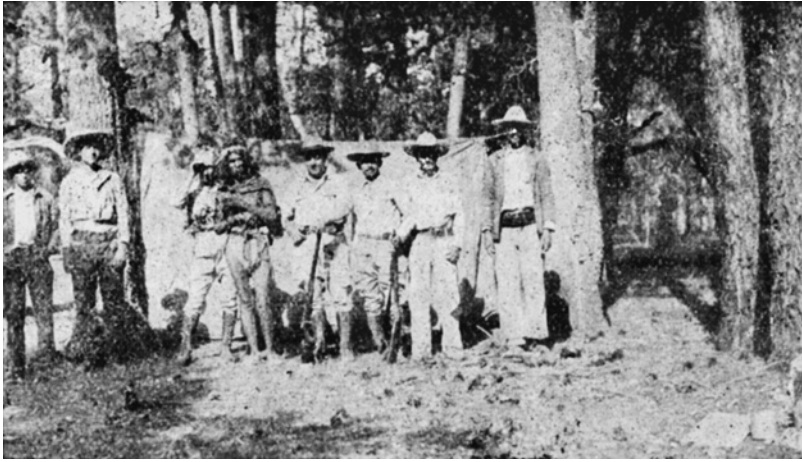


## INTRODUCTION

In 1937 an official from the Mexican forest service visited the rugged Sierra Tarahumara mountains in southern Chihuahua, which even today remain one of the nation's most isolated places. The landscape that greeted Antonio H. Sosa was unlike anything he had seen in central Mexico. He admired the "immensity, beauty, and potential" of the untouched Ponderosa and Montezuma pines that soared skyward everywhere he looked.<sup>1</sup> The area was also home to approximately 33,000 indigenous people known to outsiders as the Tarahumara but who called themselves Rarámuri, or "those who run on foot." Sosa regarded them as the single greatest threat to the region's ecological integrity. In his estimation, the Rarámuri hated trees with a nearly innate passion. He reported that they indiscriminately cleared the best stands of timber to make way for their cornfields or perhaps in the misguided belief that it would help to summon the rains. Since the natives could not be trusted to care for the woods, he recommended opening the region to logging by modern timber companies operating under the watchful eye of forestry experts. "If these woods were subject to a proper management regime," he wrote, "they would never disappear; on the contrary, they would produce immense benefits. However, they cannot endure much longer if they remain abandoned to their present fate, bereft of any oversight and completely at the mercy of the Tarahumara Indians."<sup>2</sup>

Sosa was hardly an impartial observer. He believed that the central Sierra Tarahumara was ripe for commercial logging and that timber companies, which had appeared in northwest Chihuahua four decades earlier, would jump at the opportunity to extend the logging frontier southward. It also seems clear that he misjudged the Rarámuris' ecological impact. Forests in the arid north did not grow as densely as the ones in central Mexico with which he was more familiar, and native people typically made only small clearings around their dispersed family settlements. In other words, Sosa was observing a healthy ecosystem rather than a threatened one.<sup>3</sup> His words reflected a rationalist ideology, typical of his day, in which



**Figure I.1.** The Sosa expedition, 1937. Note the Rarámuri guide in the center. *Boletín del Departamento Forestal y de Caza y Pesca* 3.9 (December 1937–February 1938), 204.

the primacy of scientific knowledge and the desirability of “modern” production appeared self-evidently superior to the “primitive” forms of local knowledge and behavior they displaced.

In time, Sosa came to question some of these beliefs. He returned to the central Sierra Tarahumara in 1965, by which point logging companies had started to extract timber on a commercial scale. He did not like what he saw. To his dismay, the forester witnessed “veritable caravans of trucks heavily laden with timber [that had been] relentlessly extracted from the forests, in a hemorrhage that seemed to have no end.”<sup>4</sup> Far from the carefully managed logging regime he had once envisioned, the timber companies ignored the limits on extraction and indiscriminately cut the best stands of trees. Lumberjacks had also invaded an area designated for an indigenous community through Mexico’s agrarian reform program, where they cut the most valuable timber and left behind erosion-prone rangeland known as *agostadero*.<sup>5</sup> Sosa could scarcely conceal his dismay at the local officials, who not only turned a blind eye to these events but covered them up by filing “ephemeral management plans” with the national forest service. But he did not lose faith in the basic premise of scientific forestry and continued to assert that “a well cared-for forest will never die” as long as conscientious experts could somehow govern the behavior of timber companies and rural populations.<sup>6</sup>

The Rarámuri had a different understanding of these events. Like most native people in Mexico, they did not value the woods in the same way as timber companies, forestry experts, and other outsiders did. Most Rarámuri regarded the woods as the organic foundation of their individual well-being and collective survival. Forests provided construction material, cooking fuel, game and food, and fodder for goats. They constituted a topography of significance by mobilizing collective memories of community, work, and ritual. In other words, forests had particular *meanings* for most native people, although not necessarily an identical one for each individual. Indeed, native people sometimes disagreed about how their forests should be used and by whom. They struggled among themselves (and with their neighbors) for control of certain stands of trees or entire woodlots. In some instances, they over-harvested their commons or remained indifferent to forest fires, invasive species, and other purported threats to the ecosystem. But Rarámuri communities did tend to close ranks when it came to defending their woods from intrusive regulations and unwanted supervision. They ignored or passively resisted the management plans devised by foresters like Sosa and, as one exasperated warden put it, evaded regulations “in an infinite number of ways.”<sup>7</sup> But as with Sosa, their attitudes were subject to change over time. In some cases, native people agreed to work with experts to undertake carefully planned logging projects; in such instances, the Rarámuri began to appear a bit like the modern entrepreneurs that Sosa had championed as the solution to the problem of mismanaged forests.

