El Colorado Sawmill: A View into 20th-Century Timber Extraction from the Chihuahua Sierra Madre

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Introduction

El Colorado Sawmill was one of the largest sawmills in the state of Chihuahua between 1952 and 1970. It operated with up to three shifts daily, processing lumber extracted from its surroundings and providing employment for hundreds of workers. Impressive as it was, it endured for less than two decades, and followed the fate of mills in other logging and mining towns in the extractive boom-and-bust economy of the northern sierra of Chihuahua during the 20th century.

To understand the origins of El Colorado settlement, one must go back to the end of the Apache Wars, the arrival and colonization of Mormon refugees, the Mexican state's demarcation of what it saw as vacant lands, and the series of timber extraction concessions given by the Mexican government to international, and later national, corporations. International economic and political crises, advances in extractive and transportation technologies, changes in the international market value of lumber and associated forest products, and the successive waves of mestizo migration to this region were other factors that played a role in the settlement of El Colorado.

The fate of the sawmill and the locality of El Colorado, which became integrated into Mexico's largest *ejido*,[1] Ejido El Largo y Anexos, cannot be understood without reference to the Mexican Revolution, agrarian reform and land distribution, the guerrilla assault on the Madera army barracks, and the division of labor in the forest extractive industry.

The region of this study, shown in map 1, includes the sierra and

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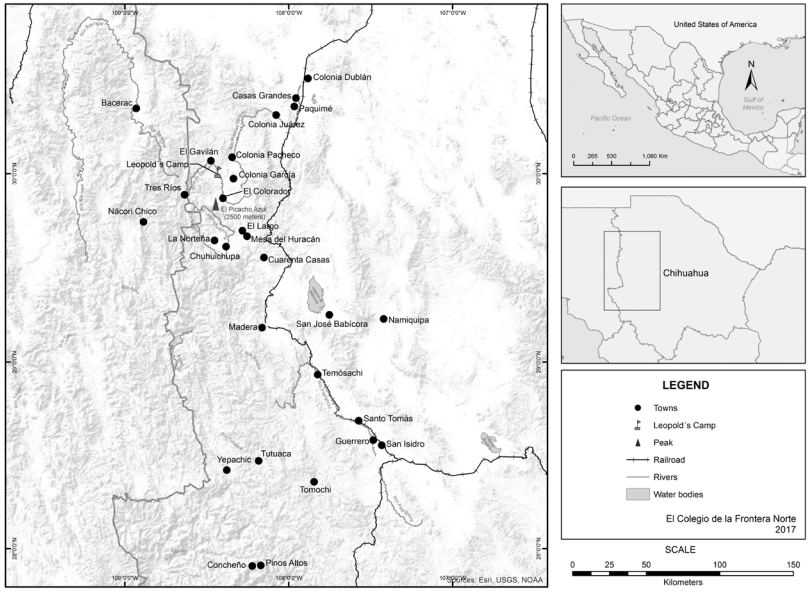
highland plains and valleys of the northwestern corner of the state of Chihuahua, bordering the Mexican state of Sonora to the west, and near the US state of New Mexico to the north. This region includes the Papigochi valley, Namiquipa, and Madera, which were part of the former Cantón de Degollado, established in 1876 (Nugent 1993). The region also encompasses the district of Ocampo, with the mining towns of Pinos Altos and Concheño, farther south, and the Mormon colonies and Casas Grandes valley to the north.

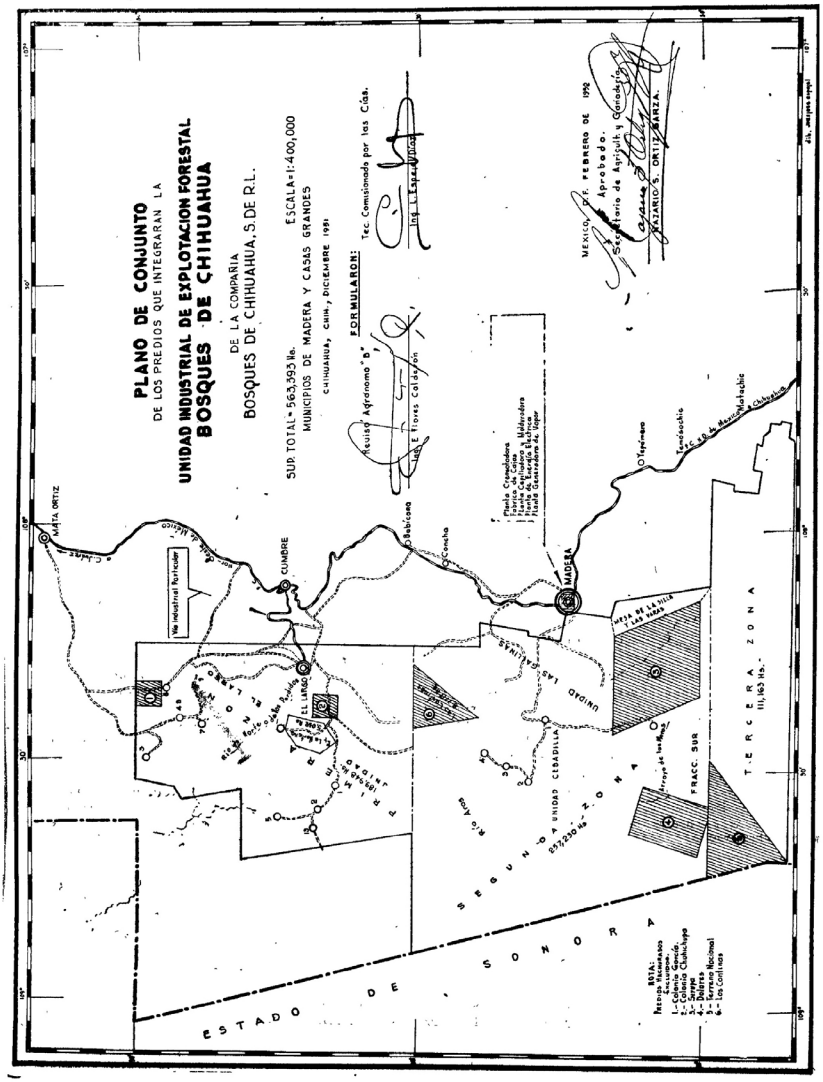


Map by Gustavo Adolfo Vázquez based on INEGI, 2010; INEGI, 2015

The more narrowly defined area of El Colorado is what was named the "First Zone" of the Ex Cantón de Degollado (see map 2). It represents the most rugged and remote area, the northernmost stretch of the Sierra Madre Occidental, the last stronghold of the Apaches. Having lost the war against the Mexican and US governments in the mid-1880s, Apache bands still lived here clandestinely until the mid-1930s when they waged their last strenuous resistance before extirpation (Goodwin and Goodwin 2000). This massive mountainous region was a "landscape of extraction" (Truett 2006, p. 2) to foreign investors with "the finest pine that ever stood outdoors" (French 1989, p. 224). It was also famously visited by Aldo Leopold in the late 1930s, who was deeply impressed with the landscape of "perfect aboriginal health," the likes of which he had never seen before (Forbes 2004).

Sábado 20 de septiembre de 1952. DIARIO OFICIAL 5

PLANO de conjunto de los predios que integran la Unidad Industrial de Explotación Forestal de la Compañía Bosques de Chihuahua, S. de R. L., a que se refiere el decreto relativo, publicado el día 14 de agosto del presente año.



This First Zone has several biogeographical and historical factors that distinguish it within the area of study. The rugged high mountains are vegetatively, topographically, and climatologically very distinct from the highland plains and valleys of Casas Grandes, Babícora, Namiquipa, or Guerrero. Demographically, the valleys had been populated by sedentary

indigenous peoples who practiced agriculture in pre-colonial times and later by Spanish colonial settlements and presidios in the 17th and 18th centuries. The plains had been home to nomadic and semi-sedentary native peoples, and later supported cattle ranching from the colonial period onwards. Settlement in the plains had always been sparse, and conflicts with the Apaches kept it that way until the late 19th century. Until then, the mountains—the *sierra*—did not have permanent settlers and were under Apache control. Apache dominion, in addition to the fact that mining resources in these mountains were scarcer than in the southern stretch of the Chihuahuan sierra (Sierra Tarahumara), kept white and mestizo colonization at bay longer than in other regions of the sierra. Even when large-scale timber extraction began in Madera in the early 1900s, the First Zone was not linked by railway, delaying industrial timber extraction until World War II, when increased international demand and the price of lumber made it profitable enough to exploit the most remote forests.

