

*Reclamation, Ranching, and Reservation:
Environmental, Cultural, and
Governmental Rivalries in
Transitional Arizona*

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In the spring of 1996, Tonto National Forest burned spectacularly. The Lone Fire swept over 61,000 acres, much of which was within the Four Peaks Wilderness Area. During the week of the fire, the issue of appropriate land use captured the media's attention, as well as the attention of government agencies, Tonto's ranching community, and nearby Phoenix residents. The Bureau of Reclamation and the Forest Service worried about the effects of the fire on Salt River Project reservoirs and wildlife habitat. Ranchers worried about the potential loss of livestock and forage. Citizens also worried about damage to their wilderness playground, for the forest's proximity to Phoenix made it a popular destination for urban recreationists. The "gray haze and acrid odor [hanging] over the Valley of the Sun" forced Salt River Valley residents indoors. Indeed, the fire's greatest impact seemed to be its urban connection. This fire, Arizona's largest since at least the Second World War, illuminated many historic themes of the Tonto. It affected ranching, the long-time economic and cultural focus of Tonto; it touched the governmental agencies in charge of administering both the forest and rivers that constituted the Tonto National Forest and Salt River Project; most of all, it underscored the significance Tonto held for the neighboring Salt River Valley and its residents. These factions were the progeny of a century-long social and economic rivalry. Thus, today's environmental battleground remains inextricably linked to the past.¹

The history of the region reveals much about the current configuration of Arizona. In an interview given during the Depression, long-time Tonto Basin rancher John Cline recalled, "When the Forest Service came in, I just laughed. I told them I would just like to see them

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come in and tell me. I thought I was boss.” In his reference to the 1905 reservation of the Tonto National Forest in central Arizona, Cline echoed the sentiment of many Westerners then and now. After subsisting for many decades free from all but nominal governmental restrictions on their agricultural economy, ranchers resented the growing federal presence in administering and managing the West’s land and natural resources. Although Cline’s remark reflects an antipathy toward federal restrictions, others saw federal intervention as the region’s saving grace. In Arizona, farmers in the Salt River Valley especially desired federal assistance to build irrigation projects dependent upon large dams on the Salt River and later on the Verde River. These different perspectives about federal power and management of natural resources not only reverberated in Arizona but throughout the American West.²

Those resources, mainly rangelands and water storage, carry paramount significance for Arizona’s past. Two of the state’s cornerstone four C’s—cattle and cotton—depended upon an abundant grassland and a regular supply of water for irrigation.³ As a center of the state’s livestock industry and as the major watershed of the Salt and Verde Rivers, the Tonto region’s environment prominently affected Arizona’s growth. At the same time, Arizona’s growth profoundly influenced Tonto’s development. The history of those resources, how settlers used and abused them, and why the federal government reserved the land forms a central component to any study of Arizona and informs the broader outlines of the Western past.

This investigation is one of transitions—both physical and historical. At an elevation of 7,000 feet, the Mogollon Rim, a vertical rock escarpment between 1,000 and 2,000 feet high, forms the southern edge of the immense Colorado Plateau and the northern boundary of Tonto National Forest. The rim effectively delimits the ecology of central Arizona, forming the state’s geologic seam. Along the Mogollon Rim stands the largest continuous ponderosa pine forest in the world. Moving south from the plateau, the Verde River and Tonto Creek drain the Mazatzal Mountains and the Sierra Ancha range while watering the desert grassland that blankets the region’s wide basins. By the time Tonto Creek and the Verde River flow into the Salt River the environment is mostly desert scrub, barely 1,500 feet above sea level. Mountains and basins, forests and desert, the Tonto region marks important ecological transitions. But natural transitions are only part of the narrative. The fifty years surrounding the turn of the twentieth century

epitomized many other important transformations. Culturally and politically, whites displaced the native population and the federal government moved into a more active role in Arizona and the West. The social and physical transitions collided and made the Tonto a contested place, a crucible for understanding environmental, cultural, and governmental transformations.

ESTABLISHING CONTACT AND CREATING AN ECONOMY

The Tonto has been home to humans for a hundred centuries. Along the upper Salt River, in the Tonto Basin, and under the Mogollon Rim, humans pursued a well-documented hunting-gathering-fishing economy and also developed irrigation agriculture. This economy flourished in the well-watered valleys, abundant grasslands, and an open and productive forest that native peoples carefully maintained. To accomplish what amounted to large-scale landscaping, inhabitants routinely burned the forest and grasslands. These fires encouraged forage for the wildlife natives hunted; regeneration of certain plants, such as manzanita, whose berries were edible; and a raised water table. The various culture groups who frequented the Tonto region remade the landscape to satisfy their need for agriculture and their hunting-gathering-fishing subsistence practices. Unfortunately for the native inhabitants, their practices also made the Tonto Basin an ideal landscape for Euro-american ranching.⁴

Spanish missionaries and settlers brought the first domestic livestock to Arizona in the sixteenth century. These early experiments in livestock raising met varying degrees of success. Sheep husbandry continued virtually uninterrupted from its inception, particularly because of Navajo Indians, who incorporated sheep into their economy since at least the seventeenth century. However, the Apaches limited the expansion of cattle ranching. The earliest Spanish and Mexican periods of the stock industry did not expand into the Tonto region because it remained concentrated on the southern grasslands, especially east of Tucson. An enlarged market and a growing population caused the cattle industry in nineteenth-century Arizona to expand into new ranges in the last quarter of the century. Many ranchers began establishing Tonto as their base of operations after General George Crook and his cavalry

surrounded hundreds of Apache and Yavapai Indians in Tonto Basin in 1872 and forced a surrender that resulted in their relocating to the White Mountain Apache Indian Reservation. This also was a time when Arizona experienced an ideal combination of climate, economy, and range conditions favorable for an expanding pastoral economy.⁵

Tracking central Arizona's principal rivers first brought Euro-americans into the Tonto region. F. A. Cook, the recorder for King S. Woolsey's group of Indian fighters and explorers, found the Salt River abundant. Writing about the convergence of Tonto Creek and the Salt River on 14 June 1864, Cook related: "We made a willow drag and caught about 200 fish. The largest ones looked verry much like Cod but had no teeth, and would weigh from 10 to 20 lbs. This kind of fishing was new to many of us but was verry fine sport for we had to go into the river and in some places it was up to our necks but the weather is very hot and the waters warm."⁶ Years later, rancher Florance A. Packard recalled the Tonto Creek of 1875: "[T]he water seeped rather than flowed down through a series of sloughs and fish over a foot in length could be caught with little trouble."⁷ Cook and Packard thus recorded the potential for commercial prosperity and recreational qualities in this watered oasis of the semidesert.