The Rarámuri had an equally complicated relationship with timber companies. Like most rural people in the early twentieth century, native people in the Sierra Tarahumara realized that their land was—among other things—a commodity that could be bought, rented, or sold, sometimes without their permission. Indeed, some indigenous people regarded commercial forestry as a potentially attractive strategy of collective subsistence. Hundreds of native communities signed rental agreements (often on highly unfavorable terms) that allowed timber companies to log village commons in exchange for cash payments known as stumpage fees. Young men left home to take jobs in timber company work gangs, while older people cut wood on village land and sold handmade railroad ties. Yet many native people resented the politically connected timber companies that appeared unexpectedly, claiming that some new law gave them the right to log wherever they pleased. As one village spokesman wrote on learning that communal woods would thenceforth be managed by a commercial logging firm, “Even though the land no longer belongs to us, don’t we be-

long to it? We are children of this Land, and as children we have a greater right than some Big Shot who can remove its timber just because he has money.”<sup>8</sup> This declaration may have been intended to play on bureaucrats’ preconceived ideas about the relationship between indigenous people and the natural world, but it also reflected a willingness to challenge a moral system that valued nature merely in economic terms. It suggested, in other words, that native people and timber companies may have seen the same trees, but they perceived quite different forests.

For most of the twentieth century, native people, professional foresters, and timber companies were enmeshed in a complicated network of mutual dependence. This interrelationship originated with the 1910–1917 revolution, which gave rise to a rhetoric of social justice that depicted peasant campesinos in general and indigenous people in particular as the rightful heirs to the land. The revolution also spawned a far-reaching land reform between 1917 and 1992 that transferred slightly over 60 percent of the nation’s woodlands to rural communities and made Mexico one of the few nations where the woods belong to the people who live within them. Agrarian reform did not grant rural people the right to manage their woods, however. That task fell to the federal forest service. As a result, Mexico’s woodlands became ecological sites of encounter and social contestation for most of the twentieth century. Villagers argued that possession conferred control of the forests, regardless of what the law said, and often reminded officials up to and including the nation’s president of the government’s obligation to ensure their access to the woodlands. They routinely wrote the authorities to condemn unfair contracts with logging companies, to request that something be done about potentially troublesome outsiders who settled in their midst, and above all to request exemptions from conservationist regulations that barred their access to the forests.<sup>9</sup> Forestry officials often ended up in the middle of these disputes, and they had strong incentives to show at least token respect for rural people’s concerns, in part because foresters grew increasingly aware that they could never manage the nation’s ecosystems without the compliance of those who dwelt within them.<sup>10</sup>

Mexican forests were shaped less by market forces, management policies, or population pressures than by the effects of political negotiation among the people and institutions that vied to determine how, and in whose benefit, they would be used. Just about everyone who staked a claim to the woodland used an idiom that combined ideas of conservation, of

rights and ownership, and of social justice and the national interest. Some acts of claim-making succeeded better than others, however, and Mexican forests became what I will call “political landscapes” whose blessings were rarely shared evenly. Only in the final years of the twentieth century did forests finally begin to lose their political charge, as rural people and forestry experts built on their shared experiences to forge new and, in many senses, healthier relationships within the ecosystem.

## THE LAY OF THE LAND

Mexico’s borders reflect political rather than ecological frontiers. The nation encompasses no fewer than five major bioregions (biomes) ranging from the neotropical rainforests in the south to the megadiverse cloud forests of south-central Oaxaca to the Sonoran Desert. Much of the nation’s topography is dominated by the parallel mountain ranges known as the Sierra Madre Occidental and Oriental, which rise in the far north, then course southward until they meld together in the densely populated volcanic belt of central Mexico. The sierras traverse the semi-arid climate of the north as well as the tropical subhumid climate of central Mexico and encompass some of the most extensive coniferous forests in the Americas. Pine-oak ecosystems predominate, but several others can be found as well, such as the Oaxacan cloud forests and the world’s greatest expanses of tropical coniferous woodlands in the center-west.

Pines are a species of conifer that evolved 300 million years ago and spread into Mesoamerica during the Cretaceous era. Mexico’s coniferous forests did not reach their current dimensions until the most recent ice age came to an end about 13,000 years ago, around the same time as humans arrived in the New World and many species of large mammals became extinct. The warming climate allowed pines, oaks, firs, and other organisms to occupy ecological niches formerly inaccessible to them. At the same time, Paleolithic hunters and gatherers altered the woods by culling certain species of plants and animals and favoring the spread of others. When ancient Americans discovered agriculture around 8,000 B.C.E., they further shaped forest ecosystems by clearing land for planting, harvesting wood for fuel, and burning fields (and the edges of forests) in preparation for planting.<sup>11</sup>

Since Mexican forests and human societies have co-evolved over several millennia, nearly all the wooded landscapes that became an object of



**Map I.1.** Mexico: Geography and Temperate Forests (shaded)

dispute in the twentieth century were anthropogenic spaces rather than pristine ecosystems or “virgin” woodlands. Ancient Americans did not necessarily live in harmony with “nature”: they overcut trees, inadvertently promoted erosion, and probably overhunted and overfished during the hard times.<sup>12</sup> For the most part, however, indigenous peoples studied the natural world and carefully modified their surroundings in order to take what they needed without irreparably harming the land. That can be a tricky proposition in the case of forests, which are ecosystems characterized by relatively tall and abundant groups of trees—often referred to as “communities” in the scientific literature—that interact with each other and other species in intricate ways. Forests can usually withstand slow ecological change, but they are susceptible to rapid degradation when certain “keystone” species disappear overnight due to natural disaster or human intervention. They can regenerate, of course, but second-growth forests usually lack their predecessors’ biodiversity, and they can disappear altogether in the face of permanent conversion to agriculture, severe erosion, or rapid climate change.