Its remoteness and inaccessibility allowed the First Zone to maintain excellent ecosystem health and very sparse human settlement for longer than most areas in the Chihuahua countryside. After the Mexican Revolution came an ambitious agrarian reform and land redistribution program throughout the country. Domínguez Rascón (2015) details how heterogeneously the agrarian reform played out in the state of Chihuahua, due to the immense size of the state, the diversity of climatic and geographic sub-regions, and the variety of pre-revolutionary land-tenure regimes associated with differing human settlement patterns. Related to this (commonalities among social movements notwithstanding), agrarian issues played out differently in the different areas of this region (valleys, plains, sierra). Social organization in the Papigochi valley and Namiquipa, for example, was based on communities with long-standing, semi-autonomous land tenure, with an extended history of internal collaboration (Nugent 1993; Alonso 1995). The final expansion of Ejido El Largo in the First and Second Zones of the Ex Cantón de Degollado, in contrast, brought together small-scale ranchers, relatively few farmers (the land offered only small areas with agricultural potential), their landless children, as well as large numbers of landless loggers working for the timber industry. This assorted group of recent immigrants (having arrived mostly between the 1920s and 1950s) did not have a historical, cultural, or generational relationship with the land, nor did they have prior experience in collective management of the forest.

This influence of topography and ecology on social, economic, and

political developments brings to the fore the value of political ecology in understanding "the historical dialectic that determines how and why certain natural resources are converted into commodities at particular places and times, and how commodity production transforms, and is transformed by, local ecosystems and local societies" (Sheridan 1995, p. 46). Political ecology also stresses the study of nature-society relations through the critical analysis of social interrelations (particularly relations of power) and the commodification of both nature and labor within the context of capital production and reproduction (Toledo 1983; Peluso 2012).

The following account of the rise and fall of El Colorado Sawmill weaves together the nature of the landscape and its resources, as well as the social, political, and economic forces that shaped the trajectory of this area from Apache bastion to white and mestizo settlement frontier, then capitalist timber extraction, and finally expropriation under the last chapter of agrarian reform in Mexico. It explores the degree to which nature-society relations have or have not changed over more than a century of uninterrupted industrial forest extraction—whether by foreign or national, private or social corporations. It also offers a glance into the role of the Mexican state in mediating the relationship of capital and nature and the conflicts between capital and labor—not only through specific policies that favored industrial extraction, but also through the periodic, direct or indirect, involvement of public functionaries in land transactions and corporate (railroad or timber) investments. Finally, the story follows the thread of Mexican history over the 20th century and provides a situated analysis of how national themes and watershed moments, periodically oscillating between industrialism and agrarianism in one form or another, play out on this specific landscape.

Origins of El Colorado, First Non-Indigenous Settlers

Exactly when El Colorado, as a town, was settled is not easily determined. Locals say it was originally a cattle ranch, belonging to a Mormon with red hair—hence the name of *El Colorado* ("The Red One"). El Colorado lies at the headwaters of the Río Gavilán, which Aldo Leopold would visit in the 1930s (see map 1). This remote region of the Sierra Madre Occidental had been home to or was under the influence of a number of indigenous peoples, including those of Paquimé

(10th–14th centuries); Opatas, Conchos, Janos, Jocomes, and Sumas (13th–17th centuries); and Apaches (16th–20th centuries) (Forbes 2004). Mormons were the first non-indigenous people to arrive and settle, seeking refuge from persecution after the Edmunds Act of 1882 criminalized polygamy in the United States. The Porfirio Díaz government was happy to have white settlers in the *Apachería*, this northwestern region of Chihuahua being one of the last Apache strongholds in the late 19th century (Turley and Turley 1996; Orozco 2003; Forbes 2004; Aboites 2011). After the US-Mexico war and the loss of half of Mexico's territory in 1848, the Mexican state desperately wanted to populate and settle its northern territories. Díaz agreed to respect the religious practices of the Latter-Day Saints (LDS) and overall was quite friendly to them (Romney 1938; Turley and Turley 1996).

Mormons eventually established 8 colonies in the sierra of Sonora and Chihuahua, beginning in 1885 (Romney 1938). By 1910 their colonies had grown and prospered, and the population was close to 4,000 (Wilson 1957; Forbes 2004). In 1912, however, due to growing tensions during the Mexican Revolution, Mormon colonists were summoned back to the US (Shupe 1980). Mormons employed Mexican laborers in their business operations, and after 1912 the Mexican population in the colonies grew until they became the majority by 1920 (Wilson 1957; Shupe 1980).

After 1916, 10%–25% of Mormons returned to the Mexican colonies. They continued with active ranching and sawmills in the mountain colonies, at least into the 1950s (Wilson 1957; Forbes 2004), and agricultural and commercial activities in the valley until this day. Since El Colorado is located between the three mountain colonies of Pacheco, García, and Chuichupa, and because there were Mormon ranches and sawmill sites in between the colonies (Shupe 1980; Turley and Turley 1996; Forbes 2004), it is indeed possible that it may have originally been settled by a Mormon (English sources spell the colony "Chuichupa"; in Spanish it is "Chuhuichupa").

Ranching in mountain colonies complemented the main sawmill activity, along with agriculture and work as guides for hunters from outside the region (Shupe 1980; Turley and Turley 1996). Sometime after the Mexican Revolution, likely in the 1940s, the first sawmill, a small operation that was focused on railroad ties and some lumber, was established in what is today El Colorado (DA 1955c; J. A. Córdova pers. comm.).

Industrial Timber Extraction

William C. Greene's Corporate Empire

Industrial timber extraction from this northern region of the state of Chihuahua began with concessions given to private, mostly foreign, investors during the latter half of the Porfirio Díaz regime (also known as the Porfiriato) (Weaver 2000; Ibáñez Hernández 2015; Vargas 2015). Mining concessions, with a long colonial history in the state, had seen a golden age for American investors between 1890 and 1910 (Stratton 1998). Railway concessions followed, and only later were timber concessions given, since timberlands were initially not considered especially valuable (De la Peña 1948; Aboites 2011). Railways were promoted for modernization and communication purposes, but especially as a means to efficiently transport mining products out of remote regions (Hardy 1975; Allouette and Hernández Orozco 2010). Timber was an important input for the mining industry, needed for mine shaft beams, building material, smelter fuel, and railway ties for tracks within the mine and beyond (Challenger 1998; Stratton 1998). Later, it was used more extensively in the railroad industry, with many sawmills focusing on railway-tie production, but also posts and beams for bridges and fuel for locomotives (Challenger 1998). Finally, and greatly facilitated by railway access, timber became a commodity in itself with strong export value (De la Peña 1948).

The issuance of concessions and grants for railroads during the Porfiriato was "feverish…duplicative and chaotic" (Hardy 1975). This may explain why it is difficult to trace the changes in concession ownership that bring us to the tract of land on which the sawmill in El Colorado was eventually established. William C. Greene's 1903 purchase of the Río Grande, Sierra Madre & Pacific Railroad and his 1904 founding of the Sierra Madre Land and Lumber Company to consolidate the interconnections in his Mexican corporate empire represent the first explicit connection between large-scale timber extraction and mining in the region. Greene was seeking a regional source for the lumber needed in his Cananea mining operation to avoid what had been a long-standing need to import lumber from the United States at great expense (Hardy 1975; Stratton 1998). The Sierra Madre Land and Lumber Company was founded with 2 million acres of timberlands bought from Telésforo

and Mariano García[2] (Stratton 1998; SAF 1933). Greene's 100-million-dollar Mexican empire, consisting of mines, ranches, railways, and timber (Stratton 1998), did not last long. The 1906 Cananea strike, the 1907 international economic depression, competition with other US copper barons, and his own poor health brought his empire down (Stratton 1998). By late 1908 his properties and concessions in Chihuahua had been confiscated by creditors and the Mexican government (SRA 2012; Vargas 2015). Yet, in 1907, before his empire crashed, the giant sawmill in Madera with a capacity of 85,000 board-feet per day (Estrada Murrieta, in press) had been equipped with the latest machinery (Stratton 1998) and was one of the most modern in the world with more than 2,000 employees (Primero 2008; Vargas 2015).

Fred Stark Pearson and the Mexico North Western Railway

In 1909, Fred Stark Pearson[3] bought Greene's railroad and land companies, and founded the Mexican Transportation Co. with Canadian and British capital (Hardy 1975; French 1989). He renegotiated the railway concessions, purchased several more (Hardy 1975), and acquired additional land from other land companies (O'Connor 2012; Vargas 2015), ultimately ending with 3 million acres in the region (French 1989) and several disconnected stretches of railways in northwestern Chihuahua. These railways were renamed the Mexico North Western Railway (MNWR)/Ferrocarril Noroeste de México. The newly formed Madera Lumber Company included Greene's original Madera lumber operations. Pearson renovated and increased the capacity of the Madera mill to 1 million board-feet per shift (Estrada Murrieta, in press) and began a new state-of-the-art lumber mill, reputed to be the largest in North America, in a town close to Casas Grandes that would be named "Pearson"[4] (now Mata Ortiz) (French 1989; O'Connor 2012).

