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Social Landscaping in the Forests of Mexico:
An Environmental Interpretation of Cardenismo, 1934-1940

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On March 18, 1938, President Lázaro Cárdenas stepped in to end a lingering stalemate between foreign companies and oil workers by nationalizing Mexico's petroleum industry. After he read the decree aloud on the radio, news of the decision swept rapidly through the country and around the world. The date became synonymous with economic independence and revolutionary pride, and many people consider it the pinnacle of a presidency devoted to the redemption of the worker, the peasant, and the underprivileged.¹ The following day, Cárdenas made a far less spectacular gesture, yet one that revealed what we consider to be another, equally pivotal side of his presidency. He rose early, gathered his wife, children, and a few friends, and drove to Nevado de Toluca National Park. His wife later recalled that the president said he wanted to "rest and forget about things for awhile; that he didn't want to know what was going on and didn't want to see any newspapers."² In this planned escape, Cárdenas used a natural landscape as a refuge from the disordered world of city life and national politics.³ Cárdenas himself had ordered the park's creation two years earlier, and his sojourn there reaffirmed the centrality of his

¹ The literature on the petroleum nationalization is too vast to exhaustively list here. Major works include Gustavo Corona, *Lázaro Cárdenas y la expropiación de la