Native societies shaped forests to meet their needs, but they were likewise shaped by their natural surroundings. Geography influenced the types of settlements that native people built, the food they ate, and in some

cases the social structures they devised. During the colonial era, forests afforded indigenous people with a means of subsistence and a measure of security from outsiders. These advantages grew more important in the nineteenth century, when some native people shielded themselves from unwanted intrusions by retreating deeper into the mountains. Others chose (or were forced) to use the woods for subsistence by renting or selling it. Still others began to take jobs in the timber sector and as loggers, wood haulers, charcoal makers, or sawmill workers. By the mid-twentieth century, community-based forestry enterprises offered the rural poor a route to economic security, particularly in villages that received land reform parcels, known as *ejidos*, through the land reform program. The economic lure of forestry also drew a small but influential group of non-native migrants to settle in the woodlands, including some who staked their own, often illegitimate claims on the land. Just as forests created opportunities for rural people, their disappearance spelled trouble. As forests were privatized or fell to the axes and, eventually, chainsaws of lumberjacks, the range subsistence options narrowed for people accustomed to using the woods for their own needs.

It is no accident that so many indigenous groups had withdrawn to remote woodlands by the nineteenth century. The Spanish colonists who ruled Mexico until 1821 had claimed the best agricultural lands for themselves and spread throughout the central plateau, the flatlands of the center-west Bajío, and other desirable areas. Most of them considered forests a wasteland, albeit one that provided the wood and charcoal necessary for the operation of colonial silver mines and urban kitchens. Apart from mission friars and the occasional adventurer, few Europeans or mixed-race *mestizos* settled in the wooded sierras, meaning that native people in the highlands had relatively little contact with outsiders. As the anthropologist Gonzalo Aguirre Beltrán put it, woodlands (along with tropical forests and deserts) became “regions of refuge” where indigenous societies found a degree of autonomy from the dominant culture.<sup>13</sup> That began to change during the late nineteenth century, when logging companies, timber contractors, settlers, and ambitious villagers claimed gigantic tracts of woodland. These interlopers made use of business-friendly legislation, such as the 1856 disentailment law that forced native communities to divide the commons and title them as individually owned fee-simple private property. Nevertheless, the woods could still provide some cover. The “abandonment” (to use the preferred term of postrevolutionary leaders) and relative remoteness of forestlands have helped the nation’s largest

remaining indigenous groups—such as the Maya and the Zapotec, among others—to maintain their language and customs up to the present day.

The co-evolutionary process that had characterized rural people's relationship with the forest became increasingly one-sided during the industrial era, which in Mexico's case began in earnest during the 1876–1911 dictatorship of Porfirio Díaz (a period known as the Porfiriato). Growing demand for natural resources spawned a commercial timber industry in the late nineteenth century. Initially, family-owned companies had the market to themselves, but railroads and other corporations with access to foreign capital vastly expanded the scale of production around 1900. Few observers at the time paused to wonder how the commodification of forests might affect native people, but they did sense that industrialization posed a threat to the environment. Mexican scientists were already familiar with the tenets of scientific forestry, which had established itself in Europe by the 1870s. One of its key goals was to develop techniques for “maximum sustained yield” logging, or, in other words, cutting trees at the exact rate that forests could regenerate. European foresters also experimented with ways of “improving” natural forests by managing them like plantations. They proposed to simplify the natural admixture of species, ages, and placement of trees by selectively harvesting them—or clear-cutting them altogether—and then replanting with commercially desirable species in even-aged stands that loggers could harvest more easily. Mexican experts had no illusions about cultivating such “even-aged forests” in their vast and untamed country, but they did aspire to halt the unsustainable extraction of timber and, in due course, to institute sustainable-use management plans. The problem lay in the execution. Not only would politically connected logging companies have to submit to federal oversight, but the locals would somehow need to be taught to stop using the woods “irrationally” and respect conservationist regulations instead. Scientific forestry ignored the subsistence strategies of villagers and in this sense “emptied the forests, symbolically, of its human residents.”<sup>14</sup>

Forest conservation therefore has a checkered history of engagement with rural peoples. The second industrial revolution of the late nineteenth century generated unprecedented demands for wood used in mines, railroads, and construction. Governments (particularly European ones) scrambled to regulate logging and hired cadres of professional foresters who almost invariably ended up in state agencies dedicated to the paradigm of sustained-yield logging. Foresters typically tried to clamp down on villagers' ungoverned use of forests and gave preference to modern



timber companies that had the capital and expertise to exploit resources efficiently and—at least theoretically—in accordance with the law. This pattern repeated itself in places such as the Himalayas, Cuba, Java, and the southwestern United States, where professional foresters brushed aside the locals' ownership claims and branded rural people as backward or intrinsically criminal. Bureaucracies sprouted up that combined the enforcement of often inflexible regulations with educational campaigns that touted the virtues of conservation and rational management.