Chihuahua governor Enrique C. Creel, who had been on the board of Greene's Sierra Madre & Pacific Railroad, and owned one of the concessions that had been integrated into Pearson's network, continued on as vice president of MNWR (French 1989). The plan was to finish the railway arc between Ciudad Juárez, Casas Grandes, Madera, and Temósachic, along the eastern edge of the Sierra Madre, and link it to the Chihuahua-Temósachic line (finished by Creel's company), which connected with the Mexico Central Railway in Chihuahua City (Hardy 1975). At this point, the MNWR's earnings were expected to come

mostly from the export of the very fine regional lumber. By the end of 1910, there were over 1,000 skilled American workers in Madera (French 1989).

The Mexican Revolution, 1917 Constitution, and Agrarian Reform

The Mexican Revolution of 1910–1920 dampened forest industry production and greatly damaged the MNWR. Due to the duration and continuity of the confrontations, Chihuahua felt the impact of all the phases of this armed movement like no other region of Mexico (Orozco 2003). For some time, the managers of the MNWR pragmatically navigated the changing tides of revolutionary faction dominion. In 1913, however, the violence and political instability were such that American workers and MNWR managers at the Madera mill had to leave the country (French 1989). The mill shut down and 2,500 Mexican laborers were discharged without compensation (Vargas 2015). MNWR managers continued negotiating with rebels through 1916, with "cycles of activity, cessation, repair and resumed business coinciding with each revolutionary phase" (French 1989, p. 238). This came, however, at a high economic cost as they also reported 850 of their bridges destroyed between 1910 and 1914 and "described the line as the most destroyed in the republic" (French 1989, p. 238).[5] The company often continued business at a loss due to fears of losing the concession (French 1989). In this way the Madera mill operated intermittently during the revolutionary period (Vargas 2015) and reinitiated continuous operations after 1924 (De la Peña 1948). The Pearson mill, in contrast, stopped operations in 1921, never to reopen (O'Connor 2012).

After the revolution, the new 1917 Constitution explicitly prohibited *latifundios* (Estrada Murrieta in press) and "all land titles obtained after 1876 were considered revocable" (Bezaury 2014, p. 175, own translation). The lands of the Ex Cantón de Degollado (map 2) were a case in point (SRA 2012). These tracts, like a great number of so-called vacant lands during the Porfiriato, had been surveyed and demarcated by land companies (*compañías deslindadoras*) under laws which allowed them to keep up to one-third of the delimited lands for themselves (Aboites 2011; Henson 2012). In 1924, the Mexican government initiated legal action against MNWR timberlands, declaring null and void the land

purchased by Greene's Sierra Madre Land and Lumber Company due to noncompliance with the original terms of the demarcation concessions (SAF 1924a,b, 1933). This complicated MNWR's direct exploitation of timber resources, leading the company to lease timberlands during certain periods from the Hearst family's adjacent Babícora Ranch and Cattle Company (De la Peña 1948; Primero 2008). Moreover, after 1924, the cost of timber extraction increased because the stands closest to the Madera mill had already been exhausted and MNWR now needed to build roads to access timberlands farther away (Vargas 2015; Estrada Murrieta, in press).

In 1933, during the interim presidency of Abelardo L. Rodríguez, the federal government recognized the property rights of MNWR in the Ex Cantón de Degollado, considering that land was indispensable for the sustenance of MNWR's timber industry (SAF 1933; SRA 2012). This partially reversed the 1924 resolutions that had limited MNWR´s access to these lands. Yet, even after this reversal in its favor, the railroad company was not performing well. The company had operated with a deficit since 1920; the 1929 economic depression had further weakened it, and only the extraordinary profits of its timber operations enabled the railway operation to survive (De la Peña 1948; Aboites 2011). In 1936, the company formally began seeking buyers for its assets (Hulse 1986; Vargas 2015).

As the Mexican agrarian reform advanced and the local population began applying for ejidos in the region, MNWR intensively logged areas under consideration, in order to discourage ejido applications (De la Peña 1948). However, this was not a completely successful strategy. In some areas with adequate soils and topography, such as La Norteña, founded in 1934, the forest clearing opened up land for agriculture and actually facilitated ejido claims (De la Peña 1948). In 1935 La Norteña applied for an expansion of its ejido, ultimately granted in 1942 (Estrada Murrieta, in press).

The railway in this region continued to base the most important part of its business on the transportation of lumber, followed by some mining products from farther south in Chihuahua. In the late 1930s the MNWR tried to sell its tracks to the Mexican Central Railway for 2.5 million pesos,[6] but the Mexican government did not purchase them due to the poor conditions and low customer use of the infrastructure (De la Peña 1948). De la Peña (1948) considered that, under these conditions, the railway was only worth a symbolic price of 1 million pesos.

World War II and the Proliferation of Dispersed, Small Sawmills

World War II and the Allies' demand for wood stimulated Mexico's lumber exports immensely (Forbes 2004; Boyer 2012). This provided Chihuahua's lumber industry with a competitive advantage relative to other timber states in Mexico (De la Peña 1948). The extraordinary price increases of lumber made extraction from areas previously too far from the railway profitable enough to exploit (De la Peña 1948), prompting MNWR to change its operations strategy (Primero 2008; Estrada Murrieta, in press). First, it reduced the number of shifts at its Madera mill, by far the largest-capacity mill in the state (De la Peña 1948), and subcontracted its supply and operation. Second, it installed several portable sawmills in the previously less exploited northern section of its timberlands, the First Zone of the Ex Cantón de Degollado, which now became its center of operations (De la Peña 1948; Primero 2008).

By 1945, El Largo had railway access and the second-largest sawmill in the state (De la Peña 1948) with a capacity of 35,000 board-feet per shift (Estrada Murrieta, in press). An additional 16 smaller, portable sawmills with capacity of 12,000 board-feet per shift were set up by the company throughout the First Zone, as well as one other large mill with a capacity of 35,000 board-feet per shift, Aserradero #7 El Colorado (De la Peña 1948; Estrada Murrieta, in press). These sawmills were then subleased to contractors, who hired loggers to cut and deliver timber to the railway, relieving the company of the associated labor responsibilities (De la Peña 1948; Primero 2008). MNWR was generating an enormous net profit during this period, with practically no real estate tax and no worker obligations (De la Peña 1948). It was not only the large MNWR company that benefited from this extractive bonanza; smaller private mestizo and Mormon operations also thrived. Forbes (2004, p. 71) quotes a Mormon colonist recalling the US lumber demand during World War II: "I can remember hauling truckloads of lumber from Rio Gavilan to the US during the war. We stopped for gas in Tucson. People would come up to us and offer to buy the wood right off our truck." This dramatic increase in logging was also observed by Starker Leopold, Aldo Leopold's son, between their first visit together in 1938 and Starker's second visit 10 years later.

Leopold Visits to El Gavilán

Aldo Leopold, an avid hunter, was attracted by the reputation of the game-rich country of the northern Sierra Madre Occidental. In 1936, he made a 2-week hunting trip to the Gavilán and returned in the winter of 1937–1938, this time with his son Starker (Forbes 2004). The quality of the landscape and ecological processes he witnessed there greatly impacted him.[7] In particular, he found the region exemplified the concepts of *perfect health* and *wilderness as a land laboratory* and was planning a third visit to the Gavilán when he died unexpectedly in 1948 (Forbes 2004).

His son Starker pursued the planned trip and spent 6 weeks that summer collecting specimens for the Berkeley Museum of Vertebrate Zoology with three other colleagues (Forbes 2004; Leopold 1949). He described the trip in a touching article titled "Adios, Gavilán" (Leopold 1949). Although the 1938 campsite was still a wilderness, the encroaching impact of civilization was quickly pressing upon it. During their ascent to the Gavilán, he recounted numerous lumber trucks "groaning down the grade under a staggering load of pine planks" (p. 5) and at least a dozen sawmills between the Mormon mountain colonies. Upon their arrival they still found plentiful wildlife but the river already showed signs of the heavy logging in its headwaters. Intense cattle grazing had also already changed the ground cover from native bunch-grass sod to annual weeds. The change between Aldo Leopold having "only seen sick land" before visiting the Sierra Madre, which in his mind showed "perfect aboriginal health" (Flader 1974 in Forbes 2004, p. 64), and Starker coming "to witness the passing of wilderness" (Leopold 1949, p. 4) only 10 years later was dramatic.

Starker also contrasted some degree of progress in wilderness protection in the United States with wilderness still being "on its own" in Mexico (p. 13). Although Mexico had had periods of pioneering and progressive forest policy, which included provisions for conservation, it had recurrently also undermined such policies through attention to competing social, economic, and political priorities. These included land reform (Bezaury 2014), national industrialization (Simonian 1995), and even support to the Allies during World War II (Boyer 2012). In addition, the Mexican state had had a consistent history of insufficient enforcement, understaffed agencies, and underpaid government forestry supervisors, which in turn created opportunities for corruption and bribery (De la Peña 1948;

Simonian 1995; Weaver 2000). The administration of President Manuel Ávila Camacho (1940-1946) was highly focused on industrial development and overturned many forestry protection provisions which had been instituted under President Lázaro Cárdenas (1934–1940) (Simonian 1995; Boyer 2012). The subsequent administration of Miguel Alemán (1946–1952) also held that forests could only be conserved if used as continuous input to national economic development (Simonian 1995).

