 3	3 2 9 , 9 9 4
1 9 3 4	2 9 4 , 8 5 1
1 9 3 5	1 4 5 , 8 2 3
1 9 3 6	6 6 , 0 0 0
1 9 3 7	5 5 , 0 0 0
1 9 4 0	5 7 , 0 0 0
1 9 4 5	3 2 , 5 0 0
1 9 5 1	3 9 , 0 1 4
1 9 5 9	8 0 , 5 5 7

Source: Garrick and Roberta Glen Bailey, *A History of the Navahos: The Reservation Years* (Santa Fe: New Mexico: School of American Research Press, 1986), 299–302.

By the early to mid 1700s the Navajo in northwestern New Mexico and northeastern Arizona had adopted “Spanish goats” and sheep and raising techniques from Pueblo refugees of the Vargas reconquest. By the 1850s, herds and flocks grew to about 500,000; a number of these were taken in raids of ranch and settlement goats and sheep. During the wars with the U.S. military from 1850 until their defeat in 1862–63, the Navajo lost their goat herds.³⁶

Reestablished on their new reservation in 1868, the Navajos received 940 goats and 14,000 sheep to begin rebuilding their herds (table 3). Goats were a basic part of their diet, supplying meat, milk, and cheese (figure 4). They were also desired for their propensity to give birth to twins. By the turn of this century, all Navajo families had goats and sheep, and their numbers quickly grew to more than 1.5 million head.³⁷ In the late 1880s Navajos sold or traded 80,000 to 100,000 goat skins, some to the Gross mercantile stores and to early traders like Lorenzo



Figure 4. Navaho woman and child with goat herd. Note denuded ground. Photograph by Burton Frasher. Courtesy Museum of New Mexico, Santa Fe, negative no. 74995.

Hubbell at Ganado Lake and Pueblo Colorado Wash posts in Arizona, Stokes Carson at Gallegos Wash in northwestern New Mexico, Richard Heller and John Pflueger at Cabezon posts, and Andrew Vanderwagen at Zuni Pueblo.³⁸

During the early 1900s Navajos began to cross-breed their "Spanish goats" with Angoras as mohair prices rose. The use of mohair as plush in railroad car seats in the 1920s spurred the growing market. This market resulted in increases in goat herds in the region until the demand dropped in the early 1930s. Following this downturn was a sharp reduction in the numbers of herds and flocks due not only to market loss but to overgrazing of ranges and subsequent erosion on the reservation. In early 1934 the Indian Service Plan, under the direction of Commissioner John Collier, induced the tribe to reduce their goat herds by 150,000 head. The actual decrease was 148,000 animals, leaving about 165,000 head. By 1936 further reduction lowered the total to 73,600. By 1945 the flocks and herds were reduced even more (table 3).³⁹

Although Angoras are still relatively common on the reservation today, these and other breeds are no longer very important as meat in Navajo diets. Goats are generally considered difficult to butcher, and the lean meat is no longer a preferred food.⁴⁰ Goat hides and sheep skins sometimes are still used for bedding as they were commonly used in

Table 4:
Livestock Numbers on New Mexico National Forests, 1909–58

Year	Sheep and Goats	Cattle and Horses	Totals
1909	569,841	131,621	701,462
1914	444,222	98,758	542,980
1919	479,353	180,288	659,641
1924	263,875	107,766	371,641
1929	254,936	84,425	339,361
1934	208,238	94,471	302,709
1939	173,199	91,148	264,347
1944	158,590	90,904	249,494
1949	107,431	76,529	183,960
1958	66,559	78,166	144,725

Source: Robert D. Baker, Robert S. Maxwell, Victor H. Treat, and Henry C. Dethloff, *Timeless Heritage: A History of the Forest Service in the Southwest* (Washington, D.C.: USDA Forest Service, 1988), 98.

the historic period. Mohair yarns were often used in making blankets, sometimes combined with wool or cotton warps. Caps, decorated with eagle or wild turkey feathers, were made of goat skin and worn in the 1800s.⁴¹ And finally, Navajos used skins as drum heads.

