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# A Historical Chronology of Events and Observations for the Pecos Wilderness in the Territorial Period

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WILLIAM DEBUYS AND CRAIG D. ALLEN



In the early 1990s, we became involved in a rephotography project focused on the lands of the present-day Pecos Wilderness, which embraces the headwaters of the Pecos River in the Sangre de Cristo Mountains of northern New Mexico. The federally designated wilderness area comprises 223,667 acres (about 350 square miles) within the Santa Fe and Carson National Forests. Most of the land within the wilderness lies above 9,000 feet, including a notable concentration of peaks that top 12,000 feet, of which South Truchas Peak (13,102 feet), the second highest peak in New Mexico, is the tallest.

As with other rephotography projects, the idea was to collect historical photographs of the lands in question, locate the exact spots from which the photographs had been taken, and reshoot the views duplicating the composition of the earlier images as exactly as possible. Our team expected that, by comparing old photographs with new, we would learn much about the changes wrought on the mountains by fire, grazing, and other impacts. We readily admit that from the outset no one on the team resisted making frequent horseback trips into the wilderness area to carry out the project. In the name of duty, we endured multiple sojourns in one of the wildest and most beautiful large mountain areas in the Southwest—poor us!

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William deBuys is the author of eight books, the first of which, “Enchantment and Exploitation,” is being reissued this year in a revised and expanded edition, and the most recent of which is “The Last Unicorn: A Search for One of Earth’s Rarest Creatures.” He lives and works in northern New Mexico. Craig D. Allen is a research ecologist with the U.S. Geological Survey and is leader of the Jemez Mountains Field Station, based at Bandelier National Monument since 1986. He conducts research on the ecology and environmental history of Southwestern landscapes, and the effects of climate change on Western mountains and forests globally.

The team included Craig Allen, then as now a research ecologist and the leader of the United States Geological Survey (USGS) Jemez Mountains Field Station. The field station is located at Bandelier National Monument and has operated successively under the aegis of the National Park Service, the National Biological Survey/Service, and (presently) the USGS. Jerry Elson, who finished his long Forest Service career as director of range management for Santa Fe National Forest (SFNF), and Pete Tatschl, for many years the range conservationist of the Pecos Ranger District of SFNF, were no less important members of the team. Both men are now retired from federal service. Will Moir, formerly an ecologist with National Forest research stations in Flagstaff, Arizona, and Fort Collins, Colorado, helped analyze the paired images. William deBuys joined the team as scribe and historian. Once several of us finally recognized the limits of our own photographic capabilities, Steve Tharnstrom, then of Sandia National Laboratories, joined the effort as photographer. Assisted in backcountry fieldwork by John Hogan (also of the USGS Jemez Mountains Field Station), Steve ultimately shot approximately four dozen photographs, precisely duplicating the view of historical images that Allen and Elson had obtained from a variety of sources. Tharnstrom's photographs, together with the historical views they replicate, are archived at the Jemez Mountains Field Station.

Our aspirations grew as the photographs accumulated. Soon we contemplated creating a book or, if our final product were to be published by one of the members' agencies, a "technical report." In addition to the photo pairs, we would document the history of the high country, including its grazing history—stocking numbers and livestock distribution over the course of nearly a century of "managed" use—to complement and perhaps amplify what we might learn from analysis of the photographs. Our goal was to compile an ecological history of the Pecos high country—or as much of a history as the available information allowed us to piece together.

The job of compiling a documentary history of the "Pecos River Mountains," to use a term current at the dawn of the twentieth century, fell to deBuys, and the chronology presented here, which draws on contemporary newspapers, first-hand reports, and other sources, is the fruit of that effort.

Unfortunately, the hoped-for book never came to completion. Various work-related crises and opportunities, not least the Dome and Cerro Grande fires and the creation of the Valles Caldera National Preserve in the Jemez Mountains, pulled each of us in different directions, and the Pecos project was put aside. But it has not been abandoned. Given the pace of change in the high-country landscape, especially now that, after a century or more of absence, wildfires are becoming more common again, the time may not be far off when it will be advisable to photograph the views Steve Tharnstrom recorded from

1997–2000 for a third time. Rather than allow the project’s historical information to languish unseen and unread, the *New Mexico Historical Review* has generously agreed to publish it.

The materials that came to light proved to be richer than we had hoped, not least because the mountains we were studying rise immediately behind one of the oldest settlements in the West. In territorial days, when our story mainly begins, was a center of population as well as New Mexico’s capital. These circumstances, along with the simple good fortune that the *Santa Fe New Mexican* has managed to publish regularly since 1847 (it is the oldest newspaper in the West), helped ensure a continuous printed record of life in and near the mountains. The newspaper also kept discussion of the Pecos River Mountains, including their prospects for preservation, in the political discourse of the territory and ensured their frequent mention in the Annual Reports of the Territorial Governor, a particularly rich source of period information.

A further bonus was encountering L. L. Dyche’s handwritten accounts of his hunting expeditions in the high country in 1882, 1883, and 1885, copies of which Dyche’s biographer, Bill Sharp, helped deBuys obtain from archives at the University of Kansas in Lawrence. DeBuys received additional assistance from William Cox and Bruce Kirby at the Smithsonian Archives in Washington, D.C., where records of the U.S. Division of Biological Survey (renamed the Bureau of Biological Survey in 1905), a predecessor agency of the U.S. Fish and Wildlife Service, are kept. There he found a highly informative report from 1903 on the “physiography” of the Pecos River Mountains by Vernon Bailey, the Survey’s chief field naturalist (Bailey’s wife, Florence, sister of C. Hart Merriam, authored a meticulous survey of the Pecos area’s birdlife as well as the groundbreaking *Birds of New Mexico* of 1928). At the Smithsonian Museum of Natural History, a short distance across the Washington Mall, Robert Fisher kindly allowed us access to the marvelous library of the Division of Mammalogy and permitted us to copy various materials archived therein, including the field journal that Bailey kept during his sojourn in the Pecos high country.

We would like to express our gratitude to all the individuals mentioned above for their invaluable assistance as well as to our project colleagues: Jerry Elson, Pete Tatschl, Will Moir, Steve Tharnstrom, and John Hogan.

The Bailey and Dyche materials stand at the heart of the sequence of events and observations presented here. The span of our chronology lies almost wholly within the territorial period (1848–1912)—not until the latter half of the nineteenth century does the documentary record for the mountains begin to accumulate substantially, and soon after statehood it starts to swell with the reports of the Forest Service and other agencies. Ultimately it becomes overwhelming. This is not to say that ancestral Pueblos, Apaches, and other Native American





Truchas Peaks, 1904 (above) and 1997. A 1904 photograph and 1997 photograph taken from Hamilton Mesa toward the Truchas Peaks and presenting an expansive view of the heart of the Pecos Wilderness. The 1904 image shows the effects of late-nineteenth-century wildfires that significantly opened and thinned the high-altitude spruce-fir forest. Subsequently, young aspen stands sprang up in many burned areas. The 1997 image shows that the aspen forest has matured and thickened, and, together with conifers, is encroaching on surrounding meadows and parks. The 1904 photographer is unknown, USFS photo 47476. All second-take photographs in this article are by Steve Tharnstrom. Photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 82.

groups who lived in the shadow of the mountains did not use the high country in important ways or visit it frequently. In deBuys's *Enchantment and Exploitation* (1985; reissued in 2015 as a revised edition), he tries to give some suggestion of the connections, both economic and spiritual, that bound Native populations to the mountains. Outside of a relatively small number of archaeological sites and accounts from oral tradition (which outsiders rarely do a good job of interpreting, even when their efforts are welcome), those earliest visitors to the mountains left little record of their presence.

The same might be said of the Indo-Hispanic colonists who settled the region in the name of Spain and of their descendants during the Spanish-colonial and Mexican eras. In addition to hunting game, gathering herbs and other forest goods, and limited grazing of their livestock, in pre-territorial days they no doubt scoured the high country for mineral prospects—to no avail, as it turned out. Nevertheless, the Spanish and Mexican archives of New Mexico have so far (to our knowledge) yielded little mention of the high mountain country, although one may hope that valuable pre-territorial accounts may yet be found.

The period that the chronology does cover is a one of rapid change in the high country, as reflected in the transformation of its wildlife populations. Except for the reclusive mountain lion (which may now be as numerous as it was at the beginning of the period, although no one really knows) and possibly the black bear, the roster of large mammals in the Pecos high country has changed dramatically. Grizzlies and wolves are gone, hunted and trapped to local extinction. The coyote, which was formerly absent, is now ubiquitous. Its tracks appear even on the highest peaks in the depths of winter. Elk, which were extirpated by Bailey's time, were reintroduced from Yellowstone stock and have built impressive herds, which spill out of the high country to populate lower elevations. Bighorn sheep, similarly extirpated and subsequently imported, owe their bloodlines to ancestors in the region of Banff, Alberta, far from the Southwest. They now clamber the highest crags of the wilderness in numbers that are believed to be about as great as the available high-altitude habitat can support. Deer tell a bleaker story. The sight of a magnificent mule deer buck, in which Vernon Bailey frequently delighted, is no longer common, the mule deer population having steadily declined, while the white tail deer, which once prospered in willowy habitat along the creeks and rivers of middle elevations, has long been locally extirpated.

These kinds of changes are central elements in the story of the land. A variety of forces brought them about. Fire, both in its presence and its absence, is one of them, as is the grazing of domestic sheep, cattle, and horses. Other human activities, including hunting, trapping, and recreation, also rank high. The specific impacts of these forces on the mountain landscape command our attention

as we try to live in some kind of harmonious relationship with the mountain environment. Even more interesting from a historical point of view, perhaps, is the impact of the mountains' slow transformation on the society that helped to produce it. In important ways the Pecos River Mountains have always mirrored the character of the surrounding human populations who coveted their resources, and felt the spell of their beauty and magnificence. The following chronology helps to bring that mirror into view.

## Chronology

1821

Instead of returning to Missouri, thirteen of the first eighteen Anglo Americans to arrive in Santa Fe via the newly opened Santa Fe Trail remain in New Mexico to trap beaver, wintering in San Miguel del Vado, and possibly trapping in the Pecos mountains as soon as weather and snowpack permit. These men, who came to New Mexico under the command of William Becknell, undoubtedly had fur trapping in their sights from the outset, for they brought their traps with them. Many others who follow them down the Santa Fe Trail will do likewise. The southern Sangres, including the Pecos high country, are among the first areas in the Southwest stripped of beaver. Probably by the mid-1820s the job of "cleaning" the streams of the Sangres is substantially complete (Weber 1971, 53ff.).

1842

A large high-severity forest fire burns in the Jicarita Creek watershed, generating today's old aspen stand, evidenced by precisely dated tree-ring records of firescars and the tree ages of the aspen which immediately re-sprouted after the fire (Margolis et al. 2007).

1861

Large high-severity forest fires in various areas of the Sangre de Cristos are well-documented for this year in both the Santa Barbara River watershed and in the Santa Fe Ski Basin area. Their passage can be deduced from firescars and post-fire aspen tree ages found in today's extensive aspen stands (Margolis et al. 2007).

1868

According to Elliot Barker, longtime rider, ranger, and writer of the high Pecos, herds of one hundred or more elk annually descend at this time from the high mountains to winter in hay meadows around present-day Rociada. Barker attributes this information to the French trader Juan Pendaries, whom Barker knew as a boy. Pendaries settles in this year in the place that still bears his name. A few years later he founds nearby Rociada, and after that moves a few miles farther

to a location he calls Gascon in honor of the land of his youth, Gascony (Barker 1976; Julyan 1996).

1871-1872

A band of Jicarilla Apaches, having escaped from Fort Sill, Oklahoma, possibly winters in the high Pecos country: "We went up to the head of the Pecos River and on to the Rocky Mountains." The Apaches suffer mightily, according to Herman Lehmann, a white man captured as a boy who assimilated into the tribe. Looking back on their season of privation, he noted, "I fear the cannibal had been there" (Greene 1972, 83-84).

1874

The "United States Geographical Surveys West of the One Hundredth Meridian" under command of Lt. George Montague Wheeler begins work in northern New Mexico, with a party under Lt. Stanhope Blunt entering the Pecos high country. The survey's reports are mute on the subject of fires.

From the early 1870s onward, prospectors comb the mountains west of Las Vegas and minor "rushes" attract waves of miners to such places as Mineral Hill, Rociada, Tecolote Creek, and the upper Gallinas (deBuys 1985, 151).

1875

A second party of the Wheeler Survey under Lt. William L. Carpenter finishes work in north central New Mexico. Carpenter sends a small group headed by F. O. Maxon, a civilian topographer, into the high Pecos to complete observations and triangulations begun by Blunt the previous year. In summarizing the year's field season, Carpenter complains of bad weather, having been encamped on Taos Peak for eight days in July 1875 in what was "said to have been the *rainiest* summer ever known in New Mexico." He writes, "the section drained by the Canadian River and its tributaries, the Mora and Pecos, is a fine tract for all kinds of live-stock, and is *par excellence* the future great wool-growing center of the West." Here and elsewhere Carpenter indicates that the country is far from fully stocked for grazing. It is worth noting that Carpenter seems to have thought that the Pecos River is a tributary of the Canadian, which it is not. This is not the kind of error a surveyor should make, but it suggests how little even informed observers at the time understood the geography of the region (Wheeler 1876, 129).

1879

Tracks of the Atchison, Topeka and Santa Fe Railway reach Las Vegas, New Mexico, setting the stage for rapid economic development, including vigorous expansion of a regional commercial livestock industry. Population growth

and increasing economic activity—prospecting and mining, logging, herding, trading, and travel—also set the stage for an increase in forest fires. Although it was common in territorial days to blame fires (and much else) on Indians, and although Indians no doubt started some fires and lightning accounted for many more (Allen 2002), all the western states and territories in the last decades of the nineteenth century experienced a marked increase of wildland fires as settlement advanced (US Department of Agriculture 1888; Pyne 1982). John Wesley Powell, as director of the USGS, later summed up his view of the situation: “It is thus that, under conditions of civilization, the great forests of the arid lands are being swept from the mountains and plateaus” (Powell 1890). Climate, however, played an essential and probably determinative role. Although human ignitions may have contributed to fires, recent research demonstrates that the stand-changing fires of the latter half of the nineteenth century also were a feature of a longer and deeper fire regime, driven primarily by periodic severe drought and less by the machinations of people (Margolis et al. 2007; Swetnam and Baisan 2003).

A large crown fire burns in the Puerto Nambe (between Lake Peak and Santa Fe Baldy), probably in this year, possibly in 1880, consuming most of the timber on the south face of Santa Fe Baldy. Analysis of fire scars obtained from living spruce trees at the edge of the burned area indicate that the fire occurred between the growing seasons of 1879 and 1880—in fall or spring (Ellis Margolis, personal communication, 16 February 1996). This fire is almost certainly the same one that consumes the forests of the nearby Santa Fe Ski Basin and Aspen Basin in 1879 (Margolis et al. 2007), with noteworthy surface fire also recorded in the adjoining upper Santa Fe River watershed (Margolis and Balmat 2009).

1880

The *Santa Fe Weekly New Mexican* reports several times that the month of May is very cold; nevertheless, the issue of 31 May reports, “An extensive fire has been destroying the timber up the Rayado cañon during the past week. Mr. Abren thinks it was started by a party of fishermen from hereabouts.”

On 14 June the *Santa Fe Weekly New Mexican* prints a one-sentence squib on the front page of the paper: “Fires are raging in the mountains east and south of Santa Fe.”<sup>1</sup>

Puerto Nambe, Aspen Basin, and Santa Fe Ski Basin are northeast of Santa Fe. Lower elevation portions of the Sangres stand east of the city, and the Ortiz and San Pedro ranges lie at some distance more or less to the south. If the Puerto Nambe and nearby areas burned in 1879 or 1880, one might wonder why so great a conflagration earned so little mention, so close to home. Three reasons, taken together, may contribute to an answer. First, if the usually prevailing winds from

the west and southwest were blowing, Santa Fe would have been little inconvenienced by the considerable smoke and ash such a large fire would have produced. Second, fires may have been so commonplace that they merited little more than passing mention, unless they threatened private property (see below for 1883). Third, territorial news in 1880 is dominated by alarmed reports of Indian depredations and retaliatory military operations, or the lack of them.