Grupo Chihuahua and Bosques de Chihuahua

By 1946 MNWR was once again no longer profitable and finally found buyers for all its assets in Chihuahua banker Eloy S. Vallina and partners (Vargas 2015). The transaction had been for $3,250,000; an additional $700,000[8] would be invested in improving the rail infrastructure (*La Prensa* 1946). The purchase included large tracts of forests that were valued at more than $16,000,000 (*La Prensa* 1946). The investors' interest was clearly in the timberlands due to the increased timber export market to the United States since World War II. They sold close to 256,000 hectares of agricultural and grazing lands to different buyers (Estrada Murrieta, in press) and would later sell the railway to the Mexican federal government (Fuentes Mares 1968; Vargas 2015). These timberlands would be the basis of a very large forest-industrial emporium and one of the main pillars of the powerful corporate group Grupo Chihuahua (Fuentes Mares 1968; Enríquez 1988; Vargas 2015).

Grupo Chihuahua developed around the creation of the Banco Comercial Mexicano, S.A. in Chihuahua, in 1934. This local bank was so successful during World War II that it eventually became one of the top five banks operating in all of Mexico (Fuentes Mares 1968). The bank's success allowed the group of investors to found a large number of financial and industrial institutions.[9] The Grupo Chihuahua consortium ultimately included 65 companies in the financial sector (including finance, real estate, and insurance firms), productive sector (including forest industrial, chemical production, and equipment production), and other industrial and communications firms (Enríquez 1988).

In 1951, President Miguel Alemán stopped unprocessed timber exports in order to favor Mexico's industrialization (Simonian 1995). This led Grupo Chihuahua to quickly and creatively reorganize their timber extraction enterprise and begin planning the creation of Celulosa

de Chihuahua, S.A. with 30% Italian and 70% Mexican capital (Fuentes Mares 1968). Celulosa would consume the raw materials from the timberlands, along with two other forest-product industries of this corporate group: Industrias de Madera, S.A. and Maderas de Pino Industrializadas, S.A. This was considered of very high national priority by the federal government for addressing the Mexican demand for wood pulp while also addressing a worldwide deficit in cellulose production (SAG 1952). In a rapid succession of events, a powerful and cohesive corporate strategy was developed. Bosques de Chihuahua, S. de R.L., was constituted in April 1952, and three months later (July 1952) was granted a 50-year concession of a Forest Exploitation Industrial Unit (Unidad Industrial de Explotación Forestal, UIEF)[10] to exploit the timberlands and supply raw materials to the three associated timber-processing industrial companies (SAG 1952). During that same month of July 1952, the investors got rid of the unprofitable MNWR railway infrastructure they had bought in 1946 and sold it to the Mexican federal government, for 25 million pesos[11] (Fuentes Mares 1968; Allouette and Hernández Orozco 2010; Vargas 2015). Less than two months after Bosques de Chihuahua had been founded, making an exception to the timber export ban, the federal government granted the company a tax susbsidy to export lumber during two years in order to finance the establishment of Celulosa de Chihuahua (SHCP 1952). All these events occurred with noteworthy expediency during the last months of President Miguel Alemán's administration; President Alemán was later reported to have business interests in Grupo Chihuahua/Vallina's companies (*El Paso Herald-Post* 1960).[12]

The UIEF concession came with a number of conditions, including the obligation to provide social services required by law to its workers. These included medical services, education, and sports facilities, as well as adequate housing for its employees, with the aim of creating permanent human settlements.

El Colorado Sawmill[13]

Whether or not El Colorado was originally a Mormon ranch, as locals report (J. A. Cordova and H. Domínguez pers. comm.), we know that by the 1940s it was a sawmill, Aserradero El Colorado (DA 1955c). Installed in 1948 as one of two large, permanent sawmills in the First

Zone, by 1950 it employed 94 workers (Estrada Murrieta, in press). In May 1952, this sawmill burned down (Notaría Pública Número Once 1952). Bosques de Chihuahua, which by then owned the forest, decided to set up a new, larger sawmill in its place (J. A. Cordova pers. comm.; Forbes 2004).

The story of the new El Colorado sawmill, between 1952 and 1970, closely parallels Bosques de Chihuahua's heyday. Established sometime between 1952 and 1954, on the banks of Arroyo El Colorado at the headwaters of the Río Gavilán, it was one of Bosques's largest and most modern sawmills. It has been characterized as the most important mill in the region (Meza Rivera 2010), in the state (L. R. Córdova and D. Peña Koestler pers. comm.), or even in Latin America (Tirado 2005). During some periods it worked two and up to three 8-hour shifts (L. R. Cordova, H. Domínguez, B. and D. Peña Koestler pers. comm.), milling truckloads of timber brought in from all directions.

The town of El Largo Maderal, 28 kilometers south of El Colorado, had been MNWR's center of operations in the First Zone of the Ex Cantón de Degollado since the mid-1930s (De la Peña 1948). It continued to be MNWR/Bosques's regional hub from 1947 until 1955,[14] when El Largo was granted ejido status, with 9,500 hectares taken from Bosques de Chihuahua land (DA 1955d; Primero 2008). Bosques then moved its center of operations to La Mesa del Huracán, 5 kilometers away from El Largo, including administrative offices, reception yards for timber and lumber brought from around the First Zone, and a rail yard where lumber was loaded and shipped over a narrow-gauge rail to the Ferrocarriles Nacionales de México network, at Estación Cumbre (Estrada Murrieta, in press). La Mesa[15] operations also included its own sawmill, kiln, planer, mechanical workshops, and the supply center for machine and truck parts for all the regional contractors (J. Carrera and L. R. Córdova pers. comm.; Estrada Murrieta, in press). By the 1960s there were 300 direct employees at La Mesa, approximately 126 being administrative, warehouse, and workshop employees, and the rest mill workers (J. Carrera pers. comm.). This did not include the contractors and indirect logging workers who did the actual timber extraction and transportation, just as in the MNWR days.

As part of its concession obligations, Bosques de Chihuahua built a well-laid-out permanent settlement in La Mesa del Huracán including 193 stone houses, on 520-square-meter plots, with fruit trees, colorful picket fences, electricity, potable water, a primary school for employees'

children, a regional clinic, etc. (Fuentes Mares 1968; Ibañez Hernández 2015; J. Carrera pers. comm.). These benefits did not extend to the loggers and other indirect workers, many of whom lived in neighboring Barrio Chihuahuita under contrasting conditions—wood houses, no electricity or potable water (Primero 2008; Estrada Murrieta, in press).

As the mines in the Ocampo district of Chihuahua (e.g., Concheño and Pinos Altos) waned and shut down, the displaced labor force migrated north to the booming timber industry in the First Zone region of La Norteña, El Largo, and surrounding sawmills (Primero 2008; Meza Rivera 2010; J. A. Córdova, B. and D. Peña Koestler, and L. A. Rascón pers. comm.). This migration had begun in the 1930s and 1940s and saw another spike in the 1950s. Thus many families arrived from the mining towns to work at the new sawmill in El Colorado in 1953 and 1954 (B. and D. Peña Koestler pers. comm.). In 1950, El Colorado did not have more than 20 qualified individuals to be granted ejido status (DA 1955c).[16] By 1960, it was designated for the first time as a locality in the national census with a population of 750 (INEGI 1960).

As in La Mesa, people in El Colorado had differing benefits, depending on their work status with the company. For example, company employees had access to company-provided health care, whereas the loggers had to pay for such health services from their paychecks (Primero 2008). But in other aspects the differences were less apparent than in La Mesa. The sawmill gave free lumber to company and non-company workers to build their houses, living quarters of people with different sources of employment were mixed, and people intermingled freely. Small ranchers with grazing lots in the surrounding areas also built homes in El Colorado so their families could have access to the local services and amenities. The elementary school was an important social integration venue; all children of the community attended it, regardless of their parents' social or economic status.

As was the case for most small mountain communities at the time, there was no electricity, running water, or sewage collection. However, in addition to the school, there were a few supply stores, billiards, as well as religious and social activities, such as festivals, rodeos, and parades, which created a lively community. The most important parade of the year was the International Workers' Day (May 1) commemoration, which was a testament to the class consciousness of the mill workers' union, deriving from the long tradition of unionization and workers' rights movements from the Pinos Altos mining community that they brought

with them.[17] This parade was led by a musical band and even the sawmill manager walked along with all the workers. It was followed by an animated celebration in which the whole town participated.

Many former inhabitants and visitors to the town, to this day, fondly describe life in El Colorado as happy, placid, idyllic, and thriving. The loud sound of the sawmill, and constant movement of trucks and people through town transporting timber and lumber, gave people a sense of prosperity, shared community, and employment security. The quiet and stillness at the end of the workday, and weekend picnics or hunting outings, allowed people to connect with the magnificent expanse of nature, alive with birdsong and the sound of the breeze flowing through the pine trees. On Sundays and holidays, all age groups played and socialized in large and small groups. Children ran along the arroyo and played in the water; teenagers sat on the high points of the town chatting and furtively glancing at each other; adults strolled and fished along the arroyo banks.