If water first brought explorers to the region, Tonto Basin's native perennial grasses encouraged others to settle. Many accounts from the first ranchers attest to the natural abundance of the rangeland. In 1875 Florance A. Packard came to Greenback Valley east of Tonto Creek where he found "Blackfoot and Crowfoot Grama grass that touched ones [sic] stirrups when riding through it." Similarly, William Craig described pine bunch grass near Payson in the 1880s as standing "three feet high and . . . in great bunches." In 1884 Cliff Griffin settled on the Salt River near Wild Rye Creek, an area since covered by Roosevelt Lake. He recollected: "Black Grama used to cover the slopes on each side of the river. In those days this came up in bunches, approximately five inches at the base, grew to a height of two to two and one-half feet with a sheaf like spread of two to two and one-half feet. . . . [I]n the early days the settlers used to chop this grass for hay, using heavy hoes for chopping and with a hoe, rake and fork he could fill a wagon in two hours time with this grass." John Cline recalled Tonto Creek being "full of beaver and otter." In an interview, he reminisced about his family's first decade in Tonto:

In those days we had everything in Creation we wanted. The grass was stirrup-deep and green all the year around. There was plenty of water and lots of rain. The steers got fatter on the range then, than they do now in a feeding pen, and we always had a good market for them, and for the cows too, if we'd wanted to sell them, for there were soon plenty of fellows trying to start outfits. But we didn't want to sell, for the country was ours as far as we could see, and nobody could come in and tell us what to do to make it better, or worse.⁸

These recollections, and others like them, describe a certain type of paradise. There is a verdant range, rich in grasses; there is a good market, waiting patiently for the perpetually fat steer; there is the archetypal cowboy, possessing all the range he could see. Certainly the ranchers' recollections were exaggerated with hindsight, but the image and much of the reality was that Tonto was a cattleman's heaven with natural abundance that ranchers sought to transform into economic prosperity.

Fifty miles downriver from the Tonto Creek-Salt River convergence, farmers found their own ideal locale. The lower Salt River Valley promised an agrarian dream to complement Tonto's pastoral paradise. At the same time that ranchers settled on the Tonto range, farmers flooded into the lower Salt River Valley. Using some of the ancient canals of the Hohokam, the cultivators irrigated stretches of fertile valley land and produced economically fruitful crops. The convergence of water and fertile soil created in the Salt River Valley one of the most productive regions in the Southwest. Indeed, so long as the Salt River flowed from the mountains, agricultural prosperity in the valley seemed assured.⁹

Both ranchers and farmers chose their economy largely because of their surrounding natural environments. The basin and range of the Tonto region provided abundant native grasses ideal for grazing, with numerous creeks supplying ample water for modest herds. In contrast, when irrigated, the Salt River Valley's soil and flat land promised abundant crops. Thus, the diverse landscapes of Tonto and the lower Salt River Valley influenced the mode of economic livelihood of the respective regions' inhabitants. As different as those landscapes and economies were, water connected them and they shared similar environmen-

tal histories. However, eventually that mutual resource did more to divide the regions than connect them.

Ranchers and farmers use water differently. Whereas ranchers depended on springs and creeks to water their animals, farmers required water for extensive irrigation. By the end of the 1890s, a decade characterized by one of the worst droughts and consequential economic depressions in Arizona and Western history, population pressures and development in the lower Salt River Valley and in the Tonto Basin caused water demand to exceed supply. As the competition for the scarce resource became keener, the settlers from the seemingly distant regions no longer could ignore their environmental and economic connectedness. Decisions concerning the Salt-Verde river network's water supply accordingly dominated regional politics. Acquiring a steady supply of water from the neighboring Tonto and conserving it required understanding the changes that had occurred on the range and learning how to reverse deleterious effects of overuse. As government officials began uncovering the environmental history of the Tonto, they discovered the massive transformation of the forest and began to fathom the immensity of the task asked of them. Thus, the context of resource use and reservation must be understood historically.

The number of cattle the range supported in the final quarter of the nineteenth century attests to a once-abundant grassland in the transitional zone of central Arizona. Using early estimates, a recent study indicated that perhaps as many as two million cattle once grazed the Tonto. Although this number is admittedly excessive, the area that became the Tonto National Forest provided copious perennial native grasses for cattle and sheep along with horses, goats, and pigs. Early accounts placed 150,000 sheep seasonally on the Tonto at the turn of the century and 85,000 cattle year-round by 1921, although that number was "much below what it formerly was" before the droughts of the 1890s and first decade of the twentieth century.¹⁰

With a growing population in Arizona and the West generally, the demand for beef increased. The economy and the region's ecology corresponded as if the story were a stockman's fairy tale; abundant grasses, abundant cattle, abundant markets all combined to live seemingly happily ever after. Ranchers like the Clines, Craigs, Griffins, and Packards moved from California and Texas into the Tonto, where their cattle thrived. In the nineteenth century, the grass on the public domain was free, making it particularly economical to graze on the Tonto range;

and the range seemed limitless to these early settlers.¹¹ Markets soon became readily available. Initially, the markets for Tonto beef were Phoenix, Indian reservations, and the nearby military forts of Fort McDowell, Fort Verde, and Camp Reno. By the 1880s, however, Atlantic & Pacific Railway stops at nearby Holbrook and Winslow connected Tonto cattle and sheep to more distant markets. Thus, as Arizona's population increased and as the railroad linked the region to Eastern markets the economic outlook for Tonto's stockmen continued to expand and prosper.¹²

Descriptions of conditions prior to the 1890s all attest to an abundant range and unlimited potential for a lucrative livestock industry. More settlers moved into the transition zone, many of them hoping to generate new ranching enterprises and many others bringing with them established outfits. The Arizona ranges at large, according to U.S. Bureau of Animal Industry official Bert Haskett, were "fairly well stocked with cattle" by the early 1880s. The ranchers with whom Tonto Ranger Fred Croxen conferred agreed that by about 1890, the Tonto range had reached its carrying capacity.¹³

The prosperity of Tonto's cattle industry, grounded in abundant grasses and accessible markets, led naturally enough to welcomed economic growth. However, economic prodigality contributed to unwanted and unanticipated environmental change and decline. As ranching outfits increased in size and number, they placed unprecedented pressure upon the range itself. Statewide, the increase in livestock numbers was substantial. Figure 1 demonstrates the massive influx of livestock in the 1880s. In a decade, the increase in cattle was over 700 percent, while sheep numbers rose nearly 1,000 percent. Moreover, these numbers likely fell below actual herd sizes because no systematic way existed to count the livestock, and ranchers consistently reported low to save on taxes. As a focus of the Arizona livestock industry, Tonto actively participated in this expansion. Not adapted to such considerable grazing, ranges collapsed under the pressure. Hastening range destruction and livestock decline, the drought of 1892–93 dried up rivers, streams, and springs and resulted in a rapid decline in sheep numbers also illustrated in figure 1. Although cattle numbers had increased since 1890, they dropped from the high point in 1891 when ranchers reported 720,940 head to the state. The drought was certainly severe, as one source declared: "Even Tonto River went dry and everywhere the hillsides were covered with [animal] carcasses." The river levels further illustrate the

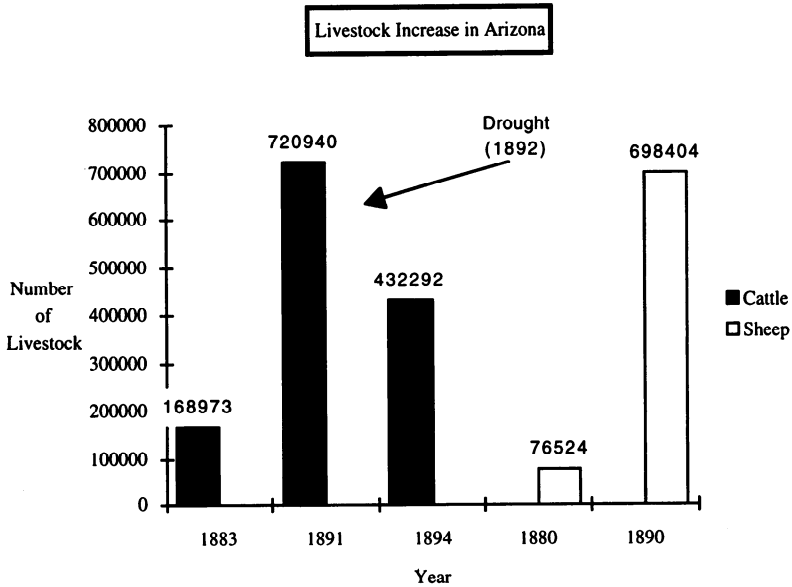


Figure 1. Livestock increase in Arizona. Source: Haskett, "History of Cattle in Arizona," 41; "History of Sheep in Arizona," 30.