Drought, however, directly affects stock-raising and agriculture, and gets plenty of ink. The early months of 1880 are very dry:

George W. Thompson, one of the wealthiest cattlemen of Las Animas county, Colo., was in Santa Fe yesterday, having arrived the day before. He states that in Las Animas county, as on the ranges of New Mexico, there is great suffering among the cattle, on account of the long continued drouth, the sheep especially dying in great numbers (*Santa Fe New Mexican* 21 June 1880).

A week later, the *Santa Fe New Mexican* notes the arrival of summer rains that “have been very general and the country has improved to an extent that is wonderful when the brief time that has elapsed since the drouth was first broken, is considered” (*Santa Fe New Mexican* 28 June 1880).

1881

Late in the year the tracks of the Denver and Rio Grande Western reach Española. Arrival of the narrow gauge connects the valley of the upper Rio Grande, including the western slopes of the Sangres, to Denver and, by extension, to the cash-driven markets of the rest of America and Europe.

1882

The weather this spring brings abundant moisture. The *Santa Fe New Mexican* (7 July 1882) reports:

If rain all through the season is any sign of success, we would have the same, world without end. Ever since last December, rain has fallen about as regular [*sic*] as back in the states, and every field, valley and hill top shows. In places, corn, is waist high, new potatoes, onions, peas, radishes, lettuce and “sici,” are plenty, and fresh every day.<sup>2</sup>

Commercial sheep raising expands rapidly. The 16 July edition of the *Santa Fe Daily New Mexican* reports, “Fine sheep grazing lands are now in demand in New Mexico. In another year all good grazing lands will have been taken up, and thereafter such property will be obtainable only by purchase. The land office is frequently applied to on this subject, showing the value of good lands in the minds of capitalists.”

In this year, the naturalist Lewis L. Dyche begins a series of trips into the upper Pecos, entering from the Las Vegas side and operating, at least initially, out of Harvey's Ranch above the Rio Gallinas near Hermit's Peak. Dyche is a student, soon to become instructor and later professor, at the University of Kansas. He is also a crack shot. He finds white tail deer plentiful in the area of Harvey's Ranch and kills seven or more during a stay of several weeks. Harvey, a former Boston merchant, and his family had established themselves on their homestead only a year or two before. During one outing Dyche jumps a bull elk near the head of the Gallinas, probably on Elk Mountain. Although he hunts for it diligently, he fails to glimpse it again. He writes, "I learned afterwards that three elk had been seen on the same mountain, a year before, but that there were no elk in the country except a rare and occasional stragler [*sic*]." On subsequent trips in 1883 and 1885, which take him into the upper Pecos drainage, Dyche looks for elk but finds no sign of them (Dyche n.d., 1–22; Bailey 1931, 40–41; Sharp and Sullivan 1990, chaps. 2–3).

1883

This year is given by George D. Hardaway and J. Robert Thompson for the last fire recorded on the Santa Fe River watershed (Hardaway and Thompson 1962, 1). They would seem, however, to have been mistaken (see 1886). Also note that a detailed fire history of the upper Santa Fe River watershed reconstructed from precisely dating fire-scarred wood reveals many subsequent fire dates, although it seems that fire frequency and extent drops off markedly after widespread fire activity in 1842 (Margolis and Balmat 2009).

The mountains near Santa Fe are unusually full of prospectors this year because of a local outbreak of gold fever. On 4 May the *Santa Fe New Mexican* announces, "Gold at Glorieta, A Gold Lode Discovered Thirteen Miles from Santa Fe, Running \$650 to the Ton." A headline on 8 May proclaims, "Numerous New and Promising Strikes in the Mountains east of Santa Fe." The finds of gold and copper were said to extend "from Glorieta up the range to within a few miles of Santa Fe." These strikes may have been a factor in the year's fires. Especially in Colorado, prospectors and miners came to be considered incendiary agents. Not only were they—like virtually everyone else in those days—careless with their campfires, but it was in their interest to burn off whole mountain sides, the better to read the lay of the land and its underlying mineral geology (Veblen and Loentz 1991; National Academy of Sciences 1897).

Glorieta is not the only source of mining news. The *Santa Fe New Mexican* of 13 May carries notice of a meeting of the stockholders of the Pecos River Mining Company, the purpose of which was "to vote upon a proposition to increase the capital stock of said company to the full amount of \$1,000,000." In 1882

the company began development of a mine named “Evangeline” at a place that came to be called Tererro (appropriately, the word is Spanish for mine dumps or tailings). The operation at Tererro grows into the state’s leading producer of gold, lead, zinc, and silver in the late 1920s and 1930s (deBuys 1985, 155).

Probably at this time, considerable logging is underway in the mountains east of the capital, in the Pecos River canyon, and in the mountains within reach of railroads serving Española and Las Vegas. Copious amounts of slash no doubt contribute to fire danger. The *New Mexican* of 2 May has sharp words for sawyers: “Saw-mill men who indulge in the playful habit of throwing their sawdust in the streams are heartily denounced by mountain residents. It seems the dust either destroys or drives away the tricky trout.”

The main products of the sawmills include building timbers, mine props, and railroad ties, the last of which led to the following item in the *Santa Fe New Mexican* of 13 May 1883:

#### Destructive Fires

Messrs. L. P. Tracy, Edward Johnson and others, just in from Española last evening, report that a destructive fire has just been extinguished by Texas, Santa Fe & Northern employees and citizens residing along Santa Clara creek. It burned furiously for several days, and it was only by the greatest exertion that 65,000 ties belonging to the Texas, Santa Fe & Northern were saved, and then not till 500 ties had been consumed. The flames originated from a neglected camp fire started by Pueblo Indians.

The threatened ties were stockpiled for construction of a narrow gauge line that would soon connect Santa Fe to the Denver and Rio Grande Western system at Española.

From 18 July through 28 October ornithologists H. W. Henshaw and E. W. Nelson (later of the Department of Agriculture’s Division of Biological Survey) operate from a base camp at the mouth of Willow Creek, 1.5 miles up the Pecos from Tererro. Their purpose is to compile a list of birds for the area and to assess fall migration patterns. They appear not to have packed far into the high country—they say they did not reach Pecos Baldy, which they call the highest mountain in the range. In later supplementing their list, Florence Merriam Bailey reports that they restricted their activities to an area of about five square miles surrounding their camp (F. M. Bailey 1904, 349).

Henshaw describes a mountain landscape that in some areas has been heavily burned. In other areas, especially among ponderosa pines, the mountains have an open aspect, probably also the result of fire, though of a cooler, less catastrophic character. He reports that the mountains are rich in oak brush, which is another likely effect of fire, as well as grass and riparian vegetation. The aspen

stands that have sprung up in burned-over areas would have been very young—he says they form dense thickets limiting vision to “a very few feet”:

At the height of our camp (7800) feet a luxuriant growth of pines covers the hills, giving way, a thousand feet higher, though not wholly, to the spruces. On many of the gentle slopes, the pines are thinly dispersed, and are so scattered, or gathered in picturesque groups as to convey the idea of artificially arranged parks—a suggestion still further heightened by the sward of green grass, enlivened with patches of bright flowers. The summits of many of the smaller heights are almost entirely bare of trees and shrubbery, and are covered with a luxuriant growth of grasses, affording the finest sort of pasturage. The sides of many of the ridges and cañons are heavily clothed with brush, mainly of scrub oak. At a height of about 7500 feet, scattered aspens begin to put in an appearance, and soon assert a place for themselves in the shape of large groves. Wherever fire has devastated the pine tracts the fire-cleared space is immediately occupied by aspens, which spring up in the shape of extremely dense thickets—so dense that in them the vision is limited to the space of a very few feet. These are the favorite haunts of deer and bear. Everywhere the streams are densely fringed with brush of various sorts, chiefly, however, willows and alders, and it is these thickets that form the chief resort for the smaller birds (Henshaw 1885, 329).

According to Barker (1976), Nelson reported white tail deer were as common as mule deer in the vicinity of Cowles. V. O. Bailey, a colleague of the two ornithologists, observes in *Mammals of New Mexico* that white tail deer are present in thickets and riparian areas mainly along the eastern foothills and that white tail bucks come up into the high country only temporarily to escape insects when the deer are in velvet. In making a census of passerine birds, Henshaw and Nelson were likely to have spent much of their time close to the riparian thickets where small birds are abundant. Bailey says Nelson mentioned hearing reports of a few elk still present in the mountains (Bailey 1931, 35–36, 41).

While Nelson and Henshaw collect specimens in the Pecos Canyon, L. L. Dyche is penetrating the wildest interior of the high country. This year, he treks northwest from Harvey’s Ranch into the watershed of the upper Pecos and north across the Santa Barbara Divide into the Rincon Bonito, which is drained by a tributary of the Canadian. Accompanied most of the summer by a student and fellow Kansan, William Harvey Brown, Dyche’s expedition into the back-country lasts for seven or eight uninterrupted weeks.

Dyche’s chief goal is the collection of grizzly bear specimens for stuffing and exhibition at the Museum of Natural History (today housed in Dyche Hall) of

the University of Kansas. While in the mountains, he lives on a steady diet of venison and bear meat, and he shoots at or attempts to trap nearly everything that moves.

Dyche was not a particularly good observer of landscape and his wordy account of his adventures narrowly focuses on the blood sport of pursuing big game. We learn more about his Sharps rifle, “Old Reliable,” and shotgun, “Vesuvius,” than we do about forest or range conditions. Nevertheless, his inexperienced attempts to draft a narrative of his exploits (which Clarence Edwards and a ghostwriter, Charles Sumner Glead, would later refashion as *Campfires of a Naturalist*) offer important clues about the condition of the high country in the early 1880s.

One such item: atop the Santa Barbara Divide, he finds “no grass on this high range and we must make some arrangements for our pack animals.” The season was early and the year’s growth not yet much begun, but in the absence of heavy sheep grazing, one would have expected a fair cover of alpine grasses—at least where the ground was not solid with rock. Interestingly, Dyche makes no mention of bighorn sheep, even when camped for a week or so in the Rincon Bonito, on the slopes above which sheep are today fairly common. He is also silent on coyotes and wolves. The only canids that appear in his account are foxes that steal bait from traps he has set for pine marten, two of which he observed hunting pikas.

Dyche’s preferred mode of travel—like that of George Beatty with whom he would soon be acquainted—is to walk, leading burros packed with his gear. He reports finding no established trails “other than that made by wild animals” (Dyche n.d., 34), and frequently is obliged to pick his way through extensive deadfalls and burned areas. Under the circumstances, horses would have been more trouble than help.

At a camp near the top of the East Divide (and probably south of Spring Mountain) Dyche shoots “the first mule deer I had ever killed” (32), which implies that all the deer he has shot in the vicinity of Harvey’s are white tail, or as he calls them, “Virginia deer.” As he continues into the inner fastness of the high country, the deer he encounters continue to be muleys, with the exception of one large white tail buck, which he stalks repeatedly and finally kills near the head of the Pecos.

All summer long, the only humans Dyche sees with the exception of his campmate Brown, are three well-dressed “Mexicans” in possession of a remuda of a dozen or so horses and mules near the head of the Pecos. Dyche arranges to have all his armament on display and his shotgun in his lap when they ride into his camp, and he appraises them as “grim looking men” and probable horse thieves. His assessment is not far-fetched. In *Behind the Mountains* (LaFarge 1956, 28ff.) Oliver LaFarge writes of a character he names Pascual Orozco, whom he describes as the most respected horse thief on the east side of the

mountains. It was Orozco's practice to drive his stolen charges into the mountains where he would rebrand them. He would leave them in a secluded valley until the brands healed and then drive the horses to Colorado, El Paso, or some other distant market for sale. Elliot Barker attributes the naming of Horsethief Meadows, between the Santa Fe Baldy and Pecos Baldy massifs, to this practice (Barker 1953, 155–56). Dyche, by the way, encounters one lone “wild” horse in the mountains (Dyche n.d., 66), which might have escaped from the kind of operation LaFarge described.

Although he never encounters herders, Dyche indicates—in a most unusual context—that local settlers sometimes brought goats up the Pecos to graze. One day (Barker believes on Hamilton Mesa) Dyche thinks he spots a herd of goats about to emerge from timber. But instead of goats a “herd” of eleven grizzlies lumbers out. Dyche alludes to the possibility of herding on a second occasion, this time while traveling north toward the Santa Barbara Divide:

We traveled until noon along the ridge through beautiful forests of fine spruce. In places on the south edges of open mesa on the ridge there were immense snow drifts. These drifts were 3 to 6 feet deep and lasted from year to year, but as a rule most of them would disappear by Sept. About one p.m. we emerged from the spruce forests and came to an immense opening in the side of the mountain. This opening was covered with dead timber. Fire had run through it many years before. The trees were not only dead but the bark had all fallen off. The long white skeletons stood every where. Many of them had fallen down in criss-cross fashion—making traveling very difficult. We frequently cut our way through. In this burnt timber was a fine growth of grass. When the grass failed on the plains, the Mexicans sometimes brought their flocks of sheep and goats to this country. The bears were so bad—as well as the mt. lions—that flocks suffered very much. We found some large log pens in one place which had evidently been used for a corral to protect animals from bears.

This passage tells us several things of significance: (1) the interior of the high country had experienced a stand-changing fire in years previous to significant stock raising pressure, probably earlier than 1870; (2) stock raisers did bring their herds to the high country by 1883, but only irregularly—Dyche does not report encountering any—when grass failed in the lowlands; and (3) these herds, being mixed sheep and goats, probably did not represent the livestock of large commercial operations. Goats were the chief livestock of the Hispanic farmers of the mountain villages, and mixed herds of sheep and goats were probably consumed locally. As Dyche suggests, the abundance of predators like the grizzly undoubtedly discouraged stockmen from bringing their animals to the high country,

but more important in 1883 was the relative availability of rangelands at lower elevations. As the *Santa Fe New Mexican* reported, however, this situation was changing. Competition for productive rangeland would intensify rapidly.

Dyche makes no mention of active fires, nor even of smoke, but he does report traversing burned landscapes in at least three widely separate areas of the high country. Another example: "About 4 p.m., we came to an open country—though most of it was covered with burnt timber. This open country was covered with flowers and grass. The flower beds were alive with rufous hummingbirds." To what extent humans or lightning strikes caused these fires is difficult to gauge. It is also difficult to estimate fire frequency from year to year and the relative causal importance of drought and human activity, except to say that the former was a precondition for fires hot enough to cause high-altitude forests to burn and that the latter, coupled with lightning, provided abundant sources of ignition. Newspapers of the day, such as the *Santa Fe New Mexican*, offer little help, for forest fires rarely earned mention for the reasons previously noted. An additional reason may be that territorial newspapers vigorously promoted economic development and tourism, and devoted much of their copy to crowing about what they held to be their region's unequalled virtues and limitless potential. Forest fires, like dust storms, tarnished the image of the climatic and geographical perfection they tried to project.

1885

The omission of mention of fire or its effects is conspicuous in the following excerpt from a general introduction to the Santa Fe area aimed at newcomers and tourists and appearing in the *Santa Fe New Mexican* of 12 June 1885. Notwithstanding that the ascent of Mount Baldy (Santa Fe Baldy) would have traversed the big burns of 1879–1880 for a considerable distance, no mention of snags or charred landscape is made:

Mount Baldy is 12,603 feet high. It is covered with snow except in the middle and later part of summer. On the north and east sides it retains large masses of snow throughout the year. In a straight line it is nearly fifteen miles from Santa Fe. By trail it is about forty miles distant. It has been frequently ascended, and the trip takes three or four days from the town. A carriage can be taken for the first twenty or twenty-two miles and from there the ascent has been made, once at least, on horseback. The ascent is not dangerous, but is rather difficult. Near the summit are three or four deeply sunken lakes, probably old craters. The Mexican name of Mt. Baldy is Jicaritia [*sic*], so called from a tribe of Apaches living formerly on the mountain in the summer time. These Indians are now located on the reservation of the Mescaleros.

The newspaper writer is misinformed: *Jicarita* and *Jicarilla* were common names for domed or conical peaks, and the names probably derived, not from the presence of Apaches, but from *xicara*, a kind of cup, when inverted, resembled the shape of a mountain peak. The Jicarilla Apache tribe, distinct both then and now from the Mescaleros, probably acquired this name from the cup-shaped baskets they made and used (Tiller 1983, 9; Julyan 1996, 178). Dyche, by the way, refers to the Truchas Peaks as the “Hiccoreta Range” (Dyche n.d., 60).