Timber Operations and Labor Organization

Logging

La Forestal, the company forest technicians, marked the trees that could be cut in the forest and assigned contractors to log them (Primero 2008; L. R. Córdova and H. Domínguez pers. comm.). Logging was the hardest and most dangerous work, and also the least well paid (De la Peña 1948); loggers lived in miserable conditions (Primero 2008; Estrada Murrieta, in press). They had to camp out in the field for long periods of time, often in inclement weather, with rudimentary shelter; risked getting hit by falling or rolling tree trunks and branches; and had to exert much physical effort sawing, moving, and loading logs (De la Peña 1948; Pérez Domínguez 1991; Primero 2008; Henson 2012). People who had other income opportunities often avoided this work (B. Peña Koestler and L. A. Rascón pers. comm.). The basic logging crew consisted of two men to cut the tree with a two-man saw, an axe-man who cut the branches off the logs, two horses and their leader to pull the logs to the truck, and the truck driver with his loading assistant (J. Carrera, L. R. Córdova, B. and D. Peña Koestler pers. comm.). Logging teams sometimes included the wife of one of the loggers, to cook and keep camp, and a few young children in care of the mother (Meza Rivera

2010; A. Domínguez pers. comm.). Contractors usually had several logging teams working in different parts of the forest.

Pines averaged 1.5 meters in diameter, but reached diameters of up to 3 meters.[18] When they were that large, they had to be blasted with dynamite in order to be loaded onto the trucks.[19] The wood was classified on-site, depending on its quality: the best for plywood, second grade for the local sawmill (lumber and railroad ties), and lowest quality for cellulose paste. Trucks then took their loads to the appropriate industrial installation: El Colorado, La Mesa del Huracán, or other market sites. But they all had to pass through a control post in El Colorado, where the volume of wood was calculated; a record was made of the origin and destination of the wood, truck, driver, and contractor.

Sawmill Operations

The logs destined for El Colorado were first unloaded into a 2-acre lagoon that was filled with water from Arroyo El Colorado with added Permatox to prevent rotting. Three or four workers in small rafts moved the logs toward the sawmill bank with long metal-tipped rods. It was very dangerous to fall in the water as the logs pressed closely and heavily together. Near the sawmill, the logs were pulled up by a large chain with iron grapplers towards a series of steam-powered steel bars that positioned the logs on the steam-powered feeder which moved them through the band saw.

Inside the mill there was a strong scent of pine sap and machine oil, and very loud, yet rhythmic, noise from all the machines. The main sawyer classified the wood into first, second, or third quality and calculated the most efficient way to extract the largest amount of lumber from each log. This was a very specialized position as the productivity of the mill largely depended on his calculations—he, along with the mill general manager, received a periodic commission on the mill's production. The sawyer then directed the feeder operator on the dimensions of the boards to be cut by the band saw from each side of the log. The machinery noise was so loud they had to communicate with hand signals. Each piece that was cut was placed on the conveyor belt that moved the pieces to the appropriate sector of the mill, according to their dimensions and quality. Along the way, boards were cut to the appropriate length with a small moving circular saw and to the precise width with other machinery. Finally, the boards were transported by a rail cart into a very large outdoor yard where they were stacked in tall piles to dry.

In accordance with the UIEF concession conditions, El Colorado sawmill had a band saw, which was a great innovation and improvement over the usual circular saws employed in the regional sawmills. Band saws afforded much greater precision and allowed for more efficient use of each log, generating less waste. The saw blade needed frequent sharpening and occasional welding, so the mill had a sharpening department that was exclusively dedicated to maintaining the band saw.

The first worker to arrive each day at the mill was the boiler operator. He started the steam boiler and sounded the mill whistle to indicate the beginning and the end of the work shifts. The boiler fuel consisted of the first pieces of wood and bark that were cut off the logs. The sawdust generated at various stations in the mill was collected and trucked to an enormous sawdust pile on the outskirts of town, which still stands over 120 feet tall, 50 years later.

Forest and Land Management under Bosques de Chihuahua

The 1952 decree (SAG 1952) required Bosques de Chihuahua to have its own technical department to implement the extraction schedules which had been approved by the federal Departamento Forestal y de Caza. The lead engineer, Flores Calderón, had studied in Europe and was very well trained and very strict in determining what the contractors could cut, and where. He also determined the appropriate wait times for logging in each area so that the forest could regenerate. He implemented what was known as the Mexican Method of timber extraction.[20] He also managed wildlife extraction. Only deer, which were by all accounts very abundant, were allowed to be hunted by anyone in the community for self-consumption. Otherwise there were hunting restrictions, though private game-hunting parties continued to come to the region.

The tall trees with open understory and abundant grass made this what people called a dual-purpose region. Cattle ranching was seen as a compatible land use, when it was agreed to under company auspices, such as in La Norteña and in the El Colorado region. The company leased cattle grazing land to certain people at a very low price, provided they fenced the properties, were attentive to fires, and controlled wildlife poaching and general access.

Griffin and Dennis (1969) describe a series of conservation efforts that were implemented by Bosques de Chihuahua, asserting that "[p]

revious indiscriminate forest exploitation by the Americans was converted to a conservation-minded approach, not only in lumbering but also in the areas of water and soil conservation" (p. 358). In addition to selective cutting and strictly controlling cattle numbers on company-leased grazing lots, the company protected trees from disease and fenced its property. A modest demonstration farm was established to introduce the local population to farming methods that reduced soil erosion and increased yields; grasses were planted on both company and ejido lands as another erosion-control strategy; and experiments were being conducted to install 105 *trincheras*, or small check dams of the sort that had been extensively built by indigenous peoples centuries before, in order to increase soil moisture and extend the duration of stream flow (Griffin and Dennis 1969). These authors reported that the positive results achieved on the small experimental scale had led the company to plan for an extended implementation of this technique. It is not clear whether the trinchera or other experimental methods were indeed extended. The degree to which the general corporate campaign in conservation was effective would be put into question a couple of years later, in 1971, when this land was expropriated (Mejido 1971b).

But back in 1968, with 3,179 direct employees, Bosques de Chihuahua was by far the largest company of Grupo Chihuahua and the one with the greatest impact on the regional economy through job creation and other indirect economic links (Fuentes Mares 1968). Griffin and Dennis (1969) estimated that Bosques de Chihuahua employed 5,000 persons in the region and supplied "the lifeblood of the economy of this region… which otherwise has no economic activities except for the scattered *ejidos* found throughout" (p. 358).

Agrarian Processes, Social Protests, and the Assault on the Madera Army Barracks

The establishment of La Norteña in the mid-1930s, the proliferation of sawmills in the mid-1940s, and Bosques's expanding timber industry coupled with the closing of mining operations farther south in the 1950s all increased mestizo settlement in this region of the First Zone over three decades (Primero 2008; Meza Rivera 2010; L. A. Rascón, L. R. Córdova, and B. Peña Koestler pers. comm.).[21] Several of these relatively newly settled mestizo communities began applying for ejido status as far

back as the 1930s.[22] By 1950, perhaps motivated by the presence of the UIEF planners and surveyors and/or the uncertainty of how these forests would be managed after the sale of MNWR to Grupo Chihuahua, at least eight communities in the First Zone had applied for ejido status or for an expansion of their current ejido, including El Largo and Aserradero El Colorado (DA 1955a–d).[23]

These ejido applications followed their protracted administrative course and were not finally resolved until 1955, when only three were granted (El Largo, El Oso, and La Norteña in a second expansion). Five communities, including Aserradero El Colorado, were not granted ejido status or an expansion (DA 1955a–d). By then Bosques de Chihuahua was thriving and had influence in how the agrarian processes on their lands developed, preventing the inclusion of certain applicants and participating in the definition of which specific lands—depending on quality and location—would be granted to ejido applicants (DA 1955b,d). The contrast between the length of agrarian processes and the expediency with which industrial permits were granted by the federal government, as well as the ability of industry to affect agrarian process outcomes, was striking.

The post-Revolution agrarian movement in northwestern Chihuahua had not always been peaceful. In the First Zone of the former Cantón de Degollado there may have been negotiated and non-violent resolutions in the 1950s. This was perhaps buffered by the fact that there was, after all, plentiful employment in the forest industry and that the bulk of local mestizo population had really only arrived to the region between 1930 and 1950. These recent arrivals meant that the mestizo population applying for ejidos did not have long-standing historical, cultural, or community claims to the land in this mountainous, remote region of the First Zone. But in the southern limits of the former Cantón de Degollado (closer to Madera and along the Papigochi River), in the neighboring Babícora area, and in other areas of the state of Chihuahua, peasant communities' demand for land had been less peaceful. In 1939, Socorro Rivera and other agrarian fighters were assassinated by local police forces during their occupation of land which had been legally granted to them from the Babícora Ranch and Cattle Company *latifundio* (Primero 2008; Henson 2012; Vargas 2015). During the 1950s, peasants, indigenous peoples, and smallholders continued seeking to regularize titles to lands they had been using historically and encountered intimidation and violence by the government, industrialists, and local *caciques*[24] (Henson 2012).