In the early 1900s livestock overgrazing was also an increasing concern on public lands in New Mexico and Arizona, especially on the forest reserves, which were later designated national forests. Virtually all of these forested lands in the mountains of northern and central New Mexico were *ejidos* (communal land) created from Spanish land grants. These common-use lands were not only used for grazing, but for wood collecting, plant gathering, and hunting. Some had been heavily grazed, especially the older grants with relatively large village populations or those grants near population centers off the grant.⁴² Early on, Forest Service officials considered goats and sheep as having a severe impact on grasslands and open woodlands or forests.⁴³

In 1909 there were 569,841 goats and sheep on forest lands in New Mexico, but the agency reduced the total to 444,222 head in 1914 (table 4). An increase of some 35,000 animals over the next few years, due largely to demand for hides, wool, meat, and milk during World War I, led to a study of their impact on forest rangelands. Based on the findings of this four-year study, as well as the implementation of grazing fees, the Forest Service recommended that residents near the forests who were primarily Hispanic reduce their goats and sheep and replace

Table 5:
Goats and Sheep in the Tewa Basin and Adjacent Areas, 1935

Village	Numbers
Nambe	"Several small herds"
San Ildelfonso	"Few Goats"
Cupadero-En Medio	"Few Goats"
Cuarteles-Puebla	(goats and sheep) 75
Chimayo	500
Cundiyo	3
Cordova	102
Truchas	1,100
El Guache	33
El Rito	(1family) 300
Vallecito-Rio Oso	326
Velarde	70
Dixon	(goats and sheep) 78
Cienega	(goats and sheep) 70
Rinconada	(goats and sheep) 7
Ojo Sarco	(goats and sheep) 362
Trampas	(goats and sheep) 80

Source: Marta Weigle, ed., *Hispanic Villages of Northern New Mexico: A Reprint of Volume II of the 1935 Tewa Basin Study, with Supplemental Materials* (Santa Fe, New Mexico: Lightning Tree Press, 1975), 43, 60, 67, 84, 96, 103, 109, 116, 137, 150, 163, 183, 194, 200.

them with cattle. This recommendation caused protest and resistance among land grant heirs, but to no avail as goat numbers were reduced to 263,875 by 1924. Further reductions over subsequent years reduced the populations to 158,590 in 1944 and 66,559 in 1958 (table 4).⁴⁴

During the 1930s both Hispanos and Pueblos in northern New Mexico kept a few head of goats in or around their villages as they had done for centuries. These varied in number from five or six at San Ildelfonso and Chupadero to just over 1,000 head at Truchas (table 5).⁴⁵ Here goats were used traditionally, not only for food and milk, but to

thresh grain seeds or beans on circular, packed, adobe surfaces called threshing floors. The use of goat hides for the heads of drums continued as well, and rams were still used to lead flocks of sheep.⁴⁶ After World War II, these uses declined due to replacement technology and improved availability and cheapness of bottled cow's milk and processed cheese for human consumption.

From 1925 to the mid-1940s, Hispanics owned 90 percent of the permitted goats and sheep on U.S. Forest lands in northern New Mexico. Between 1945 and 1954, Hispanics also owned 70 percent of the flocks grazing in the forests. In the mid-1950s this agency began a program of non-renewal of goat and sheep permits; sheep grazing ended in the Santa Fe National Forest in 1972.⁴⁷

Long-term browsing-grazing of goats and sheep, as well as other livestock, in Mexico, New Mexico, and across the Southwest has reshaped much of the region's indigenous vegetation. The old practice of transhumance, or herding goats, sheep, and cattle in the lowlands in late fall to early spring, and in the uplands in late spring to early fall, meant virtually all rangelands were impacted annually. Goat and sheep browsing-grazing caused damage to vegetation, which became an environmental issue in recent decades, not only among government agencies which administer public lands in the region, but by an increasing number of conservationists as well. Studies at various areas dating from the Spanish colonial period and the early territorial statehood period have documented the early environmental degradation these animals can cause.⁴⁸ In some instances, these early impacts are still reflected in the sheet erosion and gulying of soils, and the composition, distribution, and abundance of native plants.⁴⁹ Intensive browsing-grazing has also led to the spread of various noxious, either indigenous or introduced, plants such as sagebrush, creosote bush, prickly pear, broomweed, Russian thistle, tamarisk, and Kentucky bluegrass.⁵⁰

Regionally and around the world, feral goats have been particularly destructive to plants and ground dwelling mammals and birds.⁵¹ Like other livestock in the Southwest, the cabra is attracted to stream-sides or springs and associated vegetation. In addition to impacting the flora at these locations, these animals can contaminate the water and cause bank erosion.