Dyche came back to the mountains in 1885, newly married. After passing a month in the vicinity of Harvey’s, he and his wife elected to undertake “a three days journey over high & rough mts” in the company of the eccentric and volatile George Beatty to visit Beatty’s cabin in the heart of the high country at the confluence of the Rio Pecos and the Rito del Padre. The second day of their journey takes them through “a great stretch of burnt timber. The donkeys continue to run into snags & tear the packs.” On the third day, not yet to the Rio Mora, Beatty (spelled “Beaty” by Dyche) relates the following to the Dyches:

“See that pile of stones there,” said Beaty as we moved along. Yes. “A few years ago it was very dry on the plains & some of the Mexicans drove their goats up in here to save them from starving. One old Mexican who had a flock, had \$10 in money with him. He was killed by some others for his money. When his friends carried the body out on a pole stretcher they camped here, and every place they camped they made a pile of stones” (Dyche n.d., 162; see also Edwards 1893, 83).

This passage describes the Hispanic practice of marking *descansos*, places where those who bear the bodies of the dead rest and pray. It also reaffirms that only local herders brought their animals to high-country ranges at this time and only when forage was unavailable lower down. Incidentally, when Dyche, his wife, and Beatty reach Beatty’s cabin, the prospector finds his considerable hoard of supplies missing and goes into a rage that lasts through the night and into the next morning. Beatty then heads down the Pecos, promising to visit mayhem on the perpetrators, while Dyche and his wife head for calmer lands. At this time Dyche possibly sees the extensive beaver works downstream of Beatty’s, which he later described to Vernon Bailey of the Division of Biological Survey: “From Beatty’s cabin for a number of miles down the river beaver dams were quite common, and in the pools which were caused by these dams I found the best trout fishing of any locality I have ever visited in the Rocky Mountains” (Dyche to Bailey, 10 February 1911, in Bailey 1931, 214).

As to George Beatty, it later turns out that a friend of his, fearing a bear or thief would break into the cabin, had dug a hole in the dirt floor under the bed

where he cached the supplies. If Beatty had looked harder and ranted less, he would have found them.

The year 1885, generally speaking, is good for stockmen, for rains are generous even in May and June: "It is rare that New Mexico has looked so well at this season of the year. The whole face of the earth is beautifully green" (*Santa Fe New Mexican* 8 June). The paper rhapsodizes, "The stockmen of New Mexico will soon be supplying beef to the eastern markets. The territory has magnificent grass, and cattlemen have the brightest prospects before them" (*Santa Fe New Mexican* 9 June).

Predictably, the favorable weather soon goes to the head of some of the territory's boosters, including the author of this excerpt from the *Santa Fe New Mexican* on 17 June:

It is seriously urged by gentlemen who have made a study of the subject that the unprecedented rains in New Mexico this season indicate that climatic changes are taking place and that New Mexico will before many years be brought under the same meteorological law that has transformed the rainless deserts of Kansas into fields of waving wheat and corn. This may or may not be true, but there are excellent reasons for believing that the rainfall will perceptibly increase with each year, if precedents go for anything, although it is hardly possible that we will be able to dispense with acequias in our day and generation.

1886

The annual report of the territorial governor for this year acknowledges that the first half of 1886 was very dry throughout New Mexico, and several times in May the *Santa Fe New Mexican* cites the need for rain or otherwise mentions dry conditions and high winds:

May 13: "Rain is the need of the hour."

May 14: "For the benefit of tourists to New Mexico we would state that the sand storms of the past few days occur at this season of the year and are now about over."

May 19: "The Pecos River is on a rampage," indicating heavy spring runoff from the mountain snowpack.

May 20: "Stockmen are grateful for recent showers."

May 21: Texas stockmen are reported suffering "terrible losses in their herds for want of water."

May 24: "Reports from eastern ranges are that cattle are in fine condition," but "the drouth in southern New Mexico continues with fatal effect to the stock interests."

May 27: "News has been received from the [Texas] Pan Handle that terrible prairie fires are raging, sweeping everything before them. The long season of drouth has made everything very dry, so that the flames spread with wonderful rapidity. Cattle are wild and flying before the fire, but many head must perish. It is said the fires originated from the carelessness of some cowboys in their camps. The entire country around Harold is on fire, and a stretch of land at least twelve miles in width is burned, while the flames are rushing southward at a most fearful rate. A number of buildings have been destroyed, and it is feared that some lives are lost." Grass fires ravaged the panhandle the previous year as well, causing loss of up to 25 percent of the herds of the giant XIT Ranch (Pyne 1982, 92). On 22 June 1886 the *Santa Fe New Mexican* reports that the stockmen of Colfax County want the AT&SF Company to plow a fire guard on each side of their tracks because sparks from locomotives have been igniting prairie fires.

May 28: "Sheep are still dying off and wool is still low. This is a bad year for the sheep owners of New Mexico."

The drought breaks in the Santa Fe area at the end of the month, and the *Santa Fe New Mexican's* tone quickly changes from wailing to boastfulness. Amid its wildly optimistic predictions one finds endorsement of the theory that "Rain Follows the Plow," a mistaken belief that activities related to settlement would fundamentally alter the climate of the arid West. One also encounters indirect evidence that stand-changing forest fires may have swept the mountains in recent weeks. The following excerpt comes from a *Santa Fe New Mexican* article on 5 June that also discusses floods along the Rio Grande so severe that they carried away the Española bridge:

Since the 31st of May Santa Fe has been enjoying a visitation of providence which has made the heart of the agriculturalist and horticulturalist particularly glad. A splendid shower has come daily; the total rain fall has reached about one inch, and the grandest crop ever known in the fertile Santa Fe valley is fully assured. The weather has been delightfully cool—it is a rare thing when fires are demanded here in June, as has been the case all this week. As to the theory of this improved and more equitable distribution of rain fall in this section, there no longer seems to be room for doubting that tree planting, turning over the soil, and the atmospheric shocks occasioned by the running of trains and the introduction of the telegraph, have all had a beneficial influence. The recent forest fires which have prevailed in the Santa Fe mountains may also have had some effect in drawing thither the rain clouds, but no matter

what the local cause, the opinion seems to prevail that henceforth the broad valley of the Rio Santa Fe will spring into popularity as one of the choice farming districts of the west.

By 11 June, the *Santa Fe New Mexican* brags, "New Mexico is being favored with magnificent rains; grass is growing luxuriantly, and this fall will furnish unlimited quantities of splendid beef for the dependent east."

The ebullience soon wanes, however. On 7 July, the paper opines, "Grass on the range seems to have a dark brown taste in its mouth and acts like it wanted to ask if it isn't a long time between drinks." And on 9 July: "Reports from the ranges in central and southern portions of New Mexico are discouraging. Rain is badly needed." On 20 July: "The heavy movement of cattle from the overstocked ranges of Texas continues unabated."

The newspaper is also less than sanguine about the condition of the region's forests. On 7 June it notes, "Unlawful cutting of timber has been going on along the upper Pecos river and its tributaries for some time." Two days later it provides the following amplification under the heading "New Mexico Forestry":

During a recent visit to Santa Fe Col. Edgar T. Ensign, agent for the national department of agriculture and forest commissioner of Colorado, succeeded in stirring up quite a spirited local interest in the subject of forestry in New Mexico. It was largely through the influence of Col. Ensign that the timber government agent [probably a man named Stafford, mentioned below] was induced to visit Apache canon [*sic*, see repeated use of "canon," below] and Pecos valley and extinguish the fires and put a stop to the indiscriminate [*sic*] and reckless cutting of public timber.

To-day Messrs. Ad. F Bandalier [*sic*] and H. Hartmann completed for Col. Ensign an elaborate report on the forests and timber resources of New Mexico. Col. Ensign intends having the report published in the government records. The report reviews the resources in each county in the territory and concludes by saying: "New Mexico has evidently plenty of timber to last for many years to come and for an increase [*sic*] population, if properly managed and protected against fires; saw mills are working up this timber."

This short article goes on to state that, for the present, New Mexico was depending on eastern timber for building purposes because it lacked railroads "reaching into the hearts of her wealth, be it mineral or timber; true the great AT & SF taps her center, but the side feeders are wanting."

The first political effort to provide permanent protection for the forests of the upper Pecos occurred in 1886. The *Santa Fe New Mexican* on 23 June reports:

If Mr. [Antonio] Joseph [a democrat elected as territorial delegate to Congress in 1884] finally succeeds in getting through congress his bill to convert the upper Pecos valley into a national park, as everybody in northern New Mexico and southern Colorado hopes he will, what a magnificent thing it promises to prove for Santa Fe. The people of the states, the pleasure seeker and the invalid, are particularly interested in this endeavor, and it is hoped that congress will see fit to act before it is too late. In a few years more the best hunting and fishing grounds in the picturesque valleys of the Rocky mountains will be shorn of their wild beauty by the steady march of modern civilization, and it is a debt that congress owes itself and the people to establish these reserves that some trace of their natural grandeur may be preserved to the coming generation. Pass this measure, and Santa Fe will become even as great a resort for the tourist and health-seeker as any city one may name, for we shall then occupy a position in a circuit that can not be surpassed anywhere. This circuit would start in at Raton and extend down the A., T. & S. F. to Las Vegas, thence to the Pecos valley, thence to historic Santa Fe, thence to the Pueblo villages on the upper Rio Grande, and the cliff dwellings beyond Espanola, thence up the D. & R. G. to the Pagosa springs national park on the San Juan river, via Toltec gorge, and through the mountain passes to Pueblo, thence up the Arkansas valley to Leadville and on to Denver. Such a tourist route could not be surpassed in any land, and hundreds of over-worked people at the east could and would take such trip in preference to the long and tedious intercontinental journey to the less attractive Pacific coast.

These arguments for preservation of the upper Pecos precede by five years the actual creation of the nation's first forest reserves, and only one national park—Yellowstone—has by this time been created. Agitation on behalf of a Pecos park suggests that the roots of New Mexico's conservation tradition go further back in time than has been generally acknowledged.

At the end of August, fire breaks out in the upper reaches of the Santa Fe Canyon. Conceivably this fire may have crossed the ridge into the Tesuque and/or Nambe drainages, causing a second burning of portions of those areas. The Santa Fe Canyon fire is significant for what it reveals about the administration of forests on the public domain. The *Santa Fe New Mexican* of 30 August 1886 carries the following item:

Robert Ewing came down from his place near the head of Santa Fe canon and reported that a disastrous fire was raging in the mountain forest some three miles above Monument Rock. The high winds of last night

fanned the flames until now a vast region of country is in a blaze. It was caused by careless picnicking parties from town who visited the canon yesterday, and if the names of the parties can be ascertained, it is the intention to give them a test of the ample punishment for such offenses provided by law. Mr. Ewing called on Special Agent Smithee and reported the facts to him, stating that some 500 ties cut for the Espanola railroad were scattered about in that locality, and demanding that the government take some steps to quench the fire and save not only the ties but a large quantity of valuable timber. Agent Smithee informed him that he had no power to act but would telegraph the facts to Washington and ask for instructions. A dispatch asking permission to employ men to fight the fire was sent out this forenoon, and an answer is expected tonight.

The following day, the paper reports:

Special Agent Smithee has received no response from the general land office authorizing him to put out the forest fire, still under headway in the Santa Fe mountains despite last night's rains. The instructions of the department are very explicit about quenching these fires, but as was the case with Stafford when he saved thousands of feet of fine timber in the Pecos valley recently by extinguishing a fire, the department usually gets its back up when such bills are sent in and refuse to pay them. Agent Smithee has no idea that Sparks will answer his telegram.

Dyche, by the way, made his last trip to New Mexico in 1886 but spent his time in the mountains in a camp near Hermit Peak collecting and mounting some one hundred and fifteen bird specimens. He and his wife did not go near the Pecos—or George Beatty.

1887

Herbert Ungnade (1965, 73) gives May 1887 as the date of “the largest recorded fire,” which he says started in Big Tesuque Canyon, but newspaper records and extensive tree-ring research (Margolis et al., 2007) appear not to support this contention. As already noted, 1879, or possibly 1880, seem the best candidates.

May of 1887, in fact, was notably wet for Santa Fe, where 1.72 inches of precipitation were recorded—“unquestionably the best farming season ever known,” proclaimed the ever-incautious *Santa Fe New Mexican*. On 3 June, it happily added that, “The present year the average precipitation is not so great as for the past few years covering the same period, but the rains have been much more seasonable, being well distributed throughout the month of May, just at the time when they were most needed, and as a result another prosperous year for the farmer is already assured.”

Barker (1975) states that H. D. and Martin Winsor homesteaded at Cowles in this year and grazed cattle on Round Mountain by the early 1890s; other homesteaders also settle about this time: H. R. Coddington at Martin Ranch in 1885; and the Dockweilers begin grazing cattle and sheep along Jacks Creek about 1900.

In this year, for the first time, the condition of New Mexico's forests earns significant mention in the annual report of the territorial governor to the secretary of the interior. Writes Gov. Edmund G. Ross, a democrat appointed by Pres. Grover Cleveland, to the Hon. L. Q. C. Lamar II, secretary of the interior, on 13 September 1887:

The forests of New Mexico are almost exclusively of pine [a category that in this instance probably included all conifers], largely in the west and northwest and confined to the mountainous regions. . . . The product of lumber from these forests is sold on the market, where accessible to transportation at not much above the cost of eastern pine lumber, and is generally used for all ordinary building purposes, railroad ties, timbering mines, etc.

The destruction of these forests by fires and for the general uses of lumber is very great, and demands the active intervention of the Government, if not for their preservation, at least for replacement by planting. This lumber is essential to the development of the country in various ways, especially in railroad building, bridge building, and mining. But the wholesale destruction now going on cannot but bring widespread disaster to climatic conditions, unless some regulation shall be established where by they may be replaced by replanting with some variety of timber that shall take the place of the trees restored [*sic*; the governor likely meant "destroyed"] (*Annual Report 1887*, 879–80).

Ross's appeal for "the active intervention of the Government" provides evidence of growing support throughout the country for active efforts to protect timber resources and watershed stability, a movement that would bear fruit in 1891 with the passage of the Forest Reserves Act (see below).

1888

Meanwhile, the governor's desire for federal intervention was buttressed from other quarters. In 1886, the aforementioned Col. Edgar Ensign, as special agent of the Department of Agriculture, conducted a survey of forest conditions in the state of Colorado and the territories of the Rocky Mountains, including New Mexico. As reported by the *Santa Fe New Mexican*, Adolf Bandelier, whose name is more commonly associated with archaeology, and H. Hartman provided Ensign county-by-county profiles of the forests of New Mexico, as

did other qualified individuals in Colorado, Idaho, Wyoming, and Montana. Ensign completed his report and dispatched it to Bernard Fernow, chief of the Department of Agriculture's fledgling Division of Forestry, in May 1887. Fernow combined it with excerpts from earlier government reports (chiefly, reports of the commissioners of the General Land Office) and with shorter papers on diverse forestry topics to produce the Forestry Division's *Bulletin No. 2: Report on the Forest Conditions of the Rocky Mountains and Other Papers*, which was published in 1888.

The report argued for federal action to correct "the folly of present days." It was intended to provide "a basis for an intelligent conception of the possibilities and requirements of legislative action on the part of the General Government in regard to some of its property"—namely, the forested public domain. It decried wanton timber cutting, especially by railroad companies, and other forms of forest destruction, even including avalanches, but it reserved its most emphatic outrage for fire. Ensign writes:

In nearly all portions of our country fire is the most destructive agency affecting the forests. It does immense harm in the Rocky Mountain Region. Annually, during the dry seasons, forest fires break out, spread with great rapidity, and destroy in a few days the growth of many years. The aridity of the climate, the resinous nature of the timber, the prevailing high winds and the sparseness of populations render forest fires in this region almost uncontrollable. They are doubly disastrous here, for when the mountain slopes are denuded of their natural covering, restoration is extremely difficult, if not impossible. . . .

It is evident that effective measures for the prevention of forest fires will not be adopted until the people and law-making powers become fully alive to their necessity.

Ensign's report identifies fire, railroads, and lumbering as the chief threats to the forests of northern New Mexico and estimates that some 64,034 forested acres burned in the territory in 1880 (nearly twice that area—113,820 acres—was estimated to have burned in Colorado that year).