drought's severity: in 1891, the combined flow of the Salt and Verde Rivers reached 3,110,000 acre-feet; the following year it was only 298,000 acre-feet—less than 10 percent of the previous year's flow. The regional drought and overstocking combined to create an oversaturated market and an overused range. In the process, grasses withered away, cattle died, and many ranchers were ruined financially. Because of these poor conditions seen in Arizona and throughout the West, the livestock market fell and a depression in 1893 left the general economy in shambles.¹⁴

CHANGING NATIONAL IMPERATIVES AND LOCAL CONSERVATION RESPONSES

Changing federal policies also affected resource use, as national legislatures substantially reformed land law. Early laws designed to give or sell land to settlers, such as the Homestead Act (1862), the Timber

Culture Act (1873), and the Desert Land Act (1877), became notorious for fraudulent claims leading to concentrated landholdings. However, new policies allowed the government to maintain control over vast acreages. In 1872, President Ulysses S. Grant signed into law the Yellowstone Park Act, the first of many reservations of public land for this purpose. Nearly two decades later, President Benjamin Harrison signed a law designed to repeal the older and now corrupted land laws. The final section of this 1891 act allowed the president to create forest reserves later to be called national forests. By the 1890s, then, federal legislation authorized the reservation of vast lands from settlement.¹⁵

Similarly, reclamation reform emerged during this era. In 1891, the first International Irrigation Congress met in Salt Lake City. Organized by William Smythe, a prominent proponent of reclamation, this Irrigation Congress and others in later years advocated federal government withdrawal of irrigable land remaining in the public domain so that the land could then be granted to states for reclamation projects. This advocacy prompted the 1894 Carey Act that granted each state in the arid region one million acres for state reclamation projects. The Carey Act failed to increase reclaimed land markedly since states were unwilling or unable to take the financial risks required to build the irrigation works. To mitigate this failure, Congress passed the Reclamation Act in 1902. The Reclamation Act subsidized reclamation and irrigation projects throughout the West with the federal government funding the building of dams and local constituents, organized in a water users' association, agreeing to pay back the investment. The initial projects began in 1905 in Arizona and in Nevada. Western irrigation interests thus began their long dependence on federal water subsidies in the first decade of the twentieth century.¹⁶

These dual reforming impulses in forestry and reclamation led to particularly important changes in Tonto. In 1898, President William McKinley reserved parts of what would become later the Tonto National Forest, and in 1905, President Theodore Roosevelt created the Tonto in name. Besides that, Congress also approved the first federal reclamation project to build Roosevelt Dam on the Salt River. Changing trends in federal land law altered the political landscape of the West and promised to transform the physical landscape as well.¹⁷

One's position in the debate over water conservation and waste depended upon whose interests one represented or the region from which one hailed. Euroamerican residents of the arid West believed one

wasted water if one did not put it to use. In other words, if water flowed to the Western seas without being applied in some way to benefit human economic endeavors, nature's economy had been wasted. Early discussions in the Salt River Valley concerning water supply reflected this perspective. In 1897, Frederick Newell, the head hydrographer in the United States Geological Survey, described the government's desire to put the Salt and Gila Rivers to work, to let them not "run to waste." He wrote:

The streams of this country are, however, extremely irregular in character, fluctuating at times with great rapidity, floods coming down without warning, and disappearing in the course of a few hours. At certain seasons of the year high waters prevail and run to waste to the Gulf [of California], or disappear by evaporation and percolation into the sandy desert. It is obvious that by providing suitable storage works the area of land to be irrigated can be greatly increased.

This passage is significant for several reasons. First, Newell observed that nature is unpredictable, that floods could and did come "without warning." Second, because of the floods, water ran wastefully; that is, it was not used. Newell lamented such profligacy, suggesting that he perceived the river's duty as providing a source of labor or energy to human economies.¹⁸ Finally, he showed his confidence that government reclamation would solve these problems. With storage reservoirs, nature might be made predictable, water would not be wasted, and farmers could increase their productivity. Engineers would harness rivers efficiently to maximize use and profit. Efficiency and maximization characterized national resource policy of the time, placing reclamation on the Salt River firmly within the progressive conservation movement's cultural and political ethos.¹⁹

Other engineers similarly embodied ideals of efficiency and maximization. Arthur Powell Davis, a nephew of John Wesley Powell, wrote about central Arizona's rivers and watersheds: "The impression seems to be well-nigh universal that wherever a locality is provided by nature with surplus waters that are discharged in torrents and wasted, such waters can be stored and entirely utilized for irrigation." Much like Newell, Davis deplored nature's wastefulness in Arizona's rivers. Moreover, he claimed that the rivers could and should be used "entirely." But full utilization seemed inadequate, as other officials at the same

time even suggested that all means should be sought to increase the water supply: “[I]t is necessary to preserve, and increase if possible, the natural water supply.” These official pronouncements attest to the utility demanded of Arizona’s rivers and the optimism government engineers professed. Such demands on an environment that already was taxed with competing interests in Tonto and Phoenix led inevitably to conflicts over resource allocation.²⁰

Before farmers could use the Salt River, they needed to secure it, and because private and local efforts appeared inadequate, Phoenix residents turned to the federal government. In 1898, a General Land Office agent wrote to the Commissioner of the GLO in Washington, D.C., to declare “the unanimous sentiment of all whom I interviewed, that the Water Supply is the most important problem that confronts the inhabitants of Southern and Central Arizona.” Edward Bender, the agent, led a reconnaissance into the central Arizona watersheds of the Gila, Salt, and Verde Rivers seeking to determine the viability for future forest reserves. He noted that the people he interviewed believed forest preservation in the watersheds as “conducive to the water flow.” Arizona residents believed that forest protection generally meant a better water supply and for the Salt River, in particular, it meant reservation of the Tonto.²¹

Consequently, forestry officials in the Department of Agriculture were charged with ensuring that the maximum amount of water from the greater watershed reached the Salt and Verde Rivers. Together then, federal agencies would achieve resource conservation: the Geological Survey pursued maximization of use and the Bureau of Forestry sought maximization of supply. Thus, the area soon to become Tonto National Forest became the focal point of water and forest conservationists. The link between the agrarian economy of the Phoenix valley and the pastoral economy of the Tonto range became even more pronounced. Water especially connected these regions. One grazing expert explained in 1902: “The heavy rainfall and source of permanent water supply being in the mountains, the importance of the forest reserve as the foundation of a successful irrigation system is very readily seen; consequently every precaution should be taken for its protection.” The author, Albert Potter, a prominent Arizona sheepman and grazing official in the Department of Agriculture, advocated protecting mountains to ensure effective irrigation. Such advocates were important in demonstrating the relationship between the mountainous forest reserves and lower agricultural areas.²²