Villagers typically met scientific forestry with resistance. They flaunted regulations and harvested wood illegally, either for their own use or to sell on the gray market. When caught, they pled ignorance or bribed the wardens to let them off the hook. They mocked professional foresters' pretention to understand the woods better than they did and, in extreme instances, killed wardens, intimidated local authorities, or rebelled.<sup>15</sup> In time, some of them accommodated to the new order. Rural people accepted the principles of scientific conservation they found most compelling, such as the idea that forest removal might harm the aquifer. Some sought to learn how to log their lands sustainably, and the savviest experts tried to strike tentative alliances with these amenable locals.<sup>16</sup>

Mexico was not alone in attempting to transform ecological consciousness in the countryside. For example, administrators in colonial India met popular resistance to scientific management by establishing communities of local authorities who understood the rudiments of scientific forestry and preached the gospel of conservation. Arun Agrawal has suggested that allowing local leaders to manage the woods put them in a position to advocate for practices of sustainable forest management within their villages. In Agrawal's estimation, this transformed rural people into "environmental subjects," that is, people for whom conservation constitutes a "conceptual category that organizes some of their thinking."<sup>17</sup>

Mexican forestry experts never seriously contemplated recruiting local leaders to promote conservation in the nineteenth century, and in any case the tiny cadre of Porfirian foresters emphasized reforestation projects rather than broader social initiatives. That hands-off approach began to change in the early twentieth century. Villagers' demand for the return of communal "land, water, and forests" (as Emiliano Zapata's 1912 revolutionary manifesto put it) was only one trigger of the revolution that broke out in 1910, but the scale of rural mobilization over the course of the next five years ensured that land reform became a signature initiative of the postrevolutionary regime. The constitution of 1917 guaranteed *pueblos*

(villages) enough land to subsist, setting the stage for a massive transfer of property from private landowners to rural communities over the following six decades. The revolution also left an imprint on the science of Mexican forestry, which acquired a distinctly nationalist hue in the 1920s and 1930s as experts criticized the Porfirian practice of granting concessions to foreign companies that allowed for virtually unrestricted access to the nation's natural patrimony. While professional foresters never ceased lamenting what they regarded as peasant backwardness, they nonetheless learned to conform to a postrevolutionary system that extolled *campesinos* (rural folk) as the “favored children” of the revolutionary nation.<sup>18</sup> For the rest of the century, forests remained at the center of competition and negotiation between land reform beneficiaries, forestry experts, and others who ultimately determined which woodlands endured and which were converted into money, political capital, or ash.

#### POLITICAL LANDSCAPES

The forests we see in Mexico today are the embodiments not only of natural processes, but of political ones as well. In the unsettled years following the Mexican Revolution, a combination of social mobilization, economic reconstruction, and mutable policies invested woodlands with new, oftentimes contested, significance. The forests became what I will call political landscapes: geographies made meaningful through the interaction of private interests, collective action, and the often discriminatory application of state power in ways that one social group or more interprets as illegitimate. Political landscapes are places where contention over resources has provoked official intervention and forced historical actors to negotiate with the bureaucrats who ultimately determine which social groups will gain access to the land and its fruits.

As the historian Cynthia Radding has suggested, the meanings affixed to a particular landscape derive from its inhabitants' shared history and understanding of territory.<sup>19</sup> In the case of postrevolutionary Mexico, this territoriality—and even people's understanding of their shared history—were very much in flux. Land reform redeemed the poor and remade the nation's social terrain, even as postrevolutionary social contention encouraged rural people to consider themselves a *campesino* “class.”<sup>20</sup> New development projects and conservationist legislation set limits on who could use the woods and under what conditions. The state—understood as

bureaucrats working at the local and national levels, though not always in harmony with each other—was deeply implicated in all of these processes.

Two distinct but interrelated processes politicized Mexican landscapes during the twentieth century. One pattern began when local conflicts over land and resources provoked government intervention. Authorities routinely arbitrated disputes within villages, between neighboring communities, or among rural people and “outsiders” such as logging companies and unwelcome regulators such as forest wardens. The people on the losing side of these contests typically rejected official dispositions as exercises in political favoritism (which they often were) and either ignored them or continued to press their case through alternate bureaucratic channels. In the second pattern, the government technocrats politicized the landscape by enacting unpopular and oftentimes unenforceable regulations or by destabilizing the regulatory environment with repeated or unexpected changes to the law, both of which introduced tremendous uncertainty into questions of land tenure and access to resources. In either case, the corrupt and interventionist bureaucracies of twentieth-century Mexico increasingly politicized forest landscape because their attempts to regulate the use of resources frequently ended up aggravating local tensions rather than resolving them.

A central argument of this book is that the politicization of forest landscapes represents one of the greatest threats to their ecological integrity. People and institutions have a strong incentive to pilfer an ecosystem that has become subject to a dispute whose outcome resides in the uncertain territory of cronyism, incompetence, or unfathomable decisions by distant administrators. Villagers who believed that officials intended to “illegitimately” place their forests off-limits for logging, for example, sometimes felt compelled to cut as many trees as possible before the regulations could be enforced. In other cases, they set fire to forestlands claimed by neighbors. Likewise, logging companies such as the one Antonio Sosa denounced often tried to clear-cut timber in areas slated for ejidal land grants or inclusion in a national park. In all these instances, the combination of social contestation, shifting regulations, and uncertainty contributed to the politicization of the landscape, and hence to ecological degradation.<sup>21</sup>

The origins of Mexico’s political landscape can be traced to the nation’s first comprehensive forestry code, which took effect in 1926 and underpinned management policies for the next six decades. The law attempted to reconcile rural development with expert management, all in the con-

text of land reform. The historical conjuncture of agrarian populism and scientific management first articulated in the 1926 code was a particularly progressive instance of what I call *revolutionary forestry*, which embedded resource use within the context of social justice *and* scientific management practices. The new law required land reform beneficiaries to obtain management plans from the forest service and establish village-level producers cooperatives, which became the only legal means of logging collectively held property.<sup>22</sup> The cooperatives became an important new source of employment and gave some rural people the means to earn a living by logging their own land. Trained professionals inspected each ejidal logging project and formulated detailed management plans intended to guarantee sustained-yield production. Some villagers embraced the cooperatives and developed close working relationships with federal foresters. Others resented the new policies and cut wood without a management plan, a clandestine strategy that netted only a sliver of the wood's true value.

Revolutionary forestry never had a chance to take root, however. A new generation of political leaders came of age during the Second World War and moved the nation in the direction of industrialization, a managed economy, and political centralization bordering on authoritarianism. New forestry codes passed in 1943 and 1948 suppressed the cooperatives in a bid to make private corporations the engines of economic progress. Federal authorities sweetened the pot by granting forest concessions called Industrialized Forestry Units (UIEFs in their Spanish acronym) to paper mills and timber companies. These privileged firms received exclusive access to timberlands—including woods held by ejidos, native communities, and private smallholders—in exchange for their pledges to improve the transportation infrastructure, to manage resources sustainably, and to expand the social services available to people within their jurisdictions. Few of these concession-holders did any such thing. They rarely employed local populations in appreciable numbers, and nearly all of them became the targets of intense popular resentment.

Programs to encourage rural development did not vanish, however. Cadres of anthropologists, populist foresters, and progressive politicians continued to forge links with rural people in a bid to find “appropriate” forms of local production. Even these projects politicized the forests. Both antidemocratic and populist management regimes treated the landscape in practical terms and construed the woods primarily as a potential source of income, patronage, and employment that might one day pull rural society out of poverty and backwardness. Seemingly democratic strategies were

created *for* but not in collaboration *with* the populations they proposed to uplift, and officials at all levels continued to regard rural people as threats to the environment rather than as its denizens. Most of these developmentalist initiatives converted forests into denaturalized “things” subject to convoluted and often unenforceable laws.<sup>23</sup> The landscape acquired yet another political valence in the middle decades of the twentieth century, when the forest service devised regional management programs that favored private interests and paragonovernmental corporations over ejidos and indigenous communities, administratively stripping rural people of access to their own land. Toward the end of the twentieth century, these centralized initiatives collapsed under the weight of neoliberal restructuring and foresters’ increasing awareness that overregulation had done more to encourage deforestation than to constrain it. Even so, many rural people still regarded the woods as places to defend not only from commercial loggers but from “conquest” by bureaucrats as well.<sup>24</sup>

Rural people came to learn the language and logic of forest management, if for no other reason than to avoid missteps when dealing with the officials who wielded so much power over their woods. Village leaders signed contracts with lumber companies, appraised the regulations that distinguished legal from illegal use of the woods, and met the foresters and other experts who surveyed their property. Extension agents working for the Banco Ejidal (a development bank for the land reform sector) and other entities modeled new techniques of tapping trees, making charcoal, and managing village woodlots. Officials recruited rural folk to participate in didactic public rituals such as Arbor Day celebrations and reforestation campaigns. Before long, villagers learned to deploy the language of conservation and rationality, and of economic development and equity. Some of this linguistic innovation can be ascribed to mimicry, since petitioners often chose words and concepts they thought that bureaucrats wanted to hear. In other instances, it suggests that rural people had begun to engage with new ecological understandings of their landscape. The anthropologist Andrew Matthews has shown, for example, that contact with foresters taught native people in Ixtlán, Oaxaca, “a language of environmental degradation.”<sup>25</sup> Many of them internalized the early twentieth-century idea that the loss of forest cover would reduce overall rainfall (a notion that professional foresters ironically had come to reject) and took pains to protect woods near sources of water or anywhere they felt it might help the local climate. In other contexts, exposure to the logic of sustainability took root as (some) villagers grudgingly accepted the need for management plans,

or learned to use new and less damaging techniques of tapping pine trees, or took pains to fight the forest fires, insect infestations, or overeager loggers that threatened their woods.

It fell to the foresters employed by the federal government (and less frequently by timber companies or state-level bureaucracies) to bridge the abstract policies set down in the distant capital with the complex social landscape of rural Mexico. These middling professionals crafted management plans for small-scale local producers such as ejidos, native communities, and the modest private-property owners often called *rancheros* or *pequeños propietarios* (smallholders). Foresters were supposed to inspect each work site annually to ensure that villagers (or the timber companies that had leased logging rights from a community or ejido) had followed their management plan and, if so, to issue the necessary licenses (*guías*) for transporting timber. Foresters sometimes shirked their duties and ginned up management plans and annual reviews without ever visiting worksites. Some colluded with timber companies to allow illegal logging or accepted bribes to overlook transgressions great or small. On the other hand, these rural experts could sometimes make effective advocates for rural people. While the earliest generation of foresters generally disdained peasants and portrayed them as inherent threats to nature, a handful willingly met with local leaders and became effective advocates for local production, particularly in low-tech activities such as tree-tapping and the collection of deadwood. By the 1970s, a new generation of forestry experts, extension agents, and development anthropologists had come to regard their work as a form of social service and strove to help rural people find the means to log their own land and manage village-owned timber companies.

## THE ARCHIVED FOREST

Forestry officials produced reams of documents. They wrote management studies, annual evaluations, forest-product shipment permits (*guías*), volumetric reports of standing timber, and correspondence with local leaders. These papers made forests legible to officials in Mexico City and linked the forest service to the individuals, ejidos, and corporations subject to regulation.<sup>26</sup> Sooner or later, these documents ended up at the archives located on the south end of the federal tree nursery (now called the *Viveros de Coyoacán*) in Mexico City, where the forest service had its headquarters until the 1990s.<sup>27</sup> The archive includes snippets of information about the organizational structure of the forest service as well as registers of its prop-



**Figure I.2.** The federal forest service offices and archive in Coyoacán, 1937. (Forest service chief Miguel Ángel de Quevedo, with beard, stands in the center.) Private collection of Luz Emilia Aguilar Zinzer.

erty, but the bulk of its documentation comprises management studies and inspection reports prepared by federal foresters between 1926 and 1994. Occasional correspondence between villagers and forest service officials punctuates the otherwise formulaic paperwork.

Like all archives, the repository functioned as a technology of governance that allowed the top tier of administrators in Mexico City to distinguish licit from illicit behavior and to glean the “facts on the ground.” Theoretically at least, bureaucrats could easily determine which villages had received permission to use their lands for logging, tree-tapping, and other forestry projects, right down to one man’s felling a handful of pines to make student desks for the local schoolhouse. This apparent precision masks the archives’ distorted rendering of what actually went on in the countryside. Even by conservative estimates, around half of the logging in Mexico lacked official authorization and hence escaped any documentation other than the occasional citation. Even the archival descriptions of officially approved logging projects are often misleading. Villagers or company foremen routinely bribed wardens to use the same logging permit repeatedly, shipment authorizations were lent out or stolen, and overworked

foresters combatting huge backlogs occasionally copied management plans nearly verbatim from one village to the next.

The archive is hopelessly compromised as a faithful record of events, but it nevertheless constitutes the record of the political landscape in which corporations gained increasingly widespread access to the woods while timber-dependent populations negotiated the shifting regulatory terrain. It describes conflicts over boundary lines and traces the often strained relations between villagers and timber companies. It shows how natural disasters like insect plagues and volcano eruptions shaped the woodlands and the lives of those who inhabited them. Exceptional documents give voice to how an individual, or a group of people, or in some cases an entire community experienced work, scientific regulation, or everyday life in the woods. The archive even hints at the limits of bureaucratic knowledge and official power in the countryside. Its holdings testify to the ways in which historical actors such as forest wardens, pirate sawmill owners, and political bosses mediated between state forestry policies and rural people. In other words, they demonstrate how conflict and accommodation transformed the landscape into an object of contention that linked officials in Mexico City with the people who lived and worked in the woods.

## TOWARD A HISTORY OF MEXICAN COMMUNITY FORESTRY

Around half of all Mexican forests disappeared during the twentieth century. By the early 1990s, the country was losing between 0.75 percent and 1.3 percent of forest cover annually, a pace that threatened to eradicate a third of the remaining forest cover within two decades.<sup>28</sup> Ecosystem destruction on such a scale imposed staggering environmental and social costs. As one of only seventeen nations with “megadiverse” ecosystems, Mexico has an uncommonly high concentration of endemic species, many of which live in microclimates that depend on forest cover. Deforestation also deals a double blow to the global climate. Burning woods to open new land for agriculture releases carbon dioxide into the atmosphere and compromises one of the main ecosystems that transpire oxygen back into the atmosphere. The effects of forest loss are most acutely felt at the local level, however. Many of the world’s most vulnerable peoples rely on forests for their cultural and material survival. The mushrooms, nuts, and small game that still complement many rural people’s diets disappear when forests are destroyed, and dwindling stocks of easily accessible wood can make it difficult to meet basic needs for construction or cooking fuel. Deforestation can



also cause erosion, lower water tables, and undermine the livelihoods of those who make their living in the timber industry. Some specialists worry that it will contribute to local, regional, and international instability as displaced rural people abandon their homelands and join the surging number of climate refugees worldwide.<sup>29</sup>

Deforestation is not inevitable, however, and it has slowed considerably in Mexico since the mid-1990s. Several factors explain this reversal, including the effects of migration out of the countryside and (one suspects) rural people's increasing reticence to venture into the backwoods increasingly controlled by drug cartels.<sup>30</sup> Most important, rural people working with professional foresters in several parts of the country have put into place a collaborative form of resource management known as "community forestry," which has allowed them to take responsibility for sustainably harvesting wood pursuant to management plans tailored to fit local conditions. Placing villagers in control of their own forests has several advantages over more restrictive policies. Impeding villagers' access to the woods or prohibiting logging altogether has not succeeded in Mexico, in part because rural people often ignore disagreeable regulations as unjust and turn to the black market. The forests are too big and the nights too dark for wardens to police every tree or inspect every load of timber, even if they felt inclined to do so. It makes more sense to enlist the help of local populations by giving them greater authority in forest management and turning them into allies in conservation, not least because they own most of the nation's woodlands.<sup>31</sup> The expansion of community forestry projects in the final decades of the twentieth century helped to curtail deforestation, particularly in the ejidos and common lands where people participate in sustainable logging and have come to regard the forests as valuable collective resources.<sup>32</sup>

Most scholarship traces the origins of community forestry in Mexico to changes in federal policies in the final decades of the twentieth century. According to this interpretation, the regulatory shift from a highly centralized regime of federal management to a more supple variant that responded to local needs began to take form during the presidency of Luis Echeverría (1970–1976), whose rural populism responded to growing peasant demands for productive autonomy and a viable means to make a living on the land. Researchers point above all to the collapse of sprawling state bureaucracies in the mid-1980s, when neoliberal reformers dismantled onerous regulatory structures in order to unleash the efficiencies of the open market. In the forestlands, this neoliberal revolution perhaps

unintentionally opened a space for community timber enterprises and eventually reduced the legal, bureaucratic, and normative barriers to local management. The dismantling of the existing regime of state forestry that alienated rural people from their own environment opened the way for a new generation of experts to collaborate with forestland communities by ensuring that they received both the capital and technical assistance to put their woods into production.<sup>33</sup>

This interpretation can only partially account for the development of community management and a growing sense of stewardship. In the first place, it discounts efforts to promote local management that date back to the 1930s, when a handful of federal officials, professional foresters, and other experts encouraged rural people to take control of their ejidal woods. The producers cooperatives of the 1930s represent the clearest example of Mexico's precocious efforts to promote what we now call "community forestry." They established a clear precedent for the idea that carefully managed village logging operations could both provide rural people with a livelihood and create a viable mechanism for sustainable logging practices. Even after the populist heyday had faded, some lonely officials continued to experiment with community management by organizing unions of ejidos with their own logging company or by encouraging alternative uses of the woods, such as pine resin extraction. Later, the National Indigenist Institute (the INI, Mexico's Bureau of Indian Affairs) promoted similar initiatives in Chihuahuan native communities, while federal authorities demanded that the companies with forest concessions put at least some local people on the payroll. Although federal policies between the 1940s and the 1980s certainly did restrict rural people's ability to use their own land, closer inspection reveals that the community forestry of the 1980s can trace its origins to a legacy of local development initiatives, many of which grew out of postrevolutionary social-justice projects.

In the second place, most interpretations discount the long history of indigenous and campesino efforts to reclaim the land. Scholars who focus on federal policy tend to underestimate the historical significance of rural people's struggle to regain control of their forest patrimony, which in many instances laid the groundwork for subsequent experiences of community forestry. Villagers resisted dispossession long before the revolution and ensuing land reform, of course. But ever since 1917, rural people have routinely petitioned for ejido land reform parcels, denounced outsiders' misuse of the woodlands, and tried a variety of strategies, both legal and illegal, to use the woods as they saw fit. Village leaders learned how to

navigate (and evade) shifting legal contexts and the myriad institutions that governed (or prohibited) logging. Land reform beneficiaries policed their property and politicked among each other. Not all of these experiences involved conflict: villagers sometimes learned from and tentatively engaged the foresters and other experts who alighted in their midst. Over the decades, they developed a storehouse of knowledge about bureaucratic routines, forest management, best practices in logging and tapping trees, and the finer points of community organizing.

In this book I explore the entwined history of rural society and of Mexico's state forestry apparatus during the twentieth century. I focus primarily on temperate forests, rather than on the southern tropical ecosystems that began to disappear at an alarming rate around 1970. Scientists and regulators paid little heed to tropical forests until the final decades of the twentieth century because they regarded the more thickly settled pine-oak forests of the nation's central and northern climes as the fulcrums of the nation's environmental balance and as emblems of "natural beauty . . . [and] sites that [were] picturesque, valuable, and healthy."<sup>34</sup> Political leaders placed those areas into national parks, where increasingly urbanized masses could reconnect with nature.<sup>35</sup> Temperate forests captured the imagination of Mexico's scientific elite not only because they resembled the woods in the more "advanced" and "civilized" nations of Europe and North America, but also because their relatively fast-growing conifers held the best prospects for scientifically managed, commercial exploitation.

For most of the twentieth century, professional foresters regarded swamplands and tropical species as commercially undesirable (except for a few precious hardwoods like mahogany) and as unworthy of either scientific investigation or much legal protection. They associated the tropics with economic backwardness, disease, and a discomfiting profusion of exotic species. In the late 1950s, for example, one of Mexico's most prominent foresters described tropical forests as inherently sickly spaces comprised of "trees in a state of decrepitude, or mature trees that are plagued or misshapen, or trees too young to harvest."<sup>36</sup> Unsurprisingly, these experts rarely ventured to the tropics and usually confined themselves to the central and northerly woods that they found more intelligible, healthy, and above all profitable to manage.

The villages and temperate forests at the core of this study are located in the western state of Michoacán and in the far northern state of Chihuahua, which lies on the border with the United States. Although separated by over 1,200 kilometers, they nonetheless share key attributes. Commercial

logging appeared in both states during the 1880s and remains a significant component of their economies today. Land reform movements crested in both places in the 1930s and again in 1970s, ultimately delivering valuable forests to rural communities in the form of ejido land grants, many of which benefited native people such as the Rarámuri of Chihuahua and the Purépecha (sometimes called “Tarascans” by outsiders) of Michoacán. Both states had substantially similar experiences with muscular development projects, such as the construction of hydroelectric dams, large-scale irrigation networks, and generous concessions of forestland to private companies and paragonovernmental organizations. And each state experienced a significant midcentury effort to develop villagers’ capacity to manage their own forests.

The two states also present striking contrasts. Chihuahua is Mexico’s largest state and stretches over a quarter-million square kilometers of desert and savannah at the foothills of the Sierra Madre Oriental, a mountain range so high that snowfall is a common sight in wintertime. Chihuahua’s proximity to the United States made it a favored target for foreign investment in mining, ranching, railroads, banking, and forestry during the early twentieth century. These trappings of modernity only grazed the Rarámuri and the sierras, where the majority continued to dwell in scattered family settlements and follow a semi-nomadic subsistence strategy based on shepherding goats and sheep. Mixed-race (mestizo) outsiders moved into native communities throughout the twentieth century and often staked a claim to the woods—a problem accentuated in the late twentieth century as the region fell prey to drug traffickers. The majority of the region’s inhabitants spoke Rarámuri and observed the Catholic religious calendar, while heeding ancestral structures of authority. In Michoacán, native people acculturated more completely to the dominant mestizo culture over the course of the twentieth century. Like other states of central Mexico, such as Oaxaca, they nonetheless succeeded in asserting a degree of control over their woods that their northern counterparts never achieved. With a larger population but a quarter of the area of Chihuahua, Michoacán had forests that were both less extensive and more susceptible to conversion to agriculture, as epitomized by the avocado boom of the late twentieth century. With less timber to exploit, however, fewer timber companies appeared, and they had less political clout than did their northern counterparts. Rural people also had greater access to potentially sympathetic political allies thanks to the state’s history of peasant mobilizations and a relatively progressive political environment dating back to the 1920s.

Mexico City lay at the epicenter of these political landscapes. As the nation's intellectual hub, it was home to the scientific and technocratic elite, whose members theorized about how to maximize forest production without harming the ecosystem or dangerously provoking the rural masses. As the masters of national politics, Mexico City's power elite not only attended to these shifting scientific debates, but also laid the ground rules that governed the use of resources. Presidents had the authority to order logging bans, to approve forest concessions, and to decide which commercial interests would gain the inside track in the bitter competitions over resources. Indeed, the use of political connections as a business strategy had a heritage dating back to the late nineteenth century, an age when foreigners had the technology and the capital to transform forest ecosystems into commodities.

In this book I divide the social history of Mexican forests into two broad periods. The first covers the era from the 1890s to the early 1940s, or roughly from the moment during the Porfiriato in which commercial logging began its meteoric growth. Although logging slowed during the revolution, it reappeared during the era of populism that culminated with the 1934–1940 Cárdenas administration. In chapter 1 I show how the commodification of forestlands led to widespread dispossession of indigenous villages and set the stage for the appearance of “revolutionary forestry,” which promised rural people a chance to log their own lands under the supervision of expert foresters. The Porfirian authorities encouraged commercial logging (associated in many cases with the construction of railroads) on a scale that troubled the scientific community and brought significant social changes to the native peoples of Chihuahua and Michoacán. In chapter 2 I follow the revolutionary upheavals of 1910–1917 and describe how people who dwelt in the two states' forests came to terms with the ongoing violence. The revolution was in part a backlash to North American economic intervention in the Mexican economy, including the timber sector. Revolutionary nationalism not only animated unrest in the countryside, but also colored scientific forestry's development in the years immediately following the upheaval. In chapter 3 I suggest that foreign domination of the forestry sector and the revolutionary mobilization of the 1910s forced the nation's political and scientific elite to integrate rural people and their forestlands into their plans for the nation's ecological future.

In the second half of this volume I examine the period between the mid-1940s and the early 1980s, when forests became increasingly subject

to what I call the “development imperative,” wherein political leaders concluded that forest resources were too valuable to remain under the control of rural people. The presidents of the 1940s and 1950s favored national development over rural autonomy, which meant finding a way to subsume rural people’s expectations to the broader project of economic modernization. In chapter 4 I trace the origins of this “development imperative” to the Second World War, when new institutional forms gave logging corporations first crack at the woodlands—including those that had already been granted to rural people as land reform ejidos. Nevertheless, villagers pushed back in many places and sometimes succeeded in solidifying their hold on the woods. In chapter 5 I explore two holistic development projects that promised to integrate local production with industrial forestry, both of which had mixed results at best. In chapter 6 I investigate the point at which the regime of state forestry slowly gave way to community control of the woodlands.

I conclude by examining some of the lessons we can draw from the social history of Mexican forests. Villagers’ experience of land reform, the defense of their woods, and contact with forestry experts over the previous decades helped them assume management of forests in the 1990s, the moment at which neoliberalism and the collapse of state forestry began to depoliticize the forest landscape. By the 2000s, community forestry and the expansion of environmental movements placed people in a position to manage their own woods for the first time since the 1930s, albeit under dramatically different circumstances.