In another significant estimate, Ensign reports that the annual production of charcoal in Santa Fe county approached 200,000 bushels, reflecting consumption of 4,000 cords of piñon, plus smaller amounts of ponderosa pine and juniper. If true, this level of harvest, in addition to traditional firewood gathering, took a heavy toll on area woodlands. Ensign further estimates consumption of native sawtimber in the Territory at 5 million board feet for 1886, with an additional 1.3 million board feet imported from Texas, California, "the East," and, chiefly, Arizona (U.S. Department of Agriculture–Forestry Divi-

sion, 1888).

Barker (1953, 87) suggests that the last Pecos elk is killed at about this time (Ligon [1927] puts the elimination of elk a little later at 1900).

Barker (1975) offers 1888 as the year that sheepherders begin taking flocks into the high Pecos for summer pasture “until the July and August rains made grass in the low country.” As already noted, herders begin using the high country in times of need probably at least by 1880, but Barker’s estimate seems a reasonable date for the arrival of commercial herds. It takes time, following arrival of the railroads, for herds to grow and fill available grazing grounds at lower elevations, as it does for merchants to organize large grazing operations. William Parish’s history of the Charles Ilfeld Company, a mercantile concern that dominated commerce in the Las Vegas region, shows that Ilfeld had *partido* (sheep-sharecropping arrangements) with one *partidario* (share tender) in 1884, with 5 in 1885 and 1886, and 7 in 1887. In 1888 the number jumps to 19 *partidarios* and rises to 30 by 1890. It reaches a high of 44 in 1904 and 1905, then begins a long decline (Parish 1961, 155). Frank and George Bond, who dominate the *partido* system in the Rio Grande Valley and throughout much of the rest of northern New Mexico, arrive in Española in 1883. Their business operations likely follow a pattern of expansion similar to that of Ilfeld.

1889

The S. L. Barker family settles on Sapello Creek, where white tails are about “on a par with mule deer.” Elliot Barker blames coyotes, after about 1910, for the white tails’ disappearance (Barker 1975), but human encroachment on the white tails’ riparian habitat must have been a greater factor in their decline.

1890

The cause of forest protection enjoys bipartisan support in these years. Expressing concerns similar to those of his democratic predecessor, Territorial Governor L. Bradford Prince, a Republican appointed by Pres. Benjamin Harrison, includes the following item in his annual report to John W. Noble, secretary of the interior:

#### National Park

The Surveyor General has recommended that a tract on the Upper Pecos, embracing townships 17, 18, 19, and 20 north of ranges 11, 12, and 13 east, shall be withdrawn from entry in order to be set apart as a national park. Numerous signed petitions have been sent to Congress asking the necessary legislation to obtain this end, and the people of New Mexico are practically a unit in desiring it. The tract described is admirably adapted

to the purpose. It is principally composed of mountains intersected by cañons, with the Pecos running southerly through the center. The scenery is magnificent, the climate admirable, the hunting and fishing exceptionally good, and if looked at from a more practical point of view, the preservation of the timber is essential to the successful irrigation of the fertile lands of the Pecos Valley. I heartily concur in the hope that these townships may be speedily withdrawn from entry, that no damage may be done or new private rights intervene before Congressional action can be had (*Annual Report* 1890, 334).

The idea of national parks is in its infancy at this time. In September 1890, Congress created three national parks in California, including lands that complemented a park already established by the state at Yosemite. The only other national park then in existence was Yellowstone, established in 1872.

The concept of “withdrawal” deserves explanation. By withdrawing land from the public domain, the federal government would exempt the land from the operation of laws like the Homestead Act of 1862 and the General Mining Act of 1872, which established processes for public land to become private. Once “withdrawn,” federal lands may not then be “entered” for the purpose of acquiring private title, including title to standing timber.

Governor Prince’s plea in 1890 to create a national park places efforts to preserve the high Sangres at the forefront of the nation’s young conservation movement. The public support he cited undoubtedly derived from interest in the land’s hunting, fishing, and recreational potential, and alarm over the unrestrained logging and extensive fires of recent years and fear over their downstream effects.

1891

On 3 March, an obscure amendment to the General Land Law Revision Act of 1891 authorizes the president to withdraw lands for federal forest reserves. The amendment, now known as the Forest Reserve Act, did not specify the function of the reserves or the manner in which they were to be administered. In John Muir’s view (Nash 1973, 133), and evidently Governor Prince’s, they would initially be indistinguishable from national parks.

In his annual report to Secretary Noble, dated 21 October, Prince renews his plea for “Pecos National Park”:

A year ago I referred to the proposition to set apart a portion of the mountainous district on the upper Pecos as a national park, and heartily indorsed [*sic*] the project. Our people are very anxious that action should be taken on this subject, and have expressed their desires in numerous signed petitions. The only opposition arose from a few settlers in one of

the town ships, who erroneously imagined that the establishment would interfere with their vested rights. To meet the objection the boundaries have been changed so as not to affect the parties at all (*Annual Report* 1891, 334–35).

Prince offers new park boundaries that exclude the disputed area—nine miles of the Pecos River canyon from the confluence of the Pecos and Mora south to Dalton Canyon. Tererro is thus exempted but the area of present-day Cowles remains within the proposed park. Prince also extends his proposal's northern boundary one township (six miles) farther north so that it overlaps portions of the Truchas, Trampas, and Santa Barbara land grants. Presumably he meant his proposal to apply only to public domain, which under the law was the only land a federal withdrawal might affect, but disregard for the legitimacy of land grants and the rights of their occupants was typical of the territory's mostly Anglo elite.

Governor Prince's reference to numerous signed petitions and his statement that "our people are very anxious" suggests that forest protection enjoyed considerable local support. If copies of those petitions have been archived and can be found, perhaps in New Mexico's territorial papers, important insights into this pivotal period in the state's environmental history might be gained.

Even before Prince finishes his letter dated 21 October to Secretary Noble, federal authorities begin to move. In an article headlined "The Pecos National Park," the *Santa Fe New Mexican* on 20 October reports:

Capt. J. S. Stidger, special agent for the U.S. land department, arrived here from the southern part of the territory today on an important mission. He comes under special instructions from the interior department to examine minutely into the proposed Pecos park.

This is the first step following the sending in by the surveyor general of the petition signed by over 700 citizens of the territory urging that this mountainous region be proclaimed by the president a national park, and for the special purpose of preserving the timber and water sources of the important streams of the arid region, and from the prompt notice which the department had taken of it, it looks very much as if the administration feels very favorable toward the consummation of the project.

The area covered by the proposed park includes the mountainous region lying northwest of the Las Vegas hot springs, east of Santa Fe, and including the upper part of the Pecos valley—above the Cooper settlements—running northeast beyond Bald mountain and the picturesque Lake Peaks region. It covers 260,000 acres as at present planned. . . .

Capt. Stidger will take up his duties in the matter to-morrow, going over the ground in person under the guidance of a committee appointed

by the Santa Fe Board of Trade. It will require some three weeks or more to inspect the reservation.

In this connection the *Santa Fe New Mexican* would suggest that there are two other regions in New Mexico where it would be well for the government to establish national parks. These cover the Sacramento mountains in Eddy, Chaves, and Doña Ana counties; and the Mogollon section in western Grant and Socorro counties. The Sacramento range supplies the waters of the lower Pecos and other streams, and the Mogollons supply the Gila river.

1892

On 11 January, Prince gets his wish, or something close to it. The following executive order is issued from the White House: "I, Benjamin Harrison, President of the United States . . . do hereby make known and proclaim that there is hereby reserved from entry or settlement and set apart as a Public reservation." The Pecos River Forest Reserve becomes the fourth such reserve in the United States and first in the Southwest (USDA–Forest Service 1989, 1).

Although the protected area is withdrawn as a *forest reserve*, Governor Prince continues to refer to it as a national park. The following item appears in his annual report for the year:

#### The Pecos National Park

This park, which was strongly recommended in my last report and by the surveyor-general in various documents, was finally established by Presidential order, dated January 11, 1892. The benefits to be derived from this action are manifest and varied, and our people unite in thanks to the Secretary of the Interior for his continued advocacy of the measure (*Annual Report 1892*, 351).

Enthusiasm for the new park runs high in the pages of the *Santa Fe New Mexican*. Beginning not long after withdrawal of the reserve, the paper reproduces in every issue for over a year (running through at least August 1893) the same compendium of information designed to interest tourists and newcomers. The multiple headlines proclaim:

The  
CITY OF SANTA FE  
ATTRACTIONS HISTORIC AND MODERN  
Mountains & Mineral, Fruitful Orchards and Other Resources  
AT THE GATE WAY OF THE NATIONAL PARK  
The World's Only Sanitarium—Statistical Information for Tourist,  
Invalid  
and Health Seeker.

The following copy describes the city as lying “in the center of the valley at the mouth of a picturesque canon, the chief entrance to the Pecos National Park.” Efforts to improve the city’s connections to the hunting, fishing, and camping grounds of the upper Pecos are also underway. The following item appears in the *Santa Fe New Mexican* of 2 September and conveys a sense of the newness and freshness still attached to the high mountains:

The Pecos Trail Finished  
A Picturesque Mountain Region at Last  
Made Accessible to Citizens of  
Santa Fe

At last it is possible for citizens of Santa Fe to reach the top of Baldy mountain and the upper Pecos by way of thew [*sic*; the new] trail. This improvement was finished yesterday. For forty days past O. C. Knox had had a force of men at work thereon, and everybody who has been over the trail joins in saying it is a first-class piece of work. It is constructed on a wagon road grade and next season a few hundred dollars will suffice to make it passable for vehicles.

By the new trail it is just sixteen miles to the top of Baldy mountain, and six miles further down the eastern slope of the range brings you to the beautiful Pecos river. A trail has also been opened through, a quarter mile off the main road, which leads to the newly discovered lake, the Espirito Santo Lake [today’s Spirit Lake]. This pretty body of water is just eighteen miles from Santa Fe and its surroundings are picturesque in the extreme. It consists of a body of clear water set in the midst of an immense pine forest, and nearly 2,000 feet higher than Santa Fe. Its depth is as yet undetermined, but it is almost circular in shape, being about 300 yards in diameter. It is a veritable beauty spot.

1894

On 14 April, the Department of Interior bans the “driving, feeding, grazing, pasturing, or herding of cattle, sheep, or other livestock” on all forest reserves, but since the department possesses no local management capability, the regulation initially goes unheeded and unenforced—not only on the Pecos Reserve but throughout the West. In Washington debate intensifies over how and by whom the reserves should be managed, and multiple proposals are introduced in Congress (Rowley 1985).

1895

The *Santa Fe New Mexican* notes on 20 July that enforcement of the ban on grazing has begun. The guilty party appears to have been a “tramp” operator

(one who did not operate from a home base but roamed the public domain continuously) or a stockgrower who had bought a herd somewhere to the south and was moving it to his home territory. Note the size of the tramp herd:

#### Sheep Trespass Case

The matter of the United States against G. B. Reynolds of Lancaster county, Neb., charged with unlawfully pasturing 30,000 sheep on the Pecos national park, came up before Judge Laughlin in chambers yesterday on a motion for a permanent injunction against Reynolds. Mr. Reynolds made no defense. He admitted that, in driving his sheep through the country on the way to Folsom and thence to Nebraska, they had been permitted to rest in the locality described in the complaint, but at the time he was not aware that the lands were part of a national reservation and would move his animals therefrom as soon as possible. The injunction was thereupon made permanent and Mr. Reynolds was given until and including July 23 to move his sheep from the reservation.

Five days later, the paper elaborates on the subject:

#### Pecos National Park Uncle Sam Will Not Permit the Herding of Any Kind of Stock Thereon

Some days ago mention was made in these columns that Judge Laughlin had required G.B. Reynolds, of Nebraska, to move his flock of 30,000 head of sheep off from the Pecos National park [*sic*]. It seems that, when notice to show cause why his sheep should not be moved was served on Reynolds by the United States, similar notices were served on some thirty other persons alleged to be herding stock on the reservation. Four of these persons recently appeared before Judge Laughlin in chambers, pleaded guilty to herding stock in the reservation and were let off on condition that they would offend no more in this way. Most of the others served said they were merely herders and that their principals lived in Santa Fe and other territorial cities. Others delivered to the deputy marshals that they had no business in Santa Fe and were not coming to the city at present. Some of the complaints relate to stock that has simply drifted on to the reservation. U.S. Attorney Hemingway draws a distinction between these cases and those of regular herders and will not prosecute them. The herding of stock of all kinds on the reservation, however, will be prevented.

1896

Pressure from conservationists and continued failure by Congress to agree on a management plan prompt Interior Secretary Michael Hoke Smith to ask the National Academy of Sciences to study the reserves and recommend a plan for their management (Rowley 1985). The popularity of the Pecos canyon as a vacation spot continues to grow. The *Santa Fe New Mexican* of 29 June reports:

At the present time trout fishing in the Rio Pecos is attracting many visitors to that delightfully picturesque region between Pecos town and “the forks.” Some forty people are there now, stopping in the club houses, at Dr. Sparks mountain Glen resort, or encamped in cozy nooks along the beautiful stream.

Evidently enough fishermen were enjoying the river that its fish were scarce in the most accessible stretches:

The fact is that a great many fish have been taken from that part of the Pecos since May 1 and this depletion of the waters is beginning to be felt by the sportsmen who stop there. Six or eight miles above, however, the fishing is first class and improves as one nears “the forks,” above Cooper’s and passes into the Hamilton mesa region. . . .

The wild and picturesque character of the country, the beauty of the flora and foliage, the fragrance and purity of the atmosphere, the vigor and healthfulness of everything in sight, the many changing colors of sky and water . . . and the splendid sport of taking with the fly at least 100 fish in a day—these things make the upper Pecos a most enticing spot in summer, and the wonder is that hundreds of New Mexicans do not make their home there for the heated term rather than seeking distant resorts and watering places.

Immediately below this glowing report is placed a notice stating that the Glen Mountain Hotel of Dr. William Sparks, “situated twenty miles north of Glorieta on the Pecos River,” was open and ready to receive guests. Sparks, a country doctor who patched up animals as well as humans, lived in the hamlet of Willis, later known as Cowles, the community farthest upstream on the Pecos River. By 1901 he will be deeply embroiled in a feud with R. C. McClure, the supervisor of the Pecos River Forest Reserve (deBuys 1985, 235, 238).

1897

The National Academy of Sciences submits its report, which, greatly influenced by John Muir, argues that no grazing of sheep and goats should be permitted on forest reserves. It attempts to elevate forest conservation to a moral

crusade worthy of the military's involvement and urges that the Army (which was already at work guarding Yellowstone National Park) be deployed to patrol the reserves until a civilian force of rangers might be organized:

Not only is timber, the property of the nation and essential to supply the wants of farmers and miners, rapidly disappearing in consequence of forest fires, sheep grazing, and pilfering, but wide areas capable of supporting an industrious population are threatened with ruin from the destruction of mountain forests feeding the sources of streams necessary for irrigation. This danger is no less real than Indian massacre was formerly, and the citizens of the West can only look to the Army for immediate and temporary protection from it (National Academy of Sciences 1897).

On 22 February, outgoing president Grover Cleveland adds over twenty-one million acres to the forest reserve system, inflaming western rural interests who felt that "the western people had not been consulted and the President listened only to the National Academy of Sciences" (Rowley 1985).

The Forest Management Act, which instructs the secretary of the interior to manage the forest reserve system, now at forty million acres, becomes law. It does not specifically address grazing, but by mid-year the secretary of the interior orders that pasturing of cattle and horses be permitted but sheep be prohibited from all reserves except those in Oregon and Washington (Rowley 1985). In this year the Territorial Legislature moves to prohibit the commercial sale of elk meat (Lang 1958).

On 8 August the *Santa Fe New Mexican* publishes notice of a congressional act of 24 February 1897 "to prevent forest fires on the public domain." The act establishes the starting of forest fires, willfully or through negligence, as a federal offence punishable by a year's imprisonment or fines up to \$1,000, payable to the public schools fund of the state in which the offense is committed. Such fire starting had been illegal under territorial law since at least the mid-1880s (U.S. Department of Agriculture 1888).

1898

The prohibition against sheep is slow to take effect in the Pecos high country—no doubt for want of rangers to enforce it. The monthly bulletin of the National Wool Growers Association reports that overgrazing on the Pecos River Forest Reserve is so severe that sheep are stripping trees of their foliage (Parish 1961, 178).

On 27 May, a presidential executive order enlarges the Pecos River Forest Reserve to 431,040 acres (*Annual Report* 1902, 281). Governor Prince's proposal in 1891 would have encompassed about 311,040 acres.