It is clear that the water needs of the expanding population in the Salt River Valley caused forestry experts to focus on watershed protection. Since overgrazing exacerbated erosion and lowered the water table, valley farmers sought to limit the ranching economy in the Tonto by encouraging stock reductions or exclusions (see figure 2). The rivalry sharpened as Phoenix farmers began incriminating Tonto ranchers. Valley settlers perceived grazing and the potential for increased lumbering on Tonto as major threats to their water supply. Irrigation farmers believed their water supply was dwindling and in 1904, requested that S. J. Holsinger, a General Land Office official, study Tonto to determine the watershed's condition. The farmers alleged the forage to be in a depleted state because of heavy grazing. Holsinger explained the farmers' perceptions, "The decrease in the supply of water for irrigation was variously attributed to, drouth [sic], denudation of forested lands by lumbering operations, cattle and sheep grazing and other minor causes." Valley residents had expected Holsinger's expert testimony to point to Tonto livestock as the thieves of valley water and immediately to advocate forest reservation and reduction or elimination of stock. But Holsinger balked and refused to recommend the forest reservation at all.²³

Figure 2. Erosion in Pleasant Valley. This photograph demonstrates the eroding effects of overgrazing. Photo courtesy of Tonto National Forest.



shed interests of the valley farmers, but he also demarcated the centrality of the livestock industry to the larger regional economy. He declared:

The interests of the irrigationist in the Southwest are along the lines of intense vegetation. Every hoof which treads the range, and every mouth which crops the herbage or browses the foliage of shrub or tree is a distant enemy. But it does not follow that the herds should be driven from the ranges. There is, however, apparent necessity for a careful study of past and present conditions, cause and effect, in order that an equitable and economic balance be maintained. Such balance, it is plain, is the status from which may be derived the greatest general good and the most substantial aid for conserving conditions most favorable to the greatest number of citizens, present and future.

Like other progressive conservationists, Holsinger attempted to balance interests to obtain maximum economic output and cultural contentment. With ranching interests in the Tonto region and the farming constituency in the lower Salt River Valley holding divergent needs and opinions, a genial compromise seemed unlikely. Whereas ranchers wanted more cattle, farmers demanded reduction, even elimination. Conflict inevitably emerged and the government bureaus could not satisfy either side by trying to satisfy both. True to the prevailing ideology of forest management at the time, the Bureau of Forestry and later the Forest Service sought to appease all parties and appealed to both the basin ranchers and the valley irrigators.²⁴ If inconclusive in its recommendations, Holsinger's report is useful because it chronicled damage to the watershed. Regardless of the reasons for the decline, the environment was changing. Holsinger and Phoenix farmers could argue about whether Tonto deserved reservation, but nature continued shifting and water proved a powerful agent in the change.

Whereas Holsinger's 1904 report emphasized overgrazing as detrimental to the watershed, A. E. Cohoon's forestry report of the same year detailed more explicitly the connection between economic activities in the Tonto watershed and those of the lower Salt River Valley. Cohoon concluded that forest and watershed protection would regulate Tonto ranchers and improve their chances for long-term success. Moreover, reservation would allow the plant cover to hold spring runoff and make more water available for Salt River Valley irrigation farmers. Cohoon's comprehensive conclusion and recommendation re-

vealed Tonto's importance regarding water. Tonto's protection meant, at least potentially, a regulated and safeguarded watershed. These conclusions placed Phoenix residents as the recipients of the benefits of the restricted use of the Tonto watershed. Foresters would manage the Tonto forest and rangeland primarily to benefit Phoenix settlers; Tonto residents and their perceived economic needs had assumed a lesser priority.²⁵

Reclamation Service officials also knew the success of reclamation on the Salt River depended on the establishment of Tonto National Forest. The Reclamation Service therefore became yet another government bureaucracy promoting the region's reservation in a forest reserve. It added another part to the matrix in which all interests competed to gain primary access to and benefits of Tonto's water and range. Moreover, the Reclamation Service and the other agencies sought to place a human order upon an unpredictable natural system. If they could not stop floods, they would contain them; if they could not prevent droughts, they would store water against them.²⁶

As the Salt River Valley increasingly dominated the territory's economy and politics, it prevailed over Tonto ranchers. Population figures demonstrate the expansion of Phoenix as it grew from 3,152 in 1890 to 11,134 by 1910.²⁷ With the development of Phoenix as an agricultural and urban core, rural hinterlands in Arizona felt their resources and influence pulled away from them with a powerful centripetal force radiating from the Salt River Valley. Although ranching still predominated the Tonto region, grazing regulations severely curtailed free range practices. In 1905, approval came for both construction of Roosevelt Dam and the reservation of Tonto National Forest. After arguing among themselves for a decade, government conservation agencies linked the dam and the forest reserve, and the Salt River Valley residents' economic well being had assumed paramount importance.

ENVIRONMENTAL AND CULTURAL RAMIFICATIONS OF GRAZING

Government agencies were not the only ones to argue over Tono's environment. Within the Tonto itself, antagonism abounded among pastoralists, especially between cattle and sheep interests. The most significant of battles, however, occurred between livestock and forage. Environmental deterioration continued to render the region's econ-

omy increasingly difficult and the ecology more vulnerable. As cultural and natural competitions mingled, the story became progressively more contested and interesting.

Range improvement was tied to protecting the Tonto watershed. In a 1902 article published in *Forestry and Irrigation*, S. J. Holsinger connected these factors: "My experience forces me to the assertion that the diminution of the flow of springs and streams in Arizona is due more to the destruction of brush, grass, or herbage, than the destruction of the forest proper. . . . We must have our herds, but it cannot be denied that the free ranging of stock on the public domain is measurably responsible for the unfavorable conditions which we find on the watersheds today." Holsinger underscored the tension between industry and nature. He recognized that the cattle industry was central to the economy and well-being of Arizona, but he acknowledged the marked range deterioration at the hooves and mouths of cattle and sheep. This tension brought the ecological rivalry between livestock and a fluctuating environment to the fore.²⁸

Many national forests in the West faced the same multiple-use demands as the Tonto region. Grazing was only one cog in the wheel of the Western range machine. Within grazing itself, the system was complicated further as sheep and cattle, not to mention wildlife, competed for resources. Cattle grazed grasses almost exclusively, whereas sheep browsed more, consuming along with grasses, brush and even tree seedlings (see figure 3). Timber interests objected, of course, to sheep grazing. Consequently, early Forest Service policy sought to limit sheep depredations on forest ranges by severely restricting access to national forest rangelands. The Tonto region was no exception, as government regulations entirely excluded sheep from the Verde River watershed.²⁹

That sheep and not cattle were excluded from federal forest lands is telling. Many ranchers and forestry officials identified sheep as the primary, even sole, factor causing range damage. Sheep did graze distinctly from cattle, causing different, though not necessarily increased, environmental depletion. E. S. Gosney, the first president of the Arizona Wool Growers Association, even praised the denuding effect of sheep grazing, stating that the "great enemy to the forest and to the wool-growers is the forest fires which burn up the feed for the flocks and destroy the young and tender Pines. The grazing off of the grass and weeds by the sheep and the vigilance of the sheep owners are the greatest safeguards against these forest fires." Gosney did not mention



Figure 3. Sheep Grazing Pine Seedlings under the Mogollon Rim. Sheep browsing new pine growth proved particularly objectionable to foresters. Photo courtesy of Tonto National Forest.

the concurrent damage of forage and forest depletion sheep caused, nor the importance of fire in renewing range grasses.³⁰