The Sandia Mountain range near Albuquerque provides an example where goats have impacted and changed the native plant communities and composition of species.⁵² Goats and sheep were browsing-grazing the west and north slopes of these mountains probably by the mid-1600s. Following a hiatus due to the Pueblo Revolt and Spanish reconquest (1680-96), goats were again browsing trees, shrubs, and forbs on slopes of the Sandias, especially after the founding of Bernalillo (1695), Albuquerque (1706), Alameda (1710), and the Elena Gallegos Grant

(1716).⁵³ Later settlements such as San Miguel, or Carnue (1763), San Antonio (1819) on the Carnue grant, and San Jose de las Huertas on the San Antonio de las Huertas grant (1768) ran their goats in this mountain range.⁵⁴ Goats from San Jose especially brought change to the rugged north slopes of the Sandias.⁵⁵ Stock from Sandia and Santa Ana pueblos were also herded on mountain slopes in the area.⁵⁶

In addition to intensive goat herding, combined with the widespread cutting of trees and large shrubs for use as construction materials and fuelwood, the suppressing of wild fires has also contributed to this environmental degradation of the Sandias after 1880.⁵⁷ Where ponderosa pine with an understory of grass and scattered, small shrubs was generally found at the 7,200–8,800 feet level in the early historic period, Gambel oak, piñón, and juniper replaced this taller pine-dominated community. On the lower slopes, relatively dense, native “scrub” oaks, mountain mahogany, walkingstick cholla, prickly pear, and undesirable (for livestock) patchy bunch grasses replaced grasslands with scattered shrubs and native bunch grasses desirable to livestock.⁵⁸ Today these plant zones, now in the Cibola National Forest, are slowly recovering. Above the lower zone, the oak–piñón–juniper community still persists.

Of course, not all of the goat’s historical legacy in New Mexico and the Southwest is negative. There are fifty–nine English place names in the state originating from locations where goats were lost, found, killed, or rescued. The Spanish name *cabra* is associated with thirteen places, and *chivato* with at least one.⁵⁹ As a reminder of the Old World origin of the domesticated goat, the New Mexico Game and Fish Department released the wild bezoar goat into the Florida, Tres Hermanas, West Potrillo, Alamo Hueco, Doña Ana, and Mimbres mountains in the 1960s–70s. Filling ecological niches left vacant by the extirpation of the native bighorn sheep in the late 1800s, herds of this wild ancestor of New Mexico’s domestic goats have proliferated in these mountain ranges.⁶⁰

Because of modern environmental regulations and the disappearance of traditional lifeways, goats in New Mexico and across the Southwest will never number in the many thousands as they did in the latter half of the nineteenth century. But they have made somewhat of a comeback in the last twenty years as providers of milk and cheese, and they are sold commercially as pets. The Sierra Goat Farms located on the west side of the Manzano Mountains is one example which has been a successful operation over the last eleven years and now boasts seventy–eight Nubian and Alpine milk goats with an expansion planned in the near future (as of October 1996).⁶¹ Some Southwest borderland restau-

rants serve cabrito with various sauces; following tradition, it is also cooked in its own blood. Also, Navajo rug makers and some Hispanic weavers continue to use Angora hair in the upper and middle Rio Grande Valley.

NOTES

1. Henry Moscow, *Domestic Descendants* (New York: Time-Life Books, 1979), 12, 46; Leon Bertin, *Larousse Encyclopedia of Animal Life* (New York: Hamlyn, 1967), 609.