The new supervisor of the Pecos River Forest Reserve, James B. Wilhoit, a political appointee from Kentucky, undertakes the first official inspection of his domain in July. The inspection abruptly terminates when Wilhoit, attempting to deploy a large black umbrella while on horseback on Hamilton Mesa, is bucked into a snowberry bush (deBuys 1985, 237–38). Herds of sheep and goats are officially banned from the Forest Reserve, although it is doubtful the prohibition is immediately effective. Grazing of horses and cattle continues (*Annual Report* 1900, 472).

The taking of elk is prohibited for five years by special act of territorial legislature (Lang 1958).

On 2 March, a presidential executive order creates the Gila River Forest Reserve, encompassing more than 3,270,000 acres (*Annual Report* 1902, 281).

#### 1900

Notwithstanding the popular support previously claimed by Governor Prince, the newly elected territorial governor, Miguel A. Otero, a Democrat, attacks the establishment of New Mexico's two forest reserves in his *Annual Report* for 1900: the Pecos reserve, said to consist of 431,040 acres, and the Gila reserve, which by this account covers 3,701,040 acres. Later government reports, however, will assert that the initial Gila withdrawal comprised only 2,327,040 acres, which was subsequently enlarged to 2,823,900 acres in 1905 (*Annual Report* 1906, 85). The banning of sheep and goats and the immensity of the Gila withdrawal appear to have sparked much of the opposition voiced by Otero on behalf of his constituents.

The complaints of timber interests were also important: "The creation of forest reserves retarded and in some respects ended all prospects of utilizing some of the most desirable parts of all New Mexico. The lumber industry on the land included in the forest reserves, of course, has been destroyed" (*Annual Report* 1900, 469). Clearly, there is a presumption at this time that the lands of the forest reserves, like national parks, would not be logged.

Otero's argument against the reserves summarizes issues so well and is so strongly echoed by disputes of recent decades that it warrants quoting at length. It continues:

There remains only the stock industry, dependent upon good grazing, that might continue to make its home upon the forest reserves, but under present restrictions it also is doomed to be wiped out within a few years.

It will thus be seen that New Mexico lost heavily in prospective growth and wealth through the establishment of forest reserves. Nevertheless the people of the Territory acknowledge the great good (some of

which, however, is still problematical) desired to be accomplished by forest reserves. It is readily seen that forests afford some protection to the head waters of streams. A continuous supply of water is furnished by the trees retaining the snow in the mountains until a late period of the summer season. The trees shade the banks of the river from the sun and prevent the rapid evaporation of the water. The withdrawal of the land from settlement prevents the diversion of the head waters for irrigation purposes. The snow lying on the ground late in spring on forest reserves acts as a cover for the young growing shrubs and small growth of timber. The forest growth affords protection against the chilly blasts of frigid winds that sweep across the prairie. It also gives shelter to live stock herders in time of storm. Last and certainly not least, the forest reserves are ideal resorts in summer and excellent hunting and fishing ground at all times.

But all these aims can be attained and these benefits secured without burdensome, meddlesome, and unnecessary restrictions or total prohibition of grazing upon the reserves. The damage caused by the grazing of sheep and goats in wooded regions has been greatly exaggerated, and in some respects is imaginary. . . . In the first place the prohibition of the grazing of sheep and goats upon the reserves works untold hardship and is bringing material ruin to many settlers who were upon the land before it was set apart as forest-reserve ground. For many generations back their ancestors lived upon the same ground, and their herds and flocks are their only wealth, accumulated through several centuries of hardships danger and exposure. Their capital and means of livelihood is the range round about them. . . . The forests have existed for decades and so have the flocks and herds and not until the present day have they been thought to interfere with each other.

Not everyone in the writer's day (or our own) would agree with Otero's closing argument, although John Wesley Powell (1890) also recommends grazing as a means for limiting wildfires. Otero continues:

The sheep and goats have been the protectors of the forest. By nibbling short the grass and undergrowth they have created barriers against forest fires. Trees on the reserves, with some notable exceptions are not at all dense in their growth, and forest fires could not spread unless by the grass and undergrowth. In addition, the presence of herders on the reserves aids in the quick detection and extinguishing of any incipient forest fires. The herders know that it is to their interest to assist in preserving the forest growth and extinguishing fires. They can be of great aid in that respect to the force of rangers, which, even if it were ten times

its present number, would still be inadequate for reserves so vast that they cover 6,000 square miles. It is simply a matter of getting as much material benefit out of the forest reserves as possible without interfering with the purpose for which they were created.

So, while the people of New Mexico acquiesce willingly in the losses the Territory necessarily sustains by withdrawing such large areas of good land from homestead or desert-land entry and from purchase by settlers, they ask that the restrictions hedging in those reserves be not made unnecessarily severe; that the force of forest rangers be increased so that each ranger can give his attention solely to a limited area; that streams be restocked with fish and that game be protected; that the land not strictly forest land be again thrown open to entry, and that cattle, sheep, and goats be allowed to graze upon the forest lands, if necessary in limited numbers and within necessary regulations, but free of charge and without burdensome restrictions (*Annual Report 1900*, 469–71; this discussion of forest reserves is reproduced verbatim in the *Annual Report of 1901*, an indication, perhaps, of the importance of the issues it addresses).

Predictably, there is another side to these arguments, and Governor Otero permits it to be presented in his voluminous report. R. C. McClure, the Pecos River Forest Reserve acting supervisor (W. H. Buntain resigned shortly before the report came due), expressed the opposite point of view. His letter to the governor acknowledges receipt of many petitions to release whole townships from the withdrawal that created the Gila reserve. As to the Pecos, he says the forest is in “splendid condition” and the “undergrowth of young pine [a category probably embracing all conifers] and all manner of vegetation” is in similarly “excellent condition for holding moisture due in part to the fact that last year sheep and goats were excluded from the reservation.”

McClure reports that “no fires have occurred on the Pecos Reserve during the year of any consequence” and that timber trespasses have been restricted to the unmarked eastern border of the reserve and remained minor.

He writes that the General Land Office, which is responsible for administering the reserves issued an order on 17 April 1900 requiring all persons wishing to graze cattle or horses to apply for a permit and to agree to pay for it if granted. He further asserts that the number of cattle permitted to graze on the Pecos Reserve for the current year is limited to 40,000 and horses to 600, while 200,000 cattle and 5,000 horses are permitted on the Gila (the cattle number, however, appears to be overstated by a power of ten. See below for 1904 and 1906).

A final highlight from the *Annual Report of 1900*: the Sheep Sanitary Board estimates the total number of sheep in New Mexico at 3,500,000; subsequent

discussion in the report raises the number to 4,000,000 (*Annual Report* 1900, 460, 462). Estimates from other sources run as high as 5,000,000 for the late 1880s, with cattle numbers peaking at about 1,250,000, due in part to herds entering the state to escape conditions in overstocked, drought-stricken Texas (deBuys 1985, 220); compare these numbers with estimates provided by the *Annual Report* for 1905 (below). In 1900 the Cattle Sanitary Board did not offer an estimate of the size of the state's cattle herd.

Contrary to the statement in the governor's report that "herders know that it is to their interest to assist in preserving the forest growth and extinguishing fires," various oral traditions hold that it was common for herders to start fires to create more grazing land. In 1941 Richard H. Hanna, who served on the Pecos River Reserve in 1900–1901, recalled:

Forest fires seemed unusually prevalent. We used to think people set them purposely. Sheep and cattle growers were fighting a good deal over livestock range, and when one of them was routed from an area, he perhaps would be careless about his fires.

Fires would sometime burn over large areas and require hundreds of men to fight them. I recall one in the summer of 1900 that extended over 40,000 acres. Then there is the big burn still noticeable on the mountains near Santa Fe, resulting from a fire that started before the forest reserves were created. People in Santa Fe tell me that fire burned for weeks and was just allowed to burn itself out. That was a terrible waste of natural resources (USFS 1989, 124–25; see also National Academy of Sciences 1897, 45).

On the surface, Hanna's recollection seems to conflict with McClure's report, but the latter was dated 23 May, leaving considerable time in the summer season for a 40,000-acre fire to have burned. Other oral tradition holds that fires burned longer than weeks. Oral tradition in the Pecos Valley holds that a fire of times past stayed alive through the winter and re-erupted in spring. (Huie Ley, pers. comm. 1992).

The argument that herders started fires parallels an earlier view, held widely throughout the Rocky Mountains, of Indians as forest arsonists (see, for instance, Powell [1879] 1962, 25–29). In each case the alleged culprit stood at the bottom of the social ladder. Locally, Harry Mossiman, born around 1894 near Rociada, recalled in 1976 (pers. comm. 1976) that "Navajos" used fire to drive game along the eastern flank of the mountains when he was a boy. One wonders if these Indians might actually have been Jicarilla; in 1893 Governor Prince reported that a band of several hundred Jicarilla "have spent the greater portion of the last three or four years . . . in the county of Mora" (*Annual Report* 1893, 373–74).

Although lightning strikes surely ignited many fires attributed to stockmen or Indians, it seems unwise to dismiss the firsthand knowledge of men like Harry Mossiman or the testimony of informed observers like John Wesley Powell, Richard Hanna, and Vernon Bailey (see below under 1903). No doubt human ignition played a role in the seeming epidemic of forest fire that swept the West in the latter decades of the nineteenth century. The relative importance of drought in setting the stage for fires to burn in mesic, high-altitude environments, however, would seem to be paramount (see review in Allen 2002 and Margolis et al. 2007). Whether or not herders set fires in the southern Sangres, their use of high-altitude grass and shrublands that flourished following extensive fires may have suggested a cause-effect relationship in the public mind.

A final item for 1900: the U.S. Bureau of Fisheries begins stocking the Pecos River and its tributaries with exotic fish—mainly brook, rainbow, and brown trout (Barker 1975).

1901

Almost a decade has passed since the withdrawal of the Pecos River Forest Reserve, yet the system of reserves remains controversial. The state of New Mexico, under Governor Otero's administration, complains to the federal government that the reserves hinder the state's selection of desired lands from the public domain:

After an interval of over fifty years as a territory, a grant of about 5,000,000 acres, of which about 2,000,000 are to be selected, the balance being represented by school sections 16 and 36, was made to New Mexico by the Congressional act of June 21, 1898. The selections thus far made on behalf of the territory amount to 498,104.85 acres. It is to be deplored that the Department at Washington, through its agents in the field, is reserving so much of our best land before we can possibly select even a fractional part of our grant. . . . When one considers the area of the territory covered by grants to individuals, as well as by Government reservations, both those already made and those contemplated, there will be very little desirable land left to select for the Territorial institutions (*Annual Report* 1901, 213).

Objection to restrictions affecting forest reserves is even more emphatic at the local level. In this year, two rangers returning from patrol to Rociada find that arsonists have set fire to their quarters (deBuys 1985, 241).

The growing unpopularity of the reserves, locally and in Congress, causes many supporters to fear for the reserves' political survival. In 1901 sheep are again permitted to graze in the Gila Forest Reserve, one of only eight forests reserves in the country where sheep are permitted entry. 134,320 sheep and goats graze the Gila in 1901 and 170,203 in 1902 (Rowley 1985, 49).

This regulatory change results partly from the urging of Gifford Pinchot, head of the Department of Agriculture's Division of Forestry and future first chief of the USFS (Rowley 1985, 40; *Annual Report* 1902, 281). Pinchot's efforts to accommodate western grazing interests alienate John Muir and many other preservationists as well as officials within the Department of the Interior, which was responsible for actual management of the reserves. Although a few years earlier Pinchot served on the National Academy of Sciences commission that unconditionally condemned sheep grazing, his present stand broadly in favor of *use* of forest reserves proves politically powerful and helps set the stage for transfer of the reserve system from the Department of the Interior to the Department of Agriculture in 1905.

Sheep and goats, meanwhile, continue to be excluded from the Pecos River Reserve.

1902

On 1 May Tom Stewart receives notice that he has been appointed ranger "on the old Pecos River Forest Reserve." Later, "When I rode to the top of the mountains that day to look at my district, the first thing I saw was smoke from two forest fires. One was on Sapello Creek and the other on Agua Negra" (near the village of Holman, formally called Agua Negra; USDA-Forest Service 1989, 125).

A somewhat different point of view is presented by Isaac B. Hanna, who was appointed to succeed William Buntain as superintendent of Southwestern Forest Reserves, in his report to Governor Otero in August:

The Pecos River Forest Reserve is now under the supervision of Forest Supervisor George Langenberg, who has a force of four rangers under his charge. This force, though small, has made an excellent showing, as is shown by the fact that in the past two years they have not been compelled to report a single fire of any importance.

Superintendent Hanna adds mention that a free permit system for grazing was instituted in 1902; grazing fees would not be charged until 1906. He also observes that recreational use of the high country is increasing:

Sheep and goats have not been permitted to graze in this reserve for the past four years. Permits were issued this year, by the honorable Secretary of the Interior for the grazing of cattle and horses. The Pecos reserve has long been a favorite resort for the tourist; here he may find excellent hunting and fishing. The number of campers and pleasure seekers visiting this reserve is rapidly increasing each year (*Annual Report* 1902, 281).

In the first week of August, Wilmatte Porter Cockerell, an intrepid female botanist, and her party travel to the Truchas Peaks from Las Vegas, crossing the Las

Vegas range their first day out. Cockerell writes, "In places where the fire had destroyed the trees the hillsides looked much like a board covered with jackstraws and even our skillful guide sometimes led us into boxes out of which our horses could not climb and we were obliged to retrace our steps and try a new path." They make their first camp at Mora flats. Cockerell's notes (1903) consist mainly of flower and butterfly identification.

In early November, Stewart reports "one of the worst fires I ever fought" on the Tres Ritos, which burned for about ten days, during the last seven of which Stewart fought it with about fifty men. Snowfall brings it under control. Note that this was a high-country fire in late autumn, not during the usual May-June fire season (USDA-Forest Service 1989, 127).

A bighorn ewe is killed near Lake Katherine in this year. It is the last recorded taking of wild sheep indigenous to the range (Barker 1976).

1903

Vernon Bailey of the United States Biological Survey, together with his wife, Florence, who is the sister of C. Hart Merriam, the survey's director, spend much of the summer field season in the high Pecos camping near Pecos Baldy. Bailey reports tracks and scat of bighorn sheep at 12,600 feet on Truchas Peaks. This sign is the last reported by anyone of the area's indigenous sheep. He found mule deer plentiful up to 12,000 feet, with a significant number of exceptionally large bucks. Bailey crossed Trailriders Wall into the upper Rio Medio, where he encountered extensive beaver works that a few years before had been broken open and the animals taken: "A large dam thrown across the creek had raised the depth of the water to 5 or 6 feet" (Bailey 1931, 214).

Bailey (1931, 309) also reports, "In the mountains around the head of the Pecos River in 1903 the writer was told that there were a few wolves, and one of the forest rangers reported having seen one just before the writer was there."

Bailey's career as a field naturalist spanned fifty years and took him to every state in the West and seemingly to every mesa and mountain range. He was an expert observer, a diligent note-taker, and a fine writer. His report on the "Physiography" of the Pecos River Mountains in 1903 offers the best extant description of the high mountain landscape near the turn of the twentieth century. It warrants quoting at length here:

The forest (now included in the Pecos River Forest Reservation) has been sadly thinned by burning, fully three fourths of it having been burned over and a large part of the coniferous forest replaced by poplars [aspen] or kept open by repeated burning for grazing land. There seems to have been almost no fires for several years, however, and the slopes are being slowly reforested, both with aspens and a young growth of conifers.





View of Pecos Baldy Lake. The 1903 photograph shows the lake before its outlet was plugged by New Mexico Game and Fish in order to deepen the lake to improve fishing. The 1999 photograph shows the enlargement of the lake and considerable tree encroachment in its environs. Older photograph by Vernon Bailey, National Archives photo B6679; both photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 195.





Truchas Peak, 1903 (above) and 1999. The 1903 photograph of the Truchas Peaks is taken from a ridge extending northward from East Pecos Baldy. These two photographs document the dramatic expansion of the high-altitude forest, both in its thickening and upward encroachment, even at timberline. 1903 photograph by Vernon Bailey, National Archives photo B6090; both photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 196.





Pecos Baldy, 1903 (above) and 1999. This view looks roughly south from a point close to South Truchas Peak toward Pecos Baldy, with substantial tree establishment evident. Older photograph by Vernon Bailey. National Archives photo B6091; photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 197.