Cultural prejudices also encouraged the indictment of sheep. "With few exceptions," Haskett explained, "the herders and campenders are Mexicans, Spaniards, or Basques who speak their mother tongue." Another source identified the early sheep-

herders as Yaquis. White Arizonans did not look favorably upon this seemingly foreign force.³¹ Transhumance exacerbated that feeling of a foreign presence in the region. This practice of moving seasonally between ranges proved alien to prominent home building feelings and rhetoric. Such a migratory and unsettled existence seemed un-American. Transhumance played a particularly important role in the Tonto region and in the rhetoric of home building surrounding descriptions of range conditions. While ranchers living in Tonto owned the cattle grazing there, sheep owners lived elsewhere. The non-resident sheep owners, however, sought to maximize use on the Tonto range, grazing their sheep in the Salt River Valley in the winter and leisurely moving

through the Tonto region along the Heber-Reno Trail during the spring to reach their summer range on the Colorado Plateau (see figure 4). The cultural and environmental resentment of cattle ranchers toward sheepmen was pronounced. A. E. Cohoon, a forestry official, reported on the situation at the turn of the century:

Sheep have gradually gained footholds on the cattle range and, if not checked, will eventually control the whole range. Large areas of low table-land and rolling hills which were formerly covered with grass now contain a worthless growth of low sunflowers from one to two feet in height. The grass has been completely destroyed on almost all of the mesas and low hills within the sheep district, and, as a result, the cattle industry has been wonderfully curtailed.³²

Along with describing the environmental change, Cohoon suggested that the cattle industry's stability took precedence over the sheep trade. Moreover, he identified sheep, not cattle, as the culprits that were denuding the range. Plainly, environmental change was not independent of cultural questions.

Although range deterioration was a principal concern, others emphasized the region's long-term integrity and stability. The sheep industry threatened the community that cattle ranchers had already

Figure 4. A Portion of the Heber-Reno Trail. The photo illustrates the environmental consequences of sheep grazing along a well-traveled route for transhumance.



developed in Tonto. At least that was Cohoon's analysis: "These residents [the cattle ranchers] are the real home builders and are interested not only in the general prosperity of the territory but also in that of their community, while the nomadic sheepmen are not thinking of the future welfare of the country but only of the present and of promoting their own interests at the expense of others." Cattle ranchers believed the very subsistence pattern of sheep ranching jeopardized the entire Tonto region's integrity; it threatened their "home," their "community," their cultural way of life. Cohoon concluded that cattle ranchers "are in favor of almost anything on the part of the Government which will, in any way, protect their range from the ravages of sheep and thus save them from great financial loss." Near the turn of the century, then, the sheep industry experienced widespread prejudice founded in ethnic tension and with an ancient disaffection toward transhumance practices. Perhaps more importantly, this antipathy encouraged independent cattle ranchers paradoxically to look willingly to the government.³³

There could be no question about the deterioration of the range by the end of the nineteenth century. Just after the turn of the century, Cohoon stated that "the value of the land for grazing purposes [had] depreciated very greatly during the past few years, on account of being overstocked with *foreign* sheep."³⁴ Unmistakably, the land had deteriorated. Whether the bulk of that deterioration came from cattle or sheep is ultimately immaterial, for the degradation prevented both cattle and sheep ranchers from making a prosperous living. Aldo Leopold in 1924 documented the devastating changes in the Tonto forest. In "Grass, Brush, Timber, and Fire in Southern Arizona," Leopold showed that most of the trees in the region were "remarkably even aged" corresponding to Euro-american occupation. He also demonstrated that fires virtually ceased at the same time. Finally, Leopold found erosion to have accelerated simultaneously. "Previous to the settlement of the country," Leopold wrote, "fires started by lightning and Indians kept the brush thin, kept the juniper and other woodland species decimated, and gave the grass the upper hand with respect to possession of the soil. . . . Then came the settlers with their great herds of livestock. These ranges had never been grazed and they grazed them to death, thus removing the grass and automatically checking the possibility of widespread fires. . . . The substitution of grazing for fire brought on a transition of thin grass and thick brush." In another article, Leopold expressed the process more succinctly and poetically: "[W]hen the cattle

came the grass went, fires diminished and erosion began.”³⁵ So nature had changed, and it had transformed because the specific human economic activities in the region transformed centuries-old environmental practices. Leopold identified cattle, not sheep, as the culprit. In contrast to most other observers, he engaged the environment directly for his conclusions, avoiding ethnic stereotypes and minimizing agricultural politics. Unlike Cohoon or Gosney, Leopold recognized that, in spite of the cultural arguments and actions, nature continued to change.

Regardless of what the range conditions meant culturally to valley farmers or to Tonto ranchers, it had transformed ecologically. Whether it was forest or grass that was the best watershed conserver, whether sheep or cattle harmed the range more, Tonto metamorphosed. Ignoring all human arguments, the environment continued its own dialectic with grasses receding while forestry debates flourished. Instead of the once abundant grasses, some areas were in a “worthless growth of sunflowers and weeds.”³⁶ “Where hundreds of tons of hay were cut under the actual spread of the forest trees during the [eighteen] sixties and seventies,” a 1902 report explained, “there is not now enough grass on a thousand acres to keep in condition a family cow.” Two years later the same author claimed forage cover was reduced in places between 25 percent and 75 percent.³⁷ These reports confirmed both Tonto and Phoenix fears; grasses were going or already gone. Various studies inventoried land types within the Tonto range. While the documents produced from such reconnaissance studies varied in the figures given for the differing classification systems and examined slightly different regions, the studies all offered the same conclusion: brush, not grass, now dominated the landscape.³⁸ The replacement of grasses made the range less desirable and effectively smaller. For the basin ranchers, the announcements meant diminished profits; for valley farmers, the studies signified that water levels would be dropping. Despite disagreement regarding the cause, all observers agreed that the range was changed for the worse.

At the turn of the century, Gifford Pinchot traveled to the Mogollon region. He concluded that grazing sheep on forest ranges was not inherently damaging; only overgrazing was damaging. Pinchot concluded that regulatory measures provided by the Forest Service would efficiently and scientifically maintain a range that could sustain continued sheep grazing. He hoped to please all Arizona interests—the farmers, the timber industry, and the ranchers. Pinchot believed he and the

Forest Service alone could transcend the limits of the environment in the face of so many economic and cultural demands.³⁹

So ranchers continued to stock the grasslands; the desert continued to be stubbornly dry; and the livestock continued to denude the range. Livestock consumed nearly all the native grasses and soon nonnative grasses and shrubs invaded Tonto. Unable or unwilling to comprehend the diminishing rangelands, few ranchers limited their stock numbers while the range's carrying capacity quickly declined. Progressive reformers rushed to reverse the trend by bringing the federal government onto the scene as a conservation agent. Under the recommendations of federal foresters, the government began reserving portions of what would become Tonto National Forest beginning in 1898, and by the 1920s the United States Forest Service controlled most of the transitional zone's ranges. The ranges the Forest Service inherited were in poor shape, and restoring the range meant a Sisyphean task for the rangers.

THE CUMULATIVE EFFECT

At a 1926 grazing conference, Tonto Forest Ranger Fred Croxen presented a paper reviewing the history of grazing on Tonto. Croxen indicated that the Tonto range was "fully stocked [by] about 1890. . . . [The] peak was reached about 1900 . . . [when] there were from 15 to 20 head of cattle on the range at that time where there is only one at present." Overstocking problems caused the current poor condition of the range. Croxen's paper detailed the decline of grazing in Tonto. Ecologically, the ranges were changed, probably for the worse for all concerned. Brush replaced grasses, and erosion ruined watercourses. The carrying capacity of Tonto appeared a mere fraction compared to the paradise Christian Cline and Florance Packard encountered in the 1870s. Croxen also recognized the explosive potential of Valley farmers' resentment toward range settlers and the enduring hostility between sheep and cattle interests.⁴⁰ Moreover, in political and economic terms the free range had vanished. A federal regulatory body moved into the area and began policing the region. Grazing regulations exacerbated an already tense situation. The Tonto National Forest thus emerged in a volatile period. Still, its establishment mirrored hopes of stabilizing the range and the industry. Tonto embodied the transition

that accompanied governmental regulation, and it tested the ability of several groups—cattle ranchers, sheep ranchers, and government regulators—to coexist.