2. Moscow, *Domestic Descendants*, 11, 46.

3. *Ibid.*, 11–12.

4. Diana Hadley, Peter Warshall, and Don Butkin, "Environmental Change in Aravaipa, 1870–1970;" An Ethnoecological Survey, Bureau of Land Management Cultural Resource Series Monograph No. 7 (Phoenix, Arizona: BLM State Office, 1991), 182. This environmental history of an area in southeast Arizona contains specific references to goats, grazing-browsing strategy, as well as environmental impacts.

5. Moscow, *Domestic Descendants*, 46, 52. Larousse Bertin, *Larousse Encyclopedia*, 609.

6. Bertin, *Larousse Encyclopedia*, 1906, 609; Charles S. Plumb, *Types and Breeds of Farm Animals* (Boston, Massachusetts: Ginn and Company), 666, 673; Charles Wayland Towne and Edward Norris Wentworth, *Shepherd's Empire* (Norman: University of Oklahoma Press, 1945), 276. This classic study of sheep in the western U.S. contains some data on goats.

7. Towne and Wentworth, *Shepherd's Empire*, 276.

8. William J. Parish, ed. "Sheep Husbandry in New Mexico," *New Mexico Historical Review* 37 (October 1962), 286.

9. Plumb, *Types and Breeds*, 671.

10. George M. Foster, *Culture and Conquest: America's Spanish Heritage* (Chicago, Illinois: Quadrangle Books, 1960), 71–72.

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13. Cosby, *The Columbian Exchange*, 75.

14. Paul Howard Carlson, *Texas Woolly Backs: The Range Sheep and Goat Industry* (College Station: Texas A&M University Press, 1982), 10–11.

15. Cosby, *The Columbian Exchange*, 93.

16. John O. Baxter, *Las Carneradas: Sheep Trade in New Mexico, 1700–1860* (Albuquerque: University of New Mexico Press, 1987), 3–4.

17. Marc Simmons, *Coronado's Land: Essays on Daily Life in Colonial New Mexico* (Albuquerque: University of New Mexico Press, 1991), 94. This book contains a brief, but informative chapter on sheep and goats. Simmons has published several papers and articles on livestock in New Mexico, as well as one on Spanish irrigation farming.
18. Stanley J. Olsen, "Bones from Awatovi, Northeastern Arizona," *Report of the Awatovi Expedition* No. 11 (Cambridge, Massachusetts: Museum of Archaeology and Ethnology, Harvard University, 1978), 28. Olsen is an expert on the identification of domesticated animal bones and has worked with faunal remains from archaeological sites in the Southwest for several decades.
19. Baxter, *Las Carneradas*, 16, 42.
20. Eleanor B. Adams and Angelico Chavez, (translated and annotated), *The Missions of New Mexico, 1776: A Description by Fray Francisco Atanasio Dominguez with Other Contemporary Documents* (Albuquerque: University of New Mexico Press, 1956), 124, 164, 206, 246.
21. Elliott Coues, ed., *The Expeditions of Zebulon Montgomery Pike*, 2 vols. (New York: Dover Publications, 1987), 2:616.
22. Baxter, *Las Carneradas*, 90.
23. Josiah Gregg, *Commerce of the Prairies*, 2 vols. (New Canaan, Connecticut: Microprint Corporation, 1966), 1:191; Towne and Wentworth, *The Shepherd's Empire*, 144.
24. W. W. H. Davis, *El Gringo: New Mexico and Her People* (Lincoln: University of Nebraska Press, 1982), 206.
25. Samuel Woodworth Cozzens, *The Marvelous Country; or, Three Years in Arizona and New Mexico* (Secaucus, New Jersey: Castle, 1988), 280.
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28. Hadley et al., *Environmental Change*, 183-86.
29. Dobie, *Tongues of the Monte*, 264, 279, 287.
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31. Garrick and Roberta Glen Bailey, *A History of the Navajos: The Reservation Years* (Santa Fe, New Mexico: School of American Research Press, 1986), 131-32.
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33. Parish, "Sheep Husbandry in New Mexico, 1902-1903" 201-13.
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