Pecos Baldy Lake, 1903 (above) and 1999. View of Pecos Baldy Lake, showing changes in both the lake and the forest above it. Older photograph by Vernon Bailey, National Archives photo B6075; photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 199.

There are still extensive areas in the Canadian zone of virgin forest of spruce and fir, deep, black, unbroken slopes of solid forest, save for here & there the green parks and meadows where nature placed them. Fires have left little mark in the Hudsonian zone and the thick-barked yellow pines and douglas spruce [Douglas fir] of the transition zone have only half yielded to the repeated burnings. Thousands of magnificent old trees 2 to 5 feet in diameter and 75 to 100 feet high stand singly or in groups, often deeply fire scarred at the base, only waiting for a high wind to give place to the young trees pushing up below. . . .

Throughout the transition zone the streams run through narrow bottoms and gulches with rarely a place widening out enough for a field, but in the few spots where small strips of bottom land can be cultivated little ranches, cabins, or camps are located as well as on several side benches or flat topped ridges above the gulch. Crops are few and poor, but the settlers cling tenaciously to the warm slopes of the mountains. At one time a sawmill was located at the mouth of Espirito Santo Creek [Holy Ghost Creek, which joins the Pecos at Tererro] and the best of the yellow pine has been cut for 2 or 3 miles along the valley, otherwise the timber is almost untouched save by fire where settlers have endeavored to burn off enough country to make grazing land. The zone still contains much valuable timber, mainly yellow pine and douglas spruce that could be judiciously lumbered to the advantage of the forest. The ridges and slopes are mainly too steep and stoney to be of much value for grazing. . . .

The Canadian zone forest is normally dense and clean and beautiful, of thickly set spruce and fir trees with interlaced branches, slender trunks and sharp tops. The trees are not usually large, averaging a foot in diameter and 75 feet high, but here and there an old *picea* [spruce] stands three or four feet in diameter and 100 feet high. The piceas are more numerous and usually larger than the *abies* [fir], but the two grow indiscriminately together. Where no fire has been there is almost no down timber or underbrush and the clean carpet of needles is only sparingly sprinkled with wood plants . . . much of the spruce forest that has been burned has been replaced by dense groves of *populus monolifera* [aspen], young trees 2 to 6 inches in diameter usually, all of a size, slender, white stemmed, and beautiful but filled below with an unsightly snarl of dead spruce trunks—bones of the previous forest. Hardly a stick of this forest has ever been cut. Fire has been its only enemy.

Many of the extensive grassy parks are natural and show no signs of having ever been forested, but others show old stumps and charred logs of the forests burned off.

These parks occupy probably one fourth of the area of the zone and for many years have furnished an important free summer range for the cattle and horses and sheep of the neighboring valley ranches. Since the withdrawal of the forest reservation sheep have been banished from the parks and the number of cattle and horses limited, so the grass and flowering plants have returned in apparently primitive abundance. Grass is tall and full of ripening seed and the slopes are often brilliant with golden Wyethias [a sunflower], red Castillias [paintbrush], blue Aquilegias [columbine] and numerous other flowers.

A good many dead cattle were found and some sick ones seen, which I attribute to the abundance of *Aconitum columbianum* [monkshood] and *Delphinium occidentale* [larkspur]. . . . Trout deer bear turkey and grouse are more abundant in this zone than in any other part of the mountains at the present season . . . .

Considerable extent of the Hudsonian zone is occupied by grassy treeless slopes extending up from the parks below to timberline, some wind swept, others fire swept but all covered with a low dense growth of short grass and a carpet of low, matted plants (Bailey, Smithsonian Record Group 7176, Box 72, Folder 7).

Several conclusions may be drawn from Bailey's meticulous account: first and most obvious, fire swept through most of the forested high-mountain landscape in the two to three decades preceding 1903. Possibly the agent of change was not one great fire but a series of fires in multiple years, some of them large enough to consume, as Richard Hanna estimated, forty-thousand acres or more. Second, humans ignited some of these fires, sometimes successively in the same area, perhaps to clear away the "unsightly snarl of dead spruce trunks" that posed a barrier both to travel and to usage of the newly de-forested landscape for grazing. Third, the unsightly snarl may have helped establish aspen stands by preventing heavy grazing on young sprouts by wildlife and domestic grazing animals, especially sheep and goats prior to 1898, when they were banned. Fourth, range conditions in 1903 appear to have been good, thanks to grazing restrictions that were apparently successfully enforced. Fires, too, appear to have been rare in those same few years, and one wonders if the absence of sheepmen may not have contributed to the relative calm.

1904

Bailey spends the height of summer surveying the Taos Mountains. In a handwritten document headed "New Mexico: Taos Mts. and Valley[,] Mammals[,] July 9 to Aug 12, 1904," Bailey records "Taos Indian Names" for animals as

given to him by Sun Elk, a member of the pueblo. The name for white tail deer is given as “Pah humá na” and translated as “stream deer,” which underscores the species’ dependence on riparian habitat (Bailey, Smithsonian 7176, Box 72, Folder 8).

Two big fires “in the Rio Pueblo and Rio La Casa districts” absorb Tom Stewart’s attention. His success in fighting them earns him promotion from third-class to second-class ranger earning \$75 a month. Later, Stewart would recall:

In the old days I wondered if there would be anything left of the forest, what with fires and trespassing going on right and left, but the good Lord and the forest rangers have got things under control. The Lord saw to it that the rugged and remote nature of much of this area made roads impractical except for a few necessary routes, and the men of the U.S. Forest Service are doing the rest (USDA–Forest Service 1989, 128).

In September, 7.92 inches of rain fall in Rociada in two days; a flood scours Mora Flats barren; a flow of 60,000 cubic feet per second is recorded on the Canadian River west of Roy (by comparison, the peak spring run-off of the Rio Grande through Albuquerque has not topped 8,000 cfs since construction of Cochiti Dam); and the tracks of the Santa Fe Railroad are washed out from Watrous to Valmora (Barker 1953, 192).

I. B. Hanna, Superintendent of the Pecos River Forest Reserve, reports to the territorial governor that 7,500 head of cattle and horses are permitted to graze on the reserve this year, during a grazing season that runs from 1 April to 1 December (*Annual Report* 1904, 258).

Like other forest conservationists throughout the nation, Hanna seeks support for forest protection from agricultural interests downstream: “The building of Government reservoirs for the conservation of water in our arid lands and the reclamation thereof depends upon natural conditions favorable to a continued water supply, which is insured by the preservation of our forest upon the mountain slopes.” At this time the newly formed Reclamation Service, created by federal legislation in 1902, had already begun work on a dam at “Elephant Buttes” on the Rio Grande.

Hanna invokes a refrain common to the reports of forest reserve supervisors and superintendents everywhere when he assures the perhaps skeptical governor that, “The people of the Territory are learning the benefits that will accrue to them and to their posterity for all future generations by the preservation of the forests . . . Trespasses are becoming less frequent as the residents of the reserve and adjoining territory become more familiar with the rules and regulations governing the reserves.”

A bill transferring administration of Forest Reserves from the Department of the Interior to the Department of Agriculture passes Congress on 1 February. Both the secretary of the interior and the commissioner of the General Land Office, which up to now had administered the reserve system, support the bill. The Division of Forestry, an advisory agency since its creation in 1876, takes over management under the new name "Forest Service" (Rowley 1985, 52).

The new Forest Service wastes little time before investigating prospects for adding to its domain. The *Santa Fe New Mexican* on 24 February reports the arrival in New Mexico of Clyde Leavitt of the Bureau of Forestry, who "proceeded at once to the absorption of facts in the land office, preliminary to taking up the examination of lands for such new reserves as may, in the wisdom of the department, be created." The department, in turn, would have been very pleased with the newspaper's understanding and endorsement of its mission:

The vital dependence of irrigation upon forestry is now fully recognized and both miners and stockmen are awakening to a realization of the benefits to be ultimately derived from a conservative management of forests and from the judicious regulation of the range industry. The recent action of Congress in transferring the administration of federal forest reserves to the Bureau of Forestry guarantees a business administration, the main object of which will be the greatest good to the greatest number on a basis that will endure.

The report goes on to describe Leavitt's previous work, which involved the establishment of tree nurseries in Colorado and the harvest of seeds from them with which to reforest denuded mountain slopes. The *Santa Fe New Mexican* continues, "Ultimately it is hoped in this manner to make a partial restitution for the immense damage done by forest fires in New Mexico and that the value of the mountain streams for irrigation may be thus preserved and extended."

The year's appropriations act gives the power of arrest to forest rangers. Rangers like Tom Stewart can now do more than simply order trespassing sheep bands to leave the reserve. Stewart soon arrests a pair of herders in the Santa Barbara drainage, and marches them, in chains, virtually to Santa Fe (Rowley 1985, 64; deBuys 1985, 241-42).

A long profile of the Pecos country, "The Glory of the Pecos," in the *Santa Fe New Mexican* on 20 July provides a social gazetteer of the privileged New Mexicans who enjoy summer in the mountains: the Catrons, Bartletts, Vierras, Mudges, and others. It also provides the following observations:

Bear are getting bolder . . . now that they have cleaned out the dead cattle, the result of a severe winter . . . Coyotes are also quite plentiful . . .

The reserve is probably the finest game preserve south of Colorado, but it is high time that the river is restocked with trout. New Mexico should maintain a fish hatchery on the headwaters and the next legislature assembly will be asked for an appropriation for that purpose . . .

The people of the upper Pecos cast longing eyes to the headwaters of the Macho from which the Scenic Highway will descend. They are patiently but eagerly awaiting the day when they can travel over this noted road into Santa Fe to buy their supplies. Every effort should be made to finish the road as far as the Pecos River by fall. The announcement that the work on the road in the Santa Fe Canon has been undertaken by the Good Roads League of Santa Fe was greeted with joy and satisfaction . . . The number of horse and foot trails penetrating every portion of the reserve is on the increase but the forest reserve force is neglectful in clearing away the dead timber that has fallen across them. Uncle Sam should do at least that much for the Reserve.

The *Annual Report* of the territorial governor asserts that New Mexico supports herds totaling 1,050,000 cattle, 5,875,000 sheep, 150,000 goats, and 100,000 horses. From the increase of those herds the territory annually exports 200,000 cattle, 2,000,000 sheep, 25,000 horses, and 40,000 hides (a higher than usual number because of a harsh spring in which many animals died). New Mexico's wool crop runs to 20 million pounds (*Annual Report* 1905, 548; *Annual Report* 1906, 81).

The Jemez Forest Reserve is created on 12 October, encompassing much of what is now the western halves of Santa Fe and Carson national forests. It spreads over 1,237,205 acres.

After graduating high school in Las Vegas, Elliot Barker returns to the ranch on Sapello Creek, where he was raised, and helps his father, "hunting and guiding parties back into what is now the Pecos Wilderness Area." The hunting was "mainly for predatory animals upon which there was a bounty in those days. For instance, there was a \$2 bounty on coyotes, \$2 on bobcats, \$20 on bears, and \$20 on mountain lions. In those days they considered bear as a predator, and with a \$20 bounty and something for the fur, a country boy could make pretty good" wages in the spring while the fur was still good (USDA–Forest Service 1989, 146).

1906

Congress takes further action to conciliate western interests toward the forest reserves. By act of 11 June it provides that agricultural lands within National Forests may be homesteaded. The *Santa Fe New Mexican* on 21 June describes the measure as one "for which New Mexico has petitioned and worked ever

since the establishment of forest reserves within the Territory and the inclusion of good agricultural and grazing lands within such reserves.”

Also, Congress directs the Forest Service to remit ten percent of the income from forest activities to the counties in which the forests lie, thus providing compensation to counties for the property taxes they might otherwise have received if the lands had been patented to private ownership.

The Forest Service, meanwhile, begins charging stockraisers a fee for the issuance of grazing permits (Rowley 1985, 60 ff.; *Annual Report* 1906, 82–83).

H. J. Hagerman, appointed by Pres. Theodore Roosevelt to replace Miguel Otero as territorial governor, takes office 22 January 1906. As might be expected of a Roosevelt appointee, he expresses support for forest protection in his annual report for the year. Forest Service officers likely wrote the section on Forest Reserves:

It is very gratifying to be able to announce that the forest policy of the Federal Government, which was until recently looked upon with disfavor, and in many instances openly opposed by the people of this Territory, is much more thoroughly understood, and, as a consequence is generally favorably accepted. The supervisors of the various reserves are unanimous in their testimony as to this change in sentiment, which is also evident from the opinions expressed by nearly all the stockmen whose interests are most affected. One or two years' experience in grazing on the reserves under pasturage permits has proven to nearly all who have secured such permits the wisdom and fairness of the Government regulations. Not only do these regulations assure great good to the Territory by the preservation of the ranges within the reserves, but also to the cattle and sheep men whose stock is grazed within the Government domains. An abundant supply of good grass is always certain as a result of the enforcement of these wise rules (*Annual Report* 1906, 81–82).

The reserves continue to expand. The *Santa Fe New Mexican* of 11 September notes that 100,000 acres west and south of the Pecos River Reserve are “to be examined for possible annexation.” It further notes, “Hugh Baker of Ames, Iowa, a special officer with the forestry bureau who was sent by the department to investigate the denuded water sheds, and give the forest rangers instructions on establishing nurseries at their headquarters, was in the city yesterday.”

During the fiscal year ending 30 June 1906, the forest reserves of New Mexico are hardly immune from logging, but the actual extent of logging is difficult to determine. One section of the *Annual Report* (1906, 82) indicates that during that period the Forest Service sold 205,567,064 board feet of lumber, including a single contract in the Jemez for 40,000,000 board feet, with preliminary work

on another 50,000,000 board feet underway at the close of the year. Nevertheless, the data for individual forests seem inconsistent with the total of over 205,000,000 board feet. The sale figure of 567,064 board feet for the Pecos reserve, however, seems reasonable.

Sheep and goats continue to be excluded from the Pecos country with paid permits for 1906 totaling 3,104 head of cattle and 337 head of horses. The average number of stock per permittee was 21, with an additional 500 animals allowed on the reserve under “free use” permits for milk cows and draft animals (*Annual Report 1906*, 84).

1907

By act of Congress approved 4 March, “The Forest Reserves . . . shall hereafter be known as National Forests” (USDA–Forest Service 1978, 2; USDA–Forest Service 1989, 64).

Early in the year the newly formed Santa Barbara Tie and Pole Company purchases the Santa Barbara Land Grant, adjacent to the north boundary of the Pecos River National Forest. Shortly thereafter the company purchases 41,000 acres of standing timber on the adjacent Mora grant (deBuys 1985, 227). Production of railroad ties for the purpose of laying a second track along the Atchison, Topeka and Santa Fe Railway’s transcontinental line soon begins. An experimental “tie drive” of 7,000 ties takes place in the upper watershed of the Embudo River. “Crib” or “splash” dams are built to impound large quantities of water, which, when released by means of a few well-placed sticks of explosive, flush the ties downstream. In this way ties are transported down rivers in which they otherwise would scarcely have floated. Eventually over forty tons of dynamite are used to remove obstacles in the Embudo gorge to “improve” the river for tie drives that soon total several hundred thousand ties annually (Hernandez 1968).

A two weeks’ horseback trip to make a summer inspection of the Pecos, Taos, and Jemez National Forests is part work and part recreation for Supervisor Ross McMillan and T. H. Sherrard from the Bureau of Forestry in Washington, D.C. Mrs. McMillan and two young women for whom she filled the role of chaperone accompany them. Mr. Sherrard told the *Santa Fe New Mexican* on 30 August:

We found the ranges generally in very good condition. There has been an abundance of rain this year and as a result the grass is very plentiful. The abundance of the grass and water was a great surprise to me. The grass was knee high in some places on the high mesas. We did not have to carry any water at all for either drinking or cooking purposes or for watering the horses, and we did not have any difficulty in finding good camping places when we halted to spend the night. We camped every night but one and that we spent at Taos.

The *Santa Fe New Mexican* carries an article on 20 September lamenting depredations by mountain lions in the Pecos country. Mountain lions are blamed in particular for taking colts and foals, and “Stephen Arnold, a ranchman who lives about ten miles northwest of the Valley ranch, has offered a reward of a three-year-old horse to the hunter who kills the first mountain lion there this season, and this will be supplemented by a reward of \$25 which will be paid by Harry R. Sims, manager of the Valley Ranch company.”

1908

It appears that sheep and goats are readmitted to the Pecos National Forest in 1907. The *Santa Fe New Mexican* reports on 29 June the following dispatch received by Assistant Forest Supervisor Tom Stewart:

According to your recommendation the number of sheep allowed on Pecos Forest make [*sic*; may?] increase to 30,000 during the grazing period from July 1st to August 31st; allowed at the rate of three cents per head.

The dispatch is signed “Potter,” this being Albert Potter, chief of the grazing branch of the Forest Service. Potter is later reported on 17 July to be initiating joint investigations on the Pecos forest with officials of the reclamation service of the Department of the Interior concerning the effects of grazing sheep and goats upon watersheds important to irrigation. The report adds that Potter is on his way from Washington to Santa Fe “to confer with Governor Curry . . . regarding the proposed additions to the Pecos national forest.”

The Forest Service enjoys increasing success placing favorable stories, including reprints of its bulletins, in local newspapers. A favorite theme is the eradication of such unwanted elements of the forest ecosystem as prairie dogs and larkspur, which is poisonous to cattle (discussed in separate articles in the *Santa Fe New Mexican* on 21 August; see also issue of 7 April 1909). Such efforts are presented as repayment of the grazing fees stockmen pay: “Range improvement in National Forests is one of the chief objects of regulating the grazing. For this reason the Forest Service is leaving no stone unturned to prevent range deterioration.”

On 1 December, the “Southern District” of the National Forests is reorganized as District 3, and in March the supervisor’s office of the Pecos and Jemez National Forests is moved from Albuquerque to Santa Fe. The Carson National Forest, reorganized from the Taos forest and the northern portion of the Jemez, is to be administered from Tres Piedras (USDA–Forest Service 1989, 64–65).

1909

For \$150,000 the Santa Barbara Tie and Pole Company buys the 91,813.15-acre Rancho del Rio Grande Grant at an auction for partition. The grant lies

immediately north of the company's existing holdings and is said to include timber capable of producing eight to nine million ties, roughly doubling the company's reserves (Kansas State Historical Society).

Sheep are again grazing in the Pecos high country. The *Santa Fe New Mexican* on 18 May carries the following article:

#### Sheepmen Win Their Point

An order has been received at the local forest bureau from the secretary of agriculture giving instructions that twenty-five thousand head of sheep be permitted to graze on the Pecos National forest from June the first until October the thirty-first. The order came somewhat as a surprise, for although applications to graze sheep on the Pecos forest have been flooding the local office, it was thought that owing to the great amount of destruction of young tree growth caused by grazing sheep, no grazing permits would this year be issued. The granting of grazing permits, however, will be of great value to sheep raisers, especially since great trouble and hardship is being experienced on account of drought. Applications for grazing permits will be received up to May 28th by the supervisor of the Pecos National forest, Thomas R. Stewart, whose office is in the federal building.

The aforementioned drought sets the stage for a difficult fire year. On 18 June the *Santa Fe New Mexican* reports a major fire burning north of Cochiti and northeast of Pines in the Jemez National Forest, and a second fire is underway in "district number five" of the Carson National Forest.

Evidently development of a road linking the Santa Fe Canyon to Macho Canyon and the Pecos River has not progressed. According to the *Santa Fe New Mexican* on 22 June, the Forest Service has pledged to help develop the road. The same issue carries an article describing the illegal use by local poachers of blinds and salt licks to kill deer in the high country. In that article, Tom Stewart indicates that the grass on high-country sheep range is "six to eight inches high. . . . At the moment twenty-two thousand sheep are on the ranges."

In 1909 total revenue from National Forests in New Mexico is \$107,078.61, a quarter of which is remitted to counties. The Gila leads the way with total revenue of \$31,457, followed by the Datil and Magdalena Forest (\$21,289), the Carson (\$15,656), the Jemez (\$11,283), the Alamo (\$10,669), the Lincoln (\$6,609), the Manzano (\$5,257), the Pecos (\$3,473), the Chiricahua (\$1,384), and Las Animas (\$2).

1910

Illustrating the ever-stronger link between National Forests and the development of both irrigation and tourism, the *Santa Fe New Mexican* on 3 January

carries a photographic essay on "Irrigation and Road Work in New Mexico." Several pictures show portions of the "Great Scenic Highway, of which a portion has been built up Santa Fe Canon to within five miles of the Pecos, another part has been completed from Las Vegas up the Gallinas Canon . . ."

Some 129,819 acres are added to the Pecos National Forest, encompassing much of Glorieta (also known as Rowe) Mesa and two tracts near Las Colonias; 31,561 acres are eliminated from the forest. With regard to the newly added lands: "No grazing fees will be charged upon this addition for the first year, and the grazing rights of all those who have been in the habit of regularly using this areas will be very carefully protected" (*Santa Fe New Mexican*, 30 April).

1911 or 1912

Elliot Barker and Tom Stewart estimate as many as three hundred persons enter the high Pecos country via Pecos Canyon in a single year (Barker 1975).

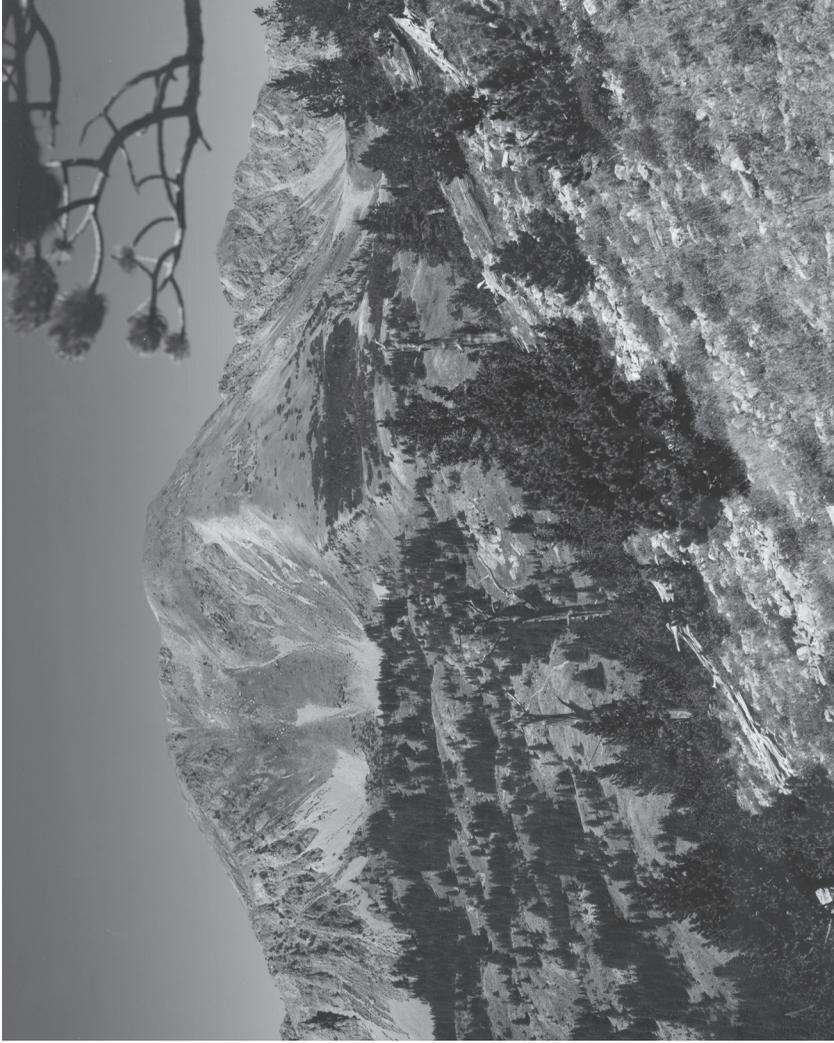
1912

New Mexico finally becomes a state. The *Santa Fe New Mexican*, appropriately, takes stock of the region's assets and publishes (26 January) a glowing report on the Pecos Forest, which is almost certainly written, or at least edited, by Forest Service personnel. The article is reproduced in full as an appendix to this chronology and can be thought of as a state of the forest assessment and a review of the leading land management issues of the day. Its headline makes two somewhat contradictory but revealing boasts: that the forest is "Santa Fe's Natural Park" and also that it contains timber "valued at almost two millions." In 1912, the Forest Service is still the federal agency most closely aligned with the nation's growing parks movement, but it exists also to serve the timber-production needs of the country. Can the two roles be reconciled? Which will take primacy? The answer is unclear. The National Park Service will not come into being for another four years, and in the meantime, the Forest Service will strive to be both things to all people.

Afterword

In the years following statehood, the amount of information generated annually about the uses and condition of the "Pecos River Mountains" increased steadily. The files of the USFS and, later, the New Mexico Department of Game and Fish (created in 1931) swelled and their official reports multiplied. The number of people visiting the high country for work, pleasure, or both grew slowly but steadily until the 1960s and then began to increase rapidly. Many of these visitors recorded their backcountry experiences in articles, diaries, letters, memoirs, and books.





North Truchas Peak, ca. 1911 (above) and 2000. View from the south slope of Chimayosos Peak toward North Truchas Peak showing fire effects at very high altitude and subsequent establishment of trees. Older photograph by E.S. Shipp, USFS photo 193618; photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 217.

Amid this mass of information, at least four strong themes with roots in the material presented here continue to develop.

One theme concerns the use of the high country for grazing and the resulting condition of its rangelands. As noted above (see entry for 1893), range condition declines following entry of commercial herds around 1888, then rebounds when sheep and goats are excluded from the nascent forest reserve in 1897. It deteriorates a second time as the Forest Service, under heavy political pressure, allows livestock herds to come back to the high country, but again improves when restrictions are brought into play. All progress halts, however, when the United States enters World War I. As part of the general mobilization and consistent with the belief that all possible food and fiber was needed for the war effort, presidential executive orders lifted restrictions on the size of the livestock herds that were permitted to graze on national forests. Years later, Elliot Barker reminisced, "It was a shortsighted policy which failed actually to aid the War effort. By the time they got around to producing more meat the War was over. . . . At the end of the War we had more stock on [the forests] than we had when Leopold [Aldo Leopold, former supervisor of the Carson National Forest] tried to start to reduce it, and that was a very bad situation. Some of our areas had become badly overgrazed" (USDA–Forest Service 1989, 149).

Ironically—and tragically for many—when the First World War ended in November 1918, commodity prices plunged as a result of oversupply and many stockmen who invested heavily to enlarge their herds went bankrupt (Rowley 1985, 112 ff.; Johnson 1976).

The visual evidence compiled by the rephotography project of which this chronology is a part shows convincingly that, following the First World War, range condition in the Pecos high country began to improve and that the improvement has continued more or less steadily to the present time.

A second theme in the ongoing history of the Pecos high country concerns the waxing and waning of various wildlife populations. In April 1915, thirty-seven elk, the survivors of a group of fifty shipped to New Mexico from Yellowstone the previous December, were released on Grass Mountain, near Cowles. Confounding the predictions of game managers, the elk herd failed to move north into the upper Pecos watershed for fifteen years, but by 1929 J. Stokely Ligon estimates the herd at eighty.

Reintroduction of bighorn sheep proved less successful. Attempts in 1933 failed, probably because the transplanted animals succumbed to diseases carried by domestic sheep grazing in the high country. The sheepherders who tended those domestic herds may also have played a role. Each would have carried a rifle, and many might have fancied adding a bighorn to the camp larder. Not until the mid-1960s were sheep from the Sandia Mountains (whose

stock came originally from Alberta, Canada) successfully transplanted to the area around Pecos Baldy.

Similarly ptarmigan were deemed absent from the wilderness after 1919 because of the impacts of domestic sheep (mainly trampling) and their herders (hunting, again). Transplanted birds obtained from the mountains above Leadville, Colorado, were reintroduced to the high country in 1981, and have maintained a roughly stable population since then. Today ptarmigan may be encountered along the high divides at the north end of the Pecos Wilderness.

No such reintroduction effort has been undertaken for grizzly bear, however. Skipper Viles trapped the last of the Pecos grizzlies in the spring of 1923 near Beatty's Cabin (Viles had a similar cabin a short distance downstream from Beatty's). The big bear was said to have killed eleven cattle in as many previous days, some of them belonging to Elliot Barker. For many years afterward, the hide of the bear was displayed at the Game and Fish Department headquarters in the Villagr  building in Santa Fe (USDA–Forest Service, Pecos Wilderness Multiple Use Management Guide 1972; see also Barker 1953, concerning elk).

A third enduring theme involves the noncommodity “goods” provided by the “Pecos River Mountains.” The mountains served as a playground for recreation, a refuge for spiritual renewal, and an arena for personal explorations of all kinds. The also possessed “existence value,” which in the jargon of recreation management means that many people who do not, or perhaps cannot, visit the mountains take pleasure and satisfaction in knowing that they continue to exist in a wild, relatively unspoiled state. The understandable pride, at times yielding to boosterism, with which surrounding populations have viewed the high mountains also endures. When New Mexico achieved statehood in 1912, about three hundred people entered the high country via Pecos in a year. By 1932 total high-country visitation had grown to about eight hundred, and in the following year the Forest Service established the “Pecos Primitive Area” containing 136,640 acres. In 1955 the primitive area was renamed the “Pecos Wilderness” under an administrative designation internal to the Forest Service. With passage of the Wilderness Act of 1964, the area became part of the National Wilderness Preservation System and received the highest level of land protection provided by U.S. law.

The national debate over the Wilderness Act and the coming of age of the Baby Boom generation coincided to lift the popularity of high-country hiking and camping to new heights. By 1972 the Forest Service estimated that 26,500 people were spending about 58,600 visitor-days within the Wilderness annually (USDA–Forest Service 1972).

A fourth theme, ecological change, also continues. The evidence of stand-changing fires in high-altitude forests, observed by Vernon Bailey, slowly faded.





Santa Fe Baldy, 1916 (above) and 1997. View from Penitente Peak toward Santa Fe Baldy. This pair shows the dramatic impact of a high-severity fire that burned in (probably) 1879, with the dead tree trunks still visible in 1916 amidst the old burn scar demarcated by the abrupt forest boundary—with slow recovery of tree cover evident in 1997. Older photograph attributed to “Cowling,” USFS, photo 334264; photographs courtesy Craig D. Allen, Jemez Mountains Field Station, USGS, JMFS 116.

Spruce and fir trees gradually replaced the aspen that had recolonized many burned areas. Seedling trees took root at the edges of high country parks and meadows, and, as they grew, the grasslands gradually shrank. Some of the loss of grasslands resulted from post-fire recovery; some might be attributed to grazing, which removed potential fuel for grass fires that might otherwise have kept the meadows open. Additionally, active fire suppression, lower down, outside the wilderness, probably contributed by preventing fires from reaching the high country from lower elevations. The shrinkage of grasslands may also partly derive from selective herbivory (grasses being stressed by grazing and losing their competitive advantage to shrubs and trees) or from long-term (and poorly understood) changes in soils or climate. All told, the changes have been dramatic: in 1953 J. W. Johnson and Perl Charles, who served together as Pecos district ranger and assistant ranger in 1923, revisited the high country. Charles later recalled:

We stayed at Beatty's cabin. We wandered around—just 30 years later. The one difference that you could notice was that the parks were getting smaller and smaller. The conifers and the aspens—the small trees were so much larger. It was a long ways from the open country that it was in the 1920s; unless something is done, I don't know what the answer is. Fortunately there are some smart men worrying about it, too. They'll figure out something (*Early Days* 2, 98).

In the early 1960s the “smart men” employed teams of workers armed with chainsaws (prior to federal wilderness designation) to cut trees that had “invaded” meadows and other grasslands. The work was called “meadow maintenance.” Today the stumps of cut trees may be found near the edges of many grassy areas, but the stumps lie in the shade of other trees, the forest having continued its march past them.

More changes lie in store. A warming climate, a return (since 1996) to comparatively dry general conditions, and the consequences of a century of active fire suppression have contributed to the return of wildfire to even high-altitude forests (see discussion in deBuys, 1985, rev. 2015, final chapter). If the climate models are roughly correct, the pace of ecological change in the “Pecos River Mountains” and throughout the region will accelerate markedly (Williams et al. 2013; Allen 2015).

Much more might be added to this chronology. With diligence a researcher might mine valuable ore from New Mexico's Spanish and Mexican archives; the U. S. State Department Territorial Papers of New Mexico, which date from 1851, when the territory was organized, to 1872 after which all oversight of the territory was consolidated in the Department of the Interior; or from

the Interior Department Territorial Papers for New Mexico, 1851–1914, this last repository possibly including the petitions of the 1880s in support of a Pecos National Park. Additionally, other newspapers besides the *Santa Fe New Mexican*—the *Las Vegas (N.Mex.) Optic* in particular—might yield a haul of nuggets.

Meanwhile, the seemingly immutable mountains will continue in their arc of change. One day, the transformations evident between Vernon Bailey’s time and ours may seem minor compared to those witnessed by the generations that succeeded us. Perhaps this compilation of events and observations recorded during New Mexico’s territorial era will contribute to an understanding of the breadth of that change.

## Appendix

Article from the *Santa Fe New Mexican* of 26 January 1912, constituting a survey of forest issues, presented from the point of view of the Forest Service:

715,000 Acres in Pecos Forest

It is larger than the sovereign state of Rhode Island

Santa Fe’s Natural Park

The timber on it alone is valued at almost two millions.

The Pecos river gives it name to the Pecos National Forest. The origin of the name Pecos is not positively known.

It was first used by Onate, the Spanish explorer, who arrived at the site of the present ruin of the village of Pecos, on July 24, 1598. This village was then called Cicuye, and the river upon which it was located, which is now the Pecos river, was then called the Salado. In his report of his visit to this village of Cicuye, Onate referred to it for the first time so far as written history is concerned, as Pecos. The river then known as the Salado eventually became known as the Pecos. The forest is called the Pecos forest because the head water of the Pecos river are [*sic*] almost in the center of it.

Larger than Rhode Island

Area of the forest is 715,500 acres. There is an estimate of 450,000,000 board of timber, 425,000 cords of firewood and a large amount of posts, poles, etc. on the forest. Probable stumpage value is \$1,750,000. All mature and dead timber is for sale. We have one sale in operation on this

forest of 4,500,000 feet and several proposed sales of smaller amounts. The cutting is along conservative lines and a perpetual yield of timber is assured.

The receipts for the fiscal year ending June 30, 1911, from timber sales, grazing, special uses, were approximately \$9,000. However, the receipts for the current fiscal year will greatly exceed this amount and it is expected in a few years to put the forest on a self supporting basis.

#### Grazing in 1912

The estimated grazing capacity of the forest is 7275 head of cattle and horses and 38,500 head of sheep and goats. The Secretary of Agriculture has authorized the grazing of this number during the season of 1912. This number does not include approximately 600 head of cattle and horses and 1,000 head of goats owned by settlers in or adjacent to the forest, which are grazed without permit and free of charge. The forest was not grazed to over one-half its capacity during the last season. However, owing to the many inducements offered stockmen, there is no doubt that in the near future applications for grazing privilege will exceed the capacity of the range. The forest being grazed to its full capacity would mean an annual income to the government of about \$5,200. The fees charged for grazing on the forest are forty to fifty per cent less than the fees charged on private lands and on reservations.

#### Method of handling stock

The method of handling stock some years ago might be explained as follows. The open range is public property and being a gift to no one in particular and every citizen have the right to use it, he that took all he could and took the most out of it, got the most out of it. Prior to the creation of the forest many thousand head of sheep and a large number of sheep and a large number of cattle and horses ranged at large. No division was made between the two classes of stock. Consequently controversies and disputes over the range sprang up and in many instances ended in bloodshed. The range was badly overgrazed and had such conditions continued for a few years longer, the range would now be a barren waste past reclamation. Since the creation of the forest grazing has been regulated, division of range has been made between sheep and goats and no further enmity or hard feeling exists between the classes. They are assured of permanent grazing.

### Trails, Roads, Telephones

Permanent work in the way of trails, roads, telephone lines, houses, pasture fences, etc. will be continued as funds permit. There now exists on the forest the following improvements constructed by the forest service: 28 miles of telephone line, about 230 miles of trails, 7 houses and 4 small cabins for the use of forest officers, 5 barns; 6 pasture fences, 3 miles of drift fence built for the benefit of stockmen; 3 counting corrals; 2 miles of irrigation ditches; 6 tool boxes; a stock watering tank and other minor improvements. This does not include several hundred dollars spent each year in repairing and clearing out roads and trails.

### Scenic Highway

The Scenic Highway which was to have been built into the forest, from the east and west sides, on the east has reached the forest boundary eighteen miles from Las Vegas. On the west side, the road has been built a distance of approximately nineteen miles from Santa Fe, ten miles being in the forest and has reached the summit of the Santa Fe range at an elevation of 10,000 feet. The remainder of the proposed route will cross over the Las Vegas range at an elevation of approximately 11,300 feet and from a scenic standpoint will furnish many attractions.

### National Playground

Owing to the many scenic attractions and the fact that streams in the forest furnish excellent trout fishing and the mountains abound with game, it is believed that the forest is destined to become one of the greatest summer resorts or national playgrounds in the United States. Tourists, pleasure seekers, hunters and sportsmen can find anything desired in the way of summer resorts and camping places. The Pecos affords unlimited opportunities for building and maintaining summer homes that can be leased for from \$5.00 to \$25.00 per annum from the forest service. The supervisor or ranger will gladly give detailed information on request.

### National Game Preserve

The creation of a national game preserve within the forest has been favorably compared by both the Forest service and the Biological Survey and a bill will probably be introduced at the next session of Congress by one of the two Senators from this state.

### Most Important Forest in West

This forest from a protective and scenic standpoint is probably the most important in the West. The Pecos river, with its numerous lateral streams, is the most important. It has its source in the Truchas peaks and its general flow is south. The Rio Pueblo, Rio Santa Barbara, Rio Trampas and the Rio Medio have their sources in the Jacarilla [*sic*], Truchas and the Pecos Baldy Peaks and their general flow to where they empty into the Rio Grande is north and north-east. The Gallinas, the Rio Sapello, Rio Manuelitos, Rio La Casa, Rio Cebolla, all have their sources from the Las Vegas range and their flow is east and southeast. The Santa Cruz, Rio Nambe and the Santa Fe River have their sources in the Santa Fe range. Their general course is West.

### Preserving Stream Flow

By conserving and regulating the flow it will become possible for the Reclamation Service to reclaim many thousands of acres of arid lands that are at present practically worthless. To regulate the flow, to prevent floods and erosion and to reserve the water for times when it is mostly needed for irrigation and other purposes, it is imperative that a good forest cover be maintained, thus preventing the rapid melting of snows and running off of rain.

### Water Supply

Several national irrigation projects and numerous small settlements that extend almost entirely around the forest and two towns, namely Santa Fe and Las Vegas, are entirely dependent upon these streams for their water supply.

### Demand for Timber

The fact that all of the land grants that almost surround the forest are fast being denuded of their forest cover, without any thought of the future and all for the greed of present gain, it is evident that there will soon be a heavy demand for timber from this forest. Prior to the creation of the forest it was no unusual occurrence to witness two or three large forest fires raging during the dry season, destroying thousands of dollars' worth of valuable timber and doing inestimable damage to the forest cover. The people at this time made no attempt to fight such fires unless

their own private property was in danger of being destroyed. Since the creation of the forest not to exceed one tenth of one per cent has been destroyed by fire.

#### Reforestation

Reforestation of barren and burned over areas has already been taken up. Last year about 300 acres were sown to western yellow pine seed and about 50,000 seedlings grown at the Gallinas nursery were planted. The work will be taken up on a larger scale during the coming season.

For the protection of the city of Santa Fe and the Arroyo Hondo irrigation project, upon recommendation of this office, the Forest service will prohibit the grazing of stock for a number of years on both the Santa Fe River and Arroyo Hondo water sheds. An effort will be made to take up the reforestation of these areas during the coming season.

#### Why do they?

The administrative force of the forest consists of (office force): Supervisor, one clerk and one ranger to alternate with the supervisor; (field force) four rangers with an average of 178,750 acres to the man. With about 600 people to deal with there is plenty to be done.

Miss Agnes Laut, the authoress, while on a visit to this forest last spring, is quoted as saying or something to that effect: "Why do people go to Switzerland when there are greater attractions on the Pecos Forest?"

#### Bibliography for Pecos Chronology

- Allen, Craig D. 2015. "Forest ecosystem reorganization underway in the Southwestern US: A preview of widespread forest changes in the Anthropocene?" In *Forest Conservation and Management in the Anthropocene: Adaption of Science, Policy and Practices*, edited by V. A. Sample, R. P. Bixler, and C. Miller. Boulder, Colo.: University Press of Colorado. Previously published in *Forest Conservation and Management in the Anthropocene: Conference Proceedings*, edited by V. A. Sample and R. P. Bixler 2014 Proceedings. RMRS-P-71. Fort Collins, Colo.: USDA Forest Service. Rocky Mountain Research Station. 494 p.
- 2002. "Lots of lightning and plenty of people: An ecological history of fire in the upland Southwest." In *Fire, Native Peoples, and the Natural Landscape*, edited by T. R. Vale, 143–193. Covelo, Calif.: Island Press.

- Annual Reports of the Governor of the Territory of New Mexico to the Secretary of the Interior.* 1879 to 1905. Collected in House Documents for respective years. U.S. Serial Set, various items.
- Bailey, Florence Merriam. 1904. "Additional Notes on the Birds of the Upper Pecos." *The Auk* 21: 349–363.
- 1905. "Notes from Northern New Mexico." *The Auk* 22: 316–18.
- Bailey, Vernon Orlando. 1903. "Physiography of Pecos River Mountains," unpublished field report in RG 7176, Box 72, Folder 7 and Folder 8, Archives and Special Collections of the Smithsonian Institution, Washington, D. C.
- 1931. *Mammals of New Mexico*, No. 53 in the North American Fauna series, U.S. Department of Agriculture, Bureau of Biological Survey. Subsequently republished as *Mammals of the Southwestern United States*, New York: Dover, 1971.
- Barker, Elliot Service. 1953. *Beatty's Cabin*. Albuquerque: University of New Mexico Press.
- 1975. "Historical Overview of the Pecos Unit Land Use Plan," MS, dated "received" at Pecos District, 30 August 1975.
- 1976. *Ramblings in the Field of Conservation*. Santa Fe: Sunshine Press.
- Cockerell, Wilmatte Porter. 1903. *American Naturalist* 37: 444, 887–91.
- deBuys, William. (1985) 2015. *Enchantment and Exploitation: The Life and Hard Times of a New Mexico Mountain Range*. Revised and expanded edition. Albuquerque: University of New Mexico Press.
- Dyche, Lewis Lindsay. n.d. "Campfires in New Mexico—Hunting Bear and Deer." Lewis L. Dyche Papers, University of Kansas, Kenneth Spencer Research Library, University Archives, Lawrence, Kansas.
- Edwards, Clarence. 1893. *Campfires of a Naturalist*. New York: D. Appleton.
- Greene, A. C. 1972. *The Last Captive*. Austin: Encino Press.
- Hardaway, George D. and J. Robert Thompson. 1962. "A Study of Water Yield from the Santa Fe River Watershed." Forest Service Paper No. 70. Fort Collins, Colo.: Rocky Mountain Forest and Range Experiment Station.
- Henshaw, H. W. 1885. "List of Birds Observed in Summer and Fall on the Upper Pecos River, New Mexico." *The Auk* 2: 326–333. Continued in *The Auk* 3: 73–80.

- Hernandez, F. L. 1968. "Desert Log." Manuscript reported to have been published in *Old West*.
- Johnson, John W. 1976. *Reminiscences of a Forest Ranger, 1914–1944*. Dayton, Ohio: Joan Canby Robinette.
- Julyan, Robert. 1996. *The Place Names of New Mexico*. Albuquerque: University of New Mexico Press.
- Kansas State Historical Society. Various documents provided courtesy of William W. Gibson.
- LaFarge, Oliver. (1956) 1974. *Behind the Mountains*. Santa Fe: William Gannon.
- Lang, E. M. 1957. *Deer of New Mexico*. Santa Fe: New Mexico Department of Game and Fish.
- . 1958. *Elk of New Mexico*. Santa Fe: New Mexico Department of Game and Fish.
- Ley, Huie. 1992. Personal communication.
- Ligon, J. Stokely. 1927. *Wild Life of New Mexico*. Santa Fe: New Mexico Department of Game and Fish.
- Margolis, Ellis Q., and Jeff Balmat. 2009. "Fire history and fire-climate relationships along a fire regime gradient in the Santa Fe Municipal Watershed, NM, USA." *Forest Ecology and Management* 258: 2416–2430.
- Margolis, Ellis Q., Thomas W. Swetnam, and Craig D. Allen. 2007. "A Stand-Replacing Fire History in Upper Montane Forests of the Southern Rocky Mountains." *Canadian Journal of Forest Research* 37: 2227–2241.
- Harry Mossiman. 1976. Personal communication.
- Nash, Roderick. (1967) 1973. *Wilderness and the American Mind*. New Haven: Yale University Press.
- National Academy of Sciences. 1897. "Report of the Commission . . . upon a Forest Policy for the Forested Lands of the United States." S. Doc. No. 57, 55th Cong., 2d Sess., 28–73.
- Parish, William J. 1961. *The Charles Iffeld Company: A Study of the Rise and Decline of Mercantile Capitalism in New Mexico*. Cambridge: Harvard University Press.
- Powell, John Wesley. (1879) 1962. *Report on the Lands of the Arid Region of the United States*. Reissue, Cambridge, Mass.: Belknap Press.

- 1890. "The Non-Irrigable Lands of the Arid Region." *Century Magazine* 1 April.
- Pyne, Stephen J. 1982. *Fire in America: A Cultural History of Wildland and Rural Fire*. Princeton, N.J.: Princeton University Press.
- Rowley, William D. 1985. *U.S. Forest Service Grazing and Rangelands*. College Station: Texas A&M University Press.
- Sharp, William and Peggy Sullivan. 1990. *The Dashing Kansan: Lewis Lindsay Dyche, the Amazing Adventures of a Nineteenth-Century Naturalist and Explorer*. Kansas City, Mo.: Harrow Books, in association with the Museum of Natural History of the University of Kansas.
- Swetnam, Thomas W., and Christopher H. Baisan. 2003. "Tree-ring reconstructions of fire and climate history in the Sierra Nevada and Southwestern United States." In *Fire and Climatic Change in Temperate Ecosystems of the Western Americas*, edited by T. T. Veblen, W. Baker, G. Montenegro, and T. W. Swetnam 158–195. *Ecological Studies* 160. New York: Springer.
- Tiller, Veronica. 1983. *The Jicarilla Apache Tribe: A History*. Lincoln: University of Nebraska Press.
- Ungnade, Herbert E. 1965. *Guide to the New Mexico Mountains*. Albuquerque: University of New Mexico Press.
- U.S. Department of Agriculture–Forestry Division. 1888. *Bulletin No. 2: Report on the Forest Conditions of the Rocky Mountains*. Washington, D.C.: Government Printing Office.
- USDA–Forest Service. 1972. *Pecos Wilderness Multiple Use Guide*.
- 1978. *The Principal Laws Relating to Forest Service Activities*. Agriculture Handbook No. 453. Washington, D.C.: Government Printing Office.
- 1989. *The Early Days: A Sourcebook of Southwestern Region History*. Southwestern Region Reports No. 7 (Book 1).
- 1991. *The Early Days: A Sourcebook of Southwestern Region History*. Southwestern Region Reports No. 11 (Book 2).
- 1992. *The Early Days: A Sourcebook of Southwestern Region History*. Southwestern Region Reports No. 12 (Book 3).
- Veblen, Thomas T. and Diane C. Lorenz. 1991. *The Colorado Front Range: A Century of Ecological Change*. Salt Lake City: University of Utah Press.

Weber, David J. 1971. *The Taos Trappers*. Norman: University of Oklahoma Press.

Wheeler, George Montague. 1873–84. *Annual Report upon the Geographical Surveys West of the One Hundredth Meridian*. Washington, D.C.: Government Printing Office.

——— 1889. *Report upon the United States Geographical Surveys West of the One Hundredth Meridian*. Washington, D.C.: Government Printing Office.

Williams, A. Park et al. 2013. “Temperature as a Potent Driver of Regional Forest Drought Stress and Tree Mortality.” *Nature Climate Change* 3: 292–97.

## Notes

1. No records of the *Santa Fe Daily New Mexican* from 23 May 1877 to 18 September 1880 appear to exist. The *Santa Fe Weekly New Mexican*, a version of the same newspaper, replaced it. Hereafter, all references will be to the *Santa Fe New Mexican*, embracing both editions.

2. The authors have been unable to determine what “sici” is.