Drought came in the first decade of the twentieth century. While the droughts in the 1890s accentuated and accelerated range deterioration, the later dry spells occurred in an already depleted range. Predictably, the results were disastrous. Forage continued to be depleted. Shrubs and trees continued to replace grasses. Erosion worsened. Consequently, the circumstances the Forest Service inherited included a depleted environment, a large and established grazing industry, and a fickle climate.⁴¹

Apparently, the established ranching community initially proved less hostile to the Forest Service than might have been anticipated. On the one hand, in a 1913 history of Arizona grazing administration, R. R. Hill suggested cattlemen “recognized and deplored . . . natural results of unrestricted grazing, [but] they felt that Government control would not better conditions; that regulation meant interference with their established rights; and that it would demoralize the stock business.”⁴² Although resentment toward government management evidently existed, other reports suggested that such opposition was a thing of the past. One such summary stated, “After talking with quite a number of ranchmen it was soon learned that those who understood the regulations and rules governing forest reserves were heartily in favor of its creation, while a few were opposed to the reserve movement because they had ‘heard’ that if the reservation was created they would have many hardships heaped upon them.” Similarly, Cohoon and Holsinger reported in 1905 that “local sentiment is practically unanimous in favor of” creating a forest reserve.⁴³

Despite their sometimes hostile attitudes, cattlemen in particular had good reasons to praise Forest Service policies. By largely excluding sheep from the Tonto range, the government provided cattle wider access to and less competition for forage. Grazing fees remained quite low and in time range conditions improved, if only slightly. Tonto’s cattle industry and range stabilized gradually with lower numbers of ranching operation and grazing animals. With a steady continuation of grazing, the range neither recovered nor deteriorated significantly during the first decade of Forest Service administration.⁴⁴

World politics and the economy intruded, however, as World War I wrought changes on the nation’s beef industry, and the Tonto industry

reflected trends in the national market. The Great War proved the final straw, as it were, for the range. The need for beef for European and American soldiers in Europe led to overstocking of Western ranges. The economy maximized the beef industry. Forest Service policy reflected patriotism, not ecology, in allowing higher numbers than previously agreed allotments. Ranchers stocked the ranges to capacity and beyond. Unfortunately, the war was over before Arizona's herds reached maturity. With the market collapsed, ranchers faced no incentive to sell their cattle. Hoping for an improved market in the following seasons, ranchers kept their ranges overstocked and natural reproduction further taxed the range.⁴⁵ The conditions were so poor that Tonto Forest Supervisor T. T. Swift frankly admitted to the superintendent of the neighboring White Mountain Indian Reservation, "Tonto National Forest is much overstocked. . . . The Forest Service has finally decided that severe steps must be taken . . . to bring back the range to normal."⁴⁶ The early 1920s, then, found Tonto's range and the Arizona cattle industry in a state of collapse.

Figure 5. "The Ragged End of It All." The fence evidently prevented stock from reaching the area of perennial growth while it perished on the side with scant annuals remaining. Photo courtesy of Tonto National Forest.

With the market collapsed and the range devastated, Tonto Forest Ranger Fred Croxen concluded in 1926 that he presided over "the ragged end of it all" (see figure 5). Tonto never had recovered from the heyday of cattle ranching in the 1880s. A record calf crop in 1891 increased the



pressure on the landscape, then came the drought, then the economic crisis of 1893, and by 1894, the range and the cattle industry faltered. In retrospect, the range was in comparatively good condition to receive the multi-frontal assault of the early 1890s, because the range had not been depleted theretofore. When the range faced drought in the first years of the twentieth century and the glut in the cattle market in the 1910s, it already was in a severely vulnerable ecological state. Thus, the 1920s weighed under the deleterious results of a quarter century of ranching. Ranchers never allowed the range to recover from the catalyzing drought of 1892.⁴⁷

Rancher Florance Packard claimed in 1926: "The range is not overstocked at present, it is just worn out and gone."⁴⁸ But, in fact, the 1926 range was overstocked, even if a comparable number of cattle would not have overstocked the 1880 range. The range Packard remembered no longer existed; it had succumbed to four decades of heavy grazing, years of drought, and a merciless market. The range was fundamentally different. Packard was right: the range was worn out. But more than that, it was changed. The landscape of the Tonto range in the 1920s differed markedly from the 1870s. Recognizing that nature indeed had changed and that the recovery of the range would be a complicated task proved a difficult lesson for both Tonto's settlers and the Forest Service in its early years of management.

The stirrup-high grama grass Florance Packard found in 1875 had disappeared from the range. Little of the pine bunch grass William Craig found near Payson in the 1880s could be found forty years later. Cliff Griffin described his settlement near the Salt River by 1904 as having "no rooted grass." And all of John Cline's favorable descriptions of the range were in the past tense, the abundance with which he had grown up had vanished in a golden age passed by.⁴⁹

In spite of it all, Fred Croxen waxed optimistic: "It is up to us, the Forest Service employees, to whom this great area, this cattle range, a part of the watershed of the greatest irrigation system in the world, has been entrusted, to take and to do what we can as Forest employees, as servants of this great commonwealth. Can we do it? This remains to be seen."⁵⁰ Indeed, it did. If it happened, it seemed clear to many observers that it would take federal involvement.

The history of Tonto demonstrates a region in transition. The region proved to be an important crucible in which many interests co-existed economically and environmentally. Roosevelt Dam initially

yielded the water anticipated from it, but by the 1920s, the Tonto watershed largely failed to live up to the expectations people held for it. The range was degraded and new dams were being built and contemplated. Tonto's history reveals to us the ties and the conflicts between humans and nature, town and country, ranching and farming, sheep and cattle, public and private land. Indeed, the watershed of the Tonto provided a watershed in Arizona's environmental history.

The ascendance of the Salt River Valley we customarily accord to a later era was also evident at this earlier time. By the first decade of the twentieth century, residents of the Salt River Valley had set the stage for the forthcoming economic and cultural dominance of Arizona. Moreover, this early period demonstrated the degree to which federal policies and decisions would play a central role in determining the direction of Arizona's expansion. Finally, the period furnishes a clear picture of a land pushed to its limits. A century ago one could already see Tonto as an environment resistant to quick fixes and the many conflicting demands placed upon it. The contentious issues evident in today's environmental battlegrounds established their roots firmly in the weakening ranges of the early twentieth century. ❖

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NOTES

1. For information about the Lone Fire, see Stephen J. Pyne, *America's Fires: Management on Wildlands and Forests*, Forest History Society Issues Series (Durham, NC: Forest History Society, 1997), 46–52; Pamela Manson, "Wildfires Char Thousands of Acres Across Arizona," *Arizona Republic* (Phoenix), 29 April 1996, A1, A8; Chuck Hawley, "30,000 Acres Burning: Wildfire Snuffs Ponderosas around Four Peaks," *Arizona Republic*, 30 April 1996, A1, A4; DeWayne Smith, "Winds Help Slow Spread of 'Lone' Fire," *Arizona Republic*, 1 May 1996, A1, A6; Mark Shaffer and Judi Villa, "'Lone' Fire Worst in State in 25 Years," *Arizona Republic*, 2 May 1996, A1, A15; Judi Villa, "Disaster Pros Join Fight as Inferno's Size Grows," *Arizona Republic*, 3 May 1996, A1, A16; Clint Williams, "'Lone' Fire 'Under Control': Bruce Babbitt among Those Battle Blaze," *Arizona Republic*, 4 May 1996, A1, A25; Dennis Wagner, "The Beast Took a Limited Toll on Humans," *Arizona Republic*, 5 May 1997, A1, A6; DeWayne Smith, "'Lone' Blaze Familiar to Veteran Firefighter: He Sees Similarities with 'Dude' Disaster," *Arizona Republic* 5 May 1996, A6; and Steve Yozwiak, "IF A WILDERNESS COULD WEEP: Four Peaks' Lush Ponderosa Pine Forest Now an Apocalyptic Landscape of Ash, Memories," *Arizona Republic*, 7 May 1996, A1, A6. Quotation from David Cannella and Richard Ruelas, "Drifting Smoke Causes Ills," *Arizona Republic*, 30 April 1996, A1.