A turning point was the 1959 murder of professor Francisco Javier

Luján Adame in Madera. He had been helping Pimas and other *campesinos* of the Papigochi region in land requests and defense against the abuses of investors who had bought farming and grazing land from Bosques de Chihuahua (Primero 2008; Henson 2012; Vargas 2015). In response to this murder and other atrocities, the *campesinos* marched by foot 300 kilometers to the state capital, in November 1960, demanding justice for the murders of agrarian leaders and the redistribution of six *latifundios*, including Bosques de Chihuahua (Primero 2008; Vargas 2015). There they received the allegiance of students, teachers, and agrarian leaders under the umbrella of the General Union of Mexican Workers and Campesinos (UGOCM) (Primero 2008; Henson 2012; Vargas 2015). "The strength of the movement was such that two presidents of the republic were compelled to meet with its leaders" (Henson 2012, p. 20). A rift within the Mexican state surfaced: Federal authorities were inclined to negotiate and satisfy some protester demands, a strategy that had worked well in other parts of Mexico during this period, but local powers in Chihuahua, from the state governor to the *caciques*, were recalcitrant and chose repression over negotiation (Henson 2012). This radicalized both positions, ultimately leading one arm of the agrarian and student movement to begin a Cuban-inspired guerrilla campaign in the Madera region of the Sierra Madre (Orozco 2003; Henson 2012).

A few years later, on September 23, 1965, the guerrillas assaulted the army barracks in Madera (Henson 2012; Vargas 2015). The attack had been carefully planned, but high water levels in the arroyos and streams from summer rains and the unwanted attention of the police meant that two subgroups did not arrive at the agreed rendezvous spot. Thus, only 13 members with insufficient weapons were there on the morning of the assault (Henson 2012; Lugo Hernández 2015; Estrada Murrieta, in press). In addition, they encountered many more troops than they had expected (Henson 2012; Vargas 2015). The confrontation was suppressed in a few hours. Eight guerrillas died and five escaped.

After the attack in Madera, people were shaken and the federal army immediately increased its presence in the region. Just a few weeks later, 44,000 hectares of land were distributed to two ejidos close to Madera (Henson 2012). Federal and state forces clamped down and the guerrilla movement in this region of Chihuahua virtually ended.[25] Despite the rapid demise of local armed resistance, the assault on the Madera barracks marked the initiation of the modern guerrilla movement in Mexico (Henson 2012).

In April 1966, former president Lázaro Cárdenas, mediating between the federal government and the local communities, came to Madera to

generate an analysis of the events and the current situation for the presidency of the republic (Primero 2008; Aboites 2011; Estrada Murrieta, in press). Primero (2008) and J. Carrera (pers. comm.) believe that Cárdenas's visit and report were a determining factor in the federal government's understanding of the need to expropriate the Bosques de Chihuahua *latifundio*, which would still take five more years to be executed.

Meanwhile, in El Colorado there had apparently been little discussion of all the agrarian effervescence and the guerrilla movement, even though a significant portion of it occurred on or was related to Bosques de Chihuahua lands (Primero 2008; Henson 2012; Vargas 2015). Nor was there apparently much discussion in nearby Ejido La Norteña (L. A. Rascón pers. comm.). This may be because both communities had plentiful work opportunities with Bosques de Chihuahua, and in the mills labor (*obrero*) consciousness prevailed over sensitivity towards agrarian strife (L. R. Córdova pers. comm.). People in El Colorado associated their livelihood with the forest industry, and did not, for the most part, feel affected or preoccupied by the agrarian struggles (Primero 2008; L. R. Córdova and D. Peña Koestler pers. comm.). After the resolution of eight ejido applications in 1955 (including DA 1955a–d), there was a 10- to 12-year lull in further agrarian processes in the First Zone. Neither the guerrilla campaign, the agrarian struggles, nor the associated ideology seem to have had much presence in El Colorado.

Closing of El Colorado

By 1968, rumors began in El Colorado regarding the imminent shutdown of the sawmill. Industrial activity was declining and people had a sense the mill was going to close down. There was uncertainty as to how and when it would happen, and what would happen to people's livelihoods. One morning, in early 1970, the whistle stopped sounding, the motors stopped operating, and the sawmill shut down (B. Peña Koestler and E. Córdova pers. comm.). It took some time to dismantle the large industrial installation; the last generators were removed from their concrete bases mid-year (R. Mireles pers. comm.).

The mill workforce was compensated as determined by law—three months of salary plus 20 days for each year worked. Jobless and displaced, many people moved to El Largo, some to Madera or Casas Grandes, some back to Ocampo or other parts of Chihuahua, and even Sonora. All the machinery of El Colorado was moved to La Mesa del Huracán,

where Bosques de Chihuahua would now have two sawmills (D. Peña Koestler pers. comm.).

Locals did not know for certain why El Colorado sawmill was shut down. There were several hypotheses: (a) that this had been an economic decision due to the dwindling timber resources in the sawmill's area of influence and its decreasing economic viability (L. R. Córdova pers. comm.); (b) that it had been a security decision of the company, aiming to reduce the territorial extent of company infrastructure (B. Peña Koestler pers. comm.), in light of guerrilla activity up until 1968 (Orozco 2003); or (c) that the company knew that its land might be expropriated and wanted to consolidate all its infrastructure in one place[26] (D. Peña Koestler pers. comm.).

The fact that Ejido El Largo was asking for an expansion and that some people from El Colorado might become *ejidatarios*[27] distracted somewhat from the pain of dispersal. Some families were split as members took different routes. The lumber of the houses was still of very good quality, so people moistened the wood, pulled out the nails, and loaded the planks on trucks to take to build their next home. It was sad to hear the nails creak, to see the houses come down and people saying good-bye, asking each other where they were going, what they were going to do next. "It wasn't just packing and taking your things, it was taking the house altogether" (L. R. Córdova pers. comm.).

The extractive economy of the 20th century had created a succession of boom and bust towns in this region, starting with the mines of the Ocampo district in the early 1900s. In a remote area such as this, people formed strong community bonds, particularly when they re-encountered friends and people they had lived with in other towns (L. R. Córdova pers. comm.). "To come to a new, unknown place following work opportunities, and to find people you knew from a previous place, created a sense of security, of having someone to go to in case of need, of having someone to share memories with, and so on" (L. R. Córdova pers. comm.). Having to break bonds again only compounded the pain.

Expansion of Ejido El Largo

Ejidatarios in El Largo had wanted an expansion for their ejido to provide land for their children who were now adults and landless. With Bosques's 50-year concession coming up for revision in 1970, they initiated their process in mid-1969 (Primero 2008). When Luis Echeverría

came to Madera as a presidential candidate that winter, they gave him a copy of their application (Primero 2008). He was elected president of Mexico on July 5, 1970, and things developed rapidly after that. A few months later, as part of Bosques's concession revision, the head of the Confederación Nacional Campesina (CNC), Alfredo Bonfil, came to assess its work and discovered that, contrary to the company's assertions, the loggers lived in terrible conditions (Primero 2008). Bonfil's report and its photographs—in addition to Lázaro Cárdenas's report a few years earlier—were critical in the 1971 decision to expropriate (Primero 2008). On March 27, 1971, ejido applicants from El Largo visited President Echeverría in the National Palace in Mexico City (Primero 2008; Estrada Murrieta, in press). Less than a month later, 256,611 hectares of Bosques de Chihuahua land were expropriated to form the expansion (*ampliación*) of Ejido El Largo y Anexos (DAAC 1971). The expansion decree included a number of other ejido applications that had been denied in 1955, such as El Colorado and other small localities. Thus, instead of creating a multitude of smaller ejidos, the largest ejido in Mexico was formed (DAAC 1971). The Mexican state, which in this region had been uninterruptedly privileging corporate investments for almost 100 years, now, in the context of heightened national and regional social conflict, shifted its weight to favor social purposes.

As would be expected, Bosques de Chihuahua did not take the expropriation well, but ultimately had no choice but to accept it (Mejido 1971a; Rosales 1971a). On April 17, 1971, President Echeverría and a contingent of state and federal government functionaries landed at the airstrip of La Mesa del Huracán and held a meeting in the town plaza where titles were given to 2,172 ejido applicants of El Largo (Mejido 1971b; Rosales 1971b; Primero 2008). Because of the UIEF concession, the expansion decree protected Bosques de Chihuahua's industrial installations in La Mesa.[28] The new Ejido El Largo y Anexos, which now owned the forest, was still obligated to deliver timber to the company who owned the UIEF concession (DAAC 1971). Until its conclusion in 2002, both entities were to work in "association and participation," with 70% of the annual profit distribution for Bosques de Chihuahua and 30% for Ejido El Largo y Anexos (DAAC 1971).