2. "Interview with John Cline, the oldest cattleman in Tonto Basin," Works Progress Administration, Box 9, Ranching Folder 4, n.d., State Archives, Phoenix, AZ, 12. The interviewer is unknown. Karen Lynn Smith's account remains the most complete in describing Salt River Valley residents' efforts to win federal aid to construct dams and irrigation projects for Phoenix, see *The Magnificent Experiment: Building the Salt River Reclamation Project, 1890–1917* (Tucson: University of Arizona Press, 1986). For the changing role of the federal government, see Richard White, *"It's Your Misfortune and None of My Own": A New History of the American West* (Norman: University of Oklahoma Press, 1991), ch. 15; and William Cronon, "Landscapes of Abundance and Scarcity," in *The Oxford History of the American West*, ed. Clyde A. Milner II, Carol A. O'Connor, and Martha A. Sandweiss (New York: Oxford University Press, 1994), 603–37.

3. The other C's are climate and copper.

4. Materials on pre-Columbian inhabitants of Arizona are extensive. Particularly useful for the Tonto region is Charles L. Redman, *People of the Tonto Rim: Archaeological Discovery in Prehistoric Arizona* (Washington, D.C.: Smithsonian Institution Press, 1993). Interested readers should also consult Louis R. Caywood, ed., *Archeological Studies at Tonto National Monument, Arizona*, Southwestern Monuments Association Technical Series, vol. 2 (Globe, AZ: Southwestern Monuments Association, 1962); Owen Lindauer, "Explaining White Wares in the Tonto Basin: Broad-Scale Exchange, Emulation, or Both?" *Kiva* 61 (Fall 1995): 45–55; Miriam T. Stark, Jeffery J. Clark, and Mark D. Elson, "Causes and Consequences of Migration in the Thirteenth

Century Tonto Basin," *Journal of Anthropological Archaeology* 14 (June 1995): 212–46; Ross Samuel Curtis, "Prehistoric Settlement and Land Use along the Tonto Arm of the Tonto Basin, Central Arizona" (M.A. thesis, Arizona State University, 1992); and Richard W. Effland Jr. and Barbara S. Macnider, "An Overview of the Cultural Heritage of the Tonto National Forest," Cultural Resources Report, no. 49 (Tempe, AZ: Archaeological Consulting Service, 1991). For fire in the Southwest generally, consult Stephen J. Pyne, *Fire in America: A Cultural History of Wildland and Rural Fire* (Princeton: Princeton University Press, 1982; reprint, Seattle: University of Washington Press, 1997), 514–29.

5. Bert Haskett, "The Early History of the Cattle Industry in Arizona," *Arizona Historical Review* 6 (October 1935), 3–42; and idem, "History of the Sheep Industry in Arizona," *Arizona Historical Review* 7 (July 1936): 3–49. A brief account of Crook's expedition can be found in Thomas E. Sheridan, *Arizona: A History* (Tucson: University of Arizona Press, 1995), 82–85.

6. Quoted in Goode P. Davis Jr., *Man and Wildlife in Arizona: The American Exploration Period, 1824–1865*, ed. Neil B. Carmony and David E. Brown (Scottsdale, AZ: The Arizona Game and Fish Commission, 1982), 156. Original spelling, punctuation, and diction maintained.

7. Florance A. Packard quoted in Fred W. Croxen, "History of Grazing on Tonto," paper presented at the Tonto Grazing Conference (Phoenix, 4–5 November 1926), 1.

8. Croxen, "History of Grazing," 1–2; and "Interview with John Cline," 6.

9. Sheridan, *Arizona*, 199.

10. Eddie Alford, "Tonto Rangelands, A Journey of Change," *Rangelands* 15 (December 1993), 262; O. A. Turney, "Water Supply and Irrigation on the Verde River and Tributaries," Arizona Collection, Hayden Library, Arizona State University, Tempe, AZ (1901), 16; and T. T. Swift, Phoenix, AZ, to Charles L. Davis, 12 December 1924, Salt River Project Archives, Phoenix AZ. Quotation from A. E. Cohoon and S. J. Holsinger, "The Proposed Tonto Forest Reserve," USDA Bureau of Forestry, 1905, Salt River Project Archives, Phoenix, AZ, 2. For corroborating figures, see A. E. Cohoon, "Proposed Addition to the Black Mesa Forest Reserve Arizona (A Part of the Verde Withdrawal)," ca. 1904, Salt River Project Archives, Phoenix, AZ, 13.

11. Cline and Packard both came from California. Available documents do not indicate where Craig or Griffin originated, but other evidence indicates many basin ranchers came from Texas. "Interview with Cline," 1; Croxen, "History of Grazing," 1; and Al LeCount, ed., *The History of Tonto: A Bicentennial Project by the Punkin Center Homemakers* (Punkin Center, AZ: The Punkin Center Homemakers, 1976). For the broader context of Western ranching, see Terry G. Jordan, *North American Cattle-Ranching Frontiers: Origins, Diffusion, and Differentiation* (Albuquerque: University of New Mexico Press, 1993); and Richard White, "Animals and Enterprise," in *The Oxford History of the American West*, ed. Clyde A. Milner II, Carol A. O'Connor, and Martha A. Sandweiss (New York: Oxford University Press, 1994), 237–73.

12. LeCount, *History of Tonto*, 11–12; Leisa Bronson, “Cowmen on the Verde,” *Journal of Arizona History* 19 (Autumn 1978), 267; “Interview with John Cline,” 7–8; Croxen, “History of Grazing,” 9; Haskett, “History of Sheep in Arizona,” 29; and “A History of Tonto Basin,” unpublished manuscript, Arizona Collection, Hayden Library, Arizona State University, Tempe, AZ, n.d.

13. Haskett, “History of Cattle in Arizona,” 31; and Croxen, “History of Grazing,” 12.

14. “A History of Tonto Basin”; Croxen, “History of Grazing,” 5; Haskett, “History of Cattle in Arizona,” 42; Salt River Valley Water Users’ Association, Hydrographic Division, “Combined Flow of Salt and Verde Rivers,” 1954, Arizona Collection, Arizona Historical Foundation, Hayden Library, Arizona State University, Tempe, AZ.

15. Samuel Trask Dana, *Forest and Range Policy: Its Development in the United States*, The American Forestry Series, ed. Henry J. Vaux (New York: McGraw-Hill, 1956), 18–118; Harold K. Steen, *The U.S. Forest Service: A History* (Seattle: University of Washington Press, 1976), ch. 2; White, “It’s Your Misfortune,” chs. 6 and 15; and Cronon, “Landscapes of Abundance and Scarcity.”

16. William E. Smythe, *The Conquest of Arid America*, rev. ed. (New York: Macmillan, 1911); United States Reclamation Service, “Salt River Irrigation Project, Arizona” (1 October 1909), 3–4; and “Suggestions of Judge Jos. H. Kibbey for Plan to Secure Government Aid for Construction of Tonto Reservoir,” 4 September 1902, Arizona Historical Foundation, Hayden Library, Arizona State University, Tempe, AZ. Also consult Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Oxford University Press, 1985), 118–124, 132, 157; and Donald J. Pisani, *To Reclaim a Divided West: Water, Law, and Public Policy, 1848–1902* (Albuquerque: University of New Mexico Press, 1992), ch. 8.

17. Donald J. Pisani, “Forests and Conservation, 1865–1890,” *Journal of American History* 72 (September 1985): 340–59; and Lisa Neily Marcus, “The Spatial and Temporal Evolution of Tonto National Forest, Arizona” (M.A. thesis, Arizona State University, 1983).

18. The very language describing water reflects the idea that its purpose is to be used; the hydrological term describing potential use of water is “duty of water.”

19. Newell quoted in Arthur Powell Davis, *Irrigation Near Phoenix, Arizona*, Water-Supply and Irrigation Papers, no. 2 (Washington, D.C.: Government Printing Office, 1897), 9. For context, see Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water*, revised and updated (1986; New York: Penguin Books, 1993), 11–12; and Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge: Harvard University Press, 1959).

20. Davis, *Irrigation Near Phoenix, Arizona*, 78; and Edward Bender to Commissioner of the General Land Office, 15 January 1898, transcript in Salt River Project Archives, Phoenix, AZ, 3.

21. Bender to Commissioner, 2.

22. A. F. Potter, "Grazing and Water Storage in the Black Mesa Forest Reserve," *Forestry and Irrigation* 8 (June 1902), 237. The Black Mesa Forest Reserve incorporated parts of the northern section of the later Tonto National Forest.

23. S. J. Holsinger, "Report on the Proposed Verde River Forest Reserve Arizona Not Comprising Portions of the Prescott, Tonto and Crook National Forests," 1904, Salt River Project Archives, Phoenix, AZ, 2-3, 11. Holsinger believed that the forest reservation system should be for commercial timber only. Alternatively, he advocated watershed protection in "range reserves, independent of forest management." His refusal to recommend the reserve, then, was a principled political decision not an environmental evaluation. *Ibid.*, 18.

24. *Ibid.*, 14.

25. Cohoon, "Proposed Addition to Black Mesa Reserve," 20.

26. One study made this point plainly: "The U. S. Reclamation Service most emphatically avers that upon [the national forest's] establishment largely depends the success of the Tonto dam project." Cohoon and Holsinger, "The Proposed Tonto Forest Reserve," 1905, Salt River Project Archives, Phoenix, AZ, 3.

27. Bradford Luckingham, *Phoenix: The History of a Southwestern Metropolis* (Tucson: University of Arizona Press, 1989), 31, 78.

28. S. J. Holsinger, "The Boundary Line Between the Desert and the Forest," *Forestry and Irrigation* 8 (January 1902), 25.

29. S. J. Holsinger, "Report on Proposed Reserve," see also Robert D. Baker, Robert S. Maxwell, Victor H. Treat, and Henry C. Dethloff, *Timeless Heritage: A History of the Forest Service in the Southwest* (Washington, D.C.: Government Printing Office, 1988), 93-94.

30. E. S. Gosney, "Sheep Grazing in Arizona," *The Forester* 5 (October 1899), 231. For another favorable report of sheep grazing, see R. R. Hill, "Grazing Administration of the National Forests in Arizona," *American Forestry* 19 (September 1913), 582. Alternatively, in one of the most commonly quoted phrases uttered by the American preservationist John Muir, he referred to sheep in the national forests as "hoofed locusts." Linnie Marsh Wolfe, ed., *John of the Mountains: The Unpublished Journals of John Muir* (Madison: University of Wisconsin Press, 1966), 348. William D. Rowley, *U.S. Forest Service Grazing and Rangelands: A History* (College Station: Texas A&M University Press, 1985), 40.

31. Haskett, "History of Sheep in Arizona," 28; and "Interview with John Cline," 8.

32. Cohoon, "Proposed Addition to the Black Mesa Reserve," 13.

33. *Ibid.*, 15, 18. For a discussion of the rhetoric of homebuilding in a slightly different context, see Karen R. Merrill, "Whose Home on the Range?" *Western Historical Quarterly* 27 (Winter 1996): 433-51. Merrill neglects the

ethnocentric connotations of the term and its relationship to the competition between cattle and sheep pastoralists.

34. Cohoon, "Proposed Addition to the Black Mesa Reserve," 4. Emphasis added.

35. Aldo Leopold, "Grass, Brush, Timber, and Fire in Southern Arizona," in *The River of the Mother of God and Other Essays by Aldo Leopold*, ed. Susan L. Flader and J. Baird Callicott (Madison: University of Wisconsin Press, 1991), 115–16; and idem, "The Virgin Southwest," op cit., 179. The first essay originally appeared in *Journal of Forestry* 22 (October 1924): 1–10. "The Virgin Southwest" was not published during Leopold's lifetime.

36. Cohoon, "Proposed Addition to the Black Mesa Reserve," 4, see also 13.

37. Holsinger, "Boundary Line," 22; and idem, "Report on Proposed Reserve," 15.

38. See Cohoon, "Proposed Addition to the Black Mesa Reserve," 5; Cohoon and Holsinger, "Proposed Tonto Reserve," 1; Holsinger, "Report on Proposed Reserve," 5; and Arthur C. Ringland, to The Forester, Washington, D.C., 20 October 1914, transcript in Salt River Project Archives, Phoenix, AZ, 1.

39. Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace and Company, 1947), 180–81; and Pinchot to B. A. Fowler, 29 June 1908, Salt River Project Archives, Phoenix, AZ.

40. Croxen, "History of Grazing," 12. The tension between the sheepmen and the cattlemen is best exemplified in the Pleasant Valley War where the Tewksburys (sheepmen) and the Grahams (cattlemen) battled for years, resulting in a number of dead men and women and thousands of stock lost. Don Dedera, *A Little War of Our Own: The Pleasant Valley Feud Revisited* (Flagstaff, AZ: Northland Press, 1988); Sheridan, *Arizona*, 138–39; and "A History of Tonto Basin."

41. James Jay Antle, "Grazing on Arizona's National Forests, 1891–1960: An Environmental History" (M.A. thesis, Arizona State University, 1992), 18.

42. Hill, "Grazing Administration in Arizona," 579–80.

43. Cohoon, "Proposed Addition to the Black Mesa Reserve," 17; and Cohoon and Holsinger, "Proposed Tonto Reserve," 3.

44. Hill, "Grazing Administration in Arizona," 581–85. See also Richard Morrissey, "The Early Range Cattle Industry in Arizona," *Agricultural History* 24 (March 1950), 156.

45. Rowley, *Grazing and Rangelands*, 113; and Antle, "Grazing on Arizona's National Forests," 88–90.

46. Swift to Davis.

47. Croxen, "History of Grazing," 1; Morrissey, "Early Range Cattle Industry," 155; Haskett, "History of Cattle in Arizona," 42; and Sheridan, *Arizona*, 141–43.

48. Croxen, "History of Grazing," 12.

49. The recollections are from Croxen, "History of Grazing," quotation from 12; and "Interview with John Cline."

50. Croxen, "History of Grazing," 12.