At the title delivery ceremony, CNC leader Bonfil publicly stated "we do not receive a technically exploited[29] forest…in many regions the forest has been finished by the voracity of a company that did not adequately plan a technical exploitation, despite what has been declared," an assertion

with which company executives privately disagreed (Mejido 1971b, p. 18-A, own translation). Bonfil explained that he made this clarification so that it would not later be said that while the forest was under private management it was correctly managed and when given to ejidatarios they destroyed it (Mejido 1971b, p. 18-A). In a previous exchange with board chairman Rafael Vallina (brother of Eloy Vallina), the president had criticized the private management of the forest for having been more concerned with its own accumulation and not enough with distributing wealth more equitably (Mejido 1971a; Rosales 1971a).

The fact is that each time this forest changed ownership, there were strong criticisms of the previous management and great expectations for sustainable forest production going forward. This had happened when the forest had been nationalized, passing from foreign owners to the Mexican-operated UIEF (Griffin and Dennis 1969), and now again when the forest was changing from private to ejido ownership. In his remarks, President Echeverría said it was important to conduct reforestation and have a responsible extraction regime, both to maintain a steady supply for Bosques de Chihuahua and associated industries and also to sustain *campesino* livelihoods (Rosales 1971b).

On the subject of the approximately 300 Bosques de Chihuahua industrial employees, despite a few unsuccessful attempts by the company to have them included in the ejido, they did not receive land titles (Primero 2008). Thus while most loggers became ejidatarios, most mill workers emigrated—continuing with their own condition of commodified and serially displaced labor. Primero (2008) considers this to be a consequence of their disengagement from agrarian struggles. As for El Colorado, it became part of Ejido El Largo, but as a settlement without a mill it rapidly depopulated to its pre-1940s, pre-sawmill levels. From a population of 722 in 1970 it decreased to 92 in 1980, and steadily to 12 in 2010 (INEGI 1970, 1980, 2010).

Many expectations were created with the formation of Ejido El Largo, which was seen to have strong economic potential because of its size and the quality of its forest resources. The Echeverría administration had hoped for a holistic development that would not depend solely on timber resources but would complement income with a broader set of natural resources and their sustainable use (J. Carrera pers. comm.). This was ultimately not achieved during that period. The ejido continued a commercial, commodified forest extraction. One factor was the ease with which a large income could be produced solely from timber extraction,

which left little incentive to forge a new and more complex relationship with the land (J. Carrera pers. comm.), particularly for people who did not have a historical and cultural relationship to this forest. Another factor was the restrictive contract with Bosques de Chihuahua. The company had been made the exclusive buyer of all ejido timber, and had the power to withhold timber extraction authorizations for other buyers (Pérez Domínguez 1991). There was, thus, a contradiction between the ejidatarios being the owners of the forest and the previous corporate owner holding the extraction rights; the ejidatarios were "in essence… not foresters but salaried workforce of the industrial complex" (Pérez Domínguez 1991, p. 211, own translation).

Over the next decade, the ejido gradually achieved greater autonomy and incipient capital accumulation. By 1982, in a watershed moment, the ejido renegotiated the contract allowing it to sell its forest products to Bosques de Chihuahua at market value (Hodgdon and Estrada Murrieta 2015).

To be sure, the ejido has made many efforts to strengthen its organization and has embarked on various initiatives for sustainable forest management over the years. In 1978–1979 it bought irrigated agriculture and grazing land in the nearby municipality of Ascención to increase and diversify economic opportunities for ejidatarios (López Álvarez 1996; Primero 2008). The first forest management program prepared by the ejido (no longer by Bosques de Chihuahua) in 1987 removed some woodland areas from logging and introduced provisions for improved forest regeneration and biodiversity conservation (Hodgdon and Estrada Murrieta 2015). In 1992, a trout farming initiative was implemented in certain areas of the ejido, seeking to develop locally appropriate, alternative income opportunities (Córdova 1992). Ecotourism opportunities have been explored as additional income diversification options (López Álvarez 1996). In 1996 the ejido bought off Bosques de Chihuahua's remaining infrastructure in La Mesa del Huracán, marking the end of the company's presence in these timberlands (Hodgdon and Estrada Murrieta 2015). In 2001, the ejido obtained a Forest Stewardship Council (FSC) certification for 20% of its timber sales, and in 2011 an Integral Forest Development Plan was designed with the assistance of the Rainforest Alliance, the InterAmerican Development Bank, and Mexico's federal forestry agency, Conafor (Hodgdon and Estrada Murrieta 2015).

Yet even with its great size, 10 operating sawmills and more than 2,500 workers, Ejido El Largo still faces many of the problems of

community forestry enterprises in the global south, namely "difficulty in maintaining leadership continuity, poor administrative capacity, obsolete technology and infrastructure and lack of access to credit, in addition to lack of market penetration" (Hodgdon and Estrada Murrieta 2015, p. 17). Additionally, the ejido has maintained a commodified, capitalist extraction model, even reproducing previous corporate social differentiation among workers. Loggers continue to have the harshest working conditions and least pay, while the haulers are the best paid and the politically dominant group in ejido governance (Pérez Domínguez 1991; López Álvarez 1996). According to several authors and interviewees, corruption, embezzlement, and unaccountability of leadership have also plagued the ejido during different periods (Pérez Domínguez 1991; López Álvarez 1996). And finally, some maintain that the continued commodification of nature has led to environmental degradation in the ejido forests (Pérez Domínguez 1991; López Álvarez 1996).

Complicating things further, a new corporate extractive industry began in this region in the 1980s, also driven by international decisions from outside the region and generating capital accumulation elsewhere. Narcotic production for export—mainly the regional cultivation of marijuana (Forbes 2004)—was perhaps not as natural resource intensive as timber extraction, but it came with very high social costs (Primero 2008) and added new layers of social, economic, and environmental complexity to nature-society relations in this region.

The extent to which ejido forest management has improved the lot of the people and the natural resources of this land will have to be examined elsewhere. The conditions and context of social ownership over the last 50 years, and whether or not they have allowed for better resource management, deserve a fair and in-depth analysis, which must take into account, at minimum, the following intrinsic and extrinsic factors: the different stages of Ejido El Largo–Bosques de Chihuahua contractual relationships; the ejido's balancing acts between re-investing in the forest and the extractive industry and distributing profits of the forestry operations among ejidatarios as well as providing employment for ejidatarios and their children; the various phases of the narcotic extractive industry, including the varying ways in which the state has addressed it; the impacts of NAFTA and the effect of the changes in the Constitution's Article 27 on Mexico's forestry sector in general, and on the operations of El Largo in particular; the series of evolving forest management plans and the difficulties implementing alternative income-

generation initiatives; the performance results of successive ejido administrations; the lack of a concerted community forestry policy across Mexico (Weaver 2000) and how the general conditions of this forest currently compare to other forest regions of the state and the country.

Conclusion

The story of El Colorado is one of commodification of nature and labor along a gradient of changing models of the timber extractive industry, seen from the vantage point of one of the last undisturbed forests in the northern Sierra Madre Occidental. It follows the transition of timber as an input to mining and railways to a commodity in itself, in response to international and national demand and increased rail and road access. This story also mirrors the evolution over a century of Mexican and Chihuahuan politics and economic policies through which the Mexican state has mediated nature-capital relations and capital-labor conflicts. This account illustrates the constraints that natural resources impose on policies, politics, and extraction possibilities, and reveals the multi-layered heterogeneity and even contradictions within the state, industrial, and labor sectors.

Industrial natural resource extraction began with the incentives granted by the Porfirio Díaz regime for foreign capitalist investment and white settlement in this region. This was originally contained within the First Zone by Apaches, topography, and inadequate transportation technology. Once the Apaches had been conquered or extirpated, extraction and settlement accelerated. The Cananea strike of 1906 and the Panic of 1907 brought down the operations of the first foreign timber industrialist in the region, William C. Greene, and gave way to the second one, Fred S. Pearson, with the Mexico North Western Railway (MNWR). Recurrently, a number of top Mexican elected officials either were direct partners or had close ties to large capitalist investors and landholders. The effect of the Mexican Revolution was disruption and temporary dampening of extraction during the armed conflict (1910–1920), followed by increased agrarian pressures on the margins of this land between the 1920s and 1950s. This began in the Mormon valley colonies, Madera, Papigochi valley, and Babícora, and, somewhat later, materialized within the First Zone (1930s to 1950s). The Great Depression further debilitated the foreign MNWR operation, but World War II and the

demand for Mexican timber exports reactivated extraction. Ejido applications in the First Zone, the depletion of forests close to Madera (Second Zone), and the increased international price of lumber and other forest products all combined to initiate intensive forest extraction in the First Zone during the 1930s and 1940s.

President Miguel Alemán gave a second impulse to forest industrial extraction, this time with national capital and for national development needs, supporting the corporate Grupo Chihuahua. Bosques de Chihuahua was one of the central pillars of the corporate powerhouse, and the First Zone was a central area of extraction for all of the group's forest transformation industries. The development of Grupo Chihuahua paralleled the development of the Mexican Miracle of 1940–1970[30] (Aboites 2011). After the Revolution, the major corporations in this region were able to keep the demands of agrarian reform at bay while they created such an enormous timber industry for several reasons. In the early stages, MNWR was not affected because the Cárdenas administration (1934–1940) focused distribution mostly on good-quality land for agriculture, keeping landholdings of foreign and national logging companies untouched (Klooster 2003). Later, Bosques de Chihuahua was able to shield itself behind the need to provide raw material to the nationally strategic Celulosa de Chihuahua and associated industries in order to not be affected by agrarian demands (Almada 1971). Its status as pillar of the extremely powerful corporate Grupo Chihuahua strengthened its position further. Relatively weak land pressure in the First Zone as well as plentiful employment provided to recent immigrants to the region also played a role.

However, increasing contentiousness of social and agrarian conflicts in Chihuahua during the 1960s, including the first armed guerrilla attack in Mexico's modern history, as well as the plight of the destitute loggers in the forest extractive industry, precluded the continued state support of the Bosques de Chihuahua *latifundio*. It was ultimately, and inevitably, expropriated into ejido land. The 1960s and 1970s saw a huge surface area of Mexican forest land distributed to ejidos. Overall, this was not a deliberate forestry policy, with access to the resources needed to convert *campesinos* into true silviculturists and timber industrialists, but the expression of a waning agrarian reform which no longer had high-quality agricultural land to distribute and instead distributed what were considered the "marginal lands" of forests and jungles (Klooster 2003). Ejido El Largo, today, shares many of the strengths of Mexico's community

forestry sector (Klooster 2003) as well as many of its weaknesses (Hodgdon and Estrada Murrieta 2015).

If the story of El Colorado reveals anything, it is that the political ecology of this region is not a straightforward, linear evolution in the struggles between unified, solid sectors with single goals. Labor is fractured; the state is not homogeneous nor is it fixed in its priorities; corporate approaches to forest management differ. Social ownership does not necessarily extract itself from a commodified relationship to the land. Holistic management seems elusive. The account of El Colorado also illustrates the heterogeneous ways in which national policies and larger historical trends play out locally. State-facilitated foreign investment and settlement, Revolution and agrarian reform, national industrialization and the "Mexican Miracle," and social conflict and guerrilla insurgence did not express themselves uniformly across the country, but rather were laid out in various forms, on each landscape, over the topography of local histories and social relations. In the meantime, the extraction has been relentless. This landscape little resembles the great forests that the Apaches, Mormons, and Aldo Leopold knew. Nature has not yet reclaimed her role as a central political actor. When, how, or whether that happens will be known by the sound of the breeze, the light fluttering through the pine trees, and the lattice of evolving social and economic forces in this forest—still one of the most remote, and beautiful, places in the northern Sierra Madre Occidental.

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Notes

1. *Ejido* is a system of communal land tenure in Mexico, a collective landholding organization (Nugent 1993) or peasant corporation/corporate community (Sheridan 1988). With the agrarian reform resulting from the Mexican Revolution, land was granted to landless peasants through two types of peasant collective landholding associations: *ejidos* and *comunidades*.

2. Telésforo García was a well-known intellectual who, thanks to his connections with President Manuel González and Secretario de Fomento Carlos Pacheco, was able to obtain extensive landholdings in Chihuahua, Sonora, Sinaloa, and Baja California, as well as secure mining contracts and railway concessions (*Railway Age* 1905; Ledezma Martínez 2012). He also sold land to Mormon colonists, who named Colonia García after him, as did his brother, after whom Colonia Mariano (later Chuichupa) was named.

3. Pearson would also found the Compañía de Luz y Fuerza and other large capital investments in Mexico and other Latin American countries with Canadian capital (French 1989).

4. The Pearson mill had a capacity of 1.5 million board-feet per shift, though it never operated at more than 50% capacity (Estrada Murrieta, in press).

5. A 1936 report by MNWR general manager Roy Hoard stated that over a 20-year period more than 5,000 company bridges had been destroyed, in addition to locomotives and other equipment (Hulse 1986).

6. Hulse (1986) dates these negotiations between 1936 and 1937. The exchange rate in 1936–1937 was 3.6 Mexican pesos/US dollar (INEGI, nd).

7. As evidenced in several essays and letters he wrote after these visits, including "The Thick-Billed Parrot of Chihuahua" (1937), "Conservationist in Mexico" (1937), "Song of the Gavilán" (1940), and "Wilderness as a Land Laboratory" (1941) (Forbes 2004).

8. These figures were reported by *La Prensa*, a daily newspaper from San Antonio, Texas, and presumably refer to US dollars. Hulse (1986) reports an initial selling price of 5 million. The exchange rate in 1946 was 4.85 Mexican pesos/US dollar (INEGI, nd).

9. Including Cementos de Chihuahua, S.A. (1941), Aceros de Chihuahua, S.A. (1955), and Teléfonos de México, S.A. (1956) (Fuentes Mares 1968).

10. The UIEF was granted on 563,393 hectares from the First, Second, and Third Zones of the former Cantón Degollado, property of MNWR, as well as land on Ejido La Norteña (SAG 1952).

11. The exchange rate in 1952 was 8.65 Mexican pesos/US dollar (INEGI, nd).

12. Henson (2012) includes Miguel Alemán as one of the founders of Bosques de Chihuahua, but his name does not appear in the founding charter of the organization (Registro Público de la Propiedad 1952). Estrada Murrieta (in press) reports allusions to Alemán as one of Vallina's partners in the 1946 purchase of MNWR, but acknowledges his name never appeared in any official document. Photographic record does exist of Alemán's attendance at the wedding of one of Vallina's daughters (Fuentes Mares 1968).

13. Very little has been written about El Colorado. The descriptions of El Colorado as a settlement and its timber operations are taken largely from interviews with locals and site visits; published sources are cited in this section when they were available.

14. Between 1946 and the 1952 founding of Bosques de Chihuahua, the company was still named MNWR, but was under Mexican (Grupo Chihuahua) ownership.

15. La Mesa del Huracán is often referred to as "La Mesa" by locals.

16. The previous sawmill had 94 workers (Estrada Murrieta, in press) but they did not qualify for ejido applications.

17. Pinos Altos had one of the famous first worker strikes in Mexico in 1883, and some have considered that strike, as well as the Cananea and Rio Blanco strikes, as early precursors of the Mexican Revolution.

18. Interviews with locals coincide in tree dimensions with Brand (1933) cited in Forbes (2004).

19. Dynamite specialists who had come from the mining regions used explosives to open up logging roads, but they also knew how to place dynamite in holes in the felled pine trunks so the trees would split in straight pieces.

20. The Método Mexicano de Ordenamiento de Montes was the registered scientific norm for Mexican temperate forest management and consisted of dividing the forest into exploitable stands within which 35% of total wood volume was selectively cut; extraction was then rotated among stands to allow the forest to recover (Boyer 2012).

21. Some mestizos had already settled, as laborers, around the Mormon colonies by the late 19th and early 20th centuries (Wilson 1957; Estrada Murrieta, in press), and more arrived during the 1910–1920 Revolution years. But their numbers in the mountains were minor relative to the migration between the 1930s and 1950s.

22. Including La Norteña in 1934 (DA 1934) and El Oso, La Avena, and its annexes in 1936 (DA 1955b).

23. In the case of El Largo, part of the motivation was pressure exerted by the new corporate owners on the local population to discontinue agriculture and ranching where the company wanted to reforest with pine trees (Primero 2008).

24. Local political bosses.

25. Three years later, in July 1968, guerrillas assaulted and destroyed a Bosques de Chihuahua sawmill (Aboites 2011). They were soon captured and executed by firing squad in nearby Tesopaco, Sonora; this event received little

press coverage because the national student mobilizations that year garnered national media attention (Orozco 2003).

26. In mid-1969, ejidatarios from El Largo submitted their request for an expansion of their ejido.

27. The loggers and other adults who were not company employees and owned less than 10,000 pesos were eligible (H. Domínguez pers. comm.).

28. Bosques de Chihuahua was granted 1,532 hectares as small agricultural property and protection area for its buildings, installations, and waterworks (DAAC 1971).

29. Meaning "scientifically managed."

30. The so-called Mexican Miracle was a long period of sustained and stable growth of the Mexican economy predicated on a range of internal economic policies instituted after World War II, including, among others, strong support and protection for national industrialization (Meyer 2000; Llerenas 2018). It was a golden age for capitalism in Mexico and contrasted with the economic stagnation and inflation experienced by other Latin American countries at the time (Meyer 2000; Llerenas 2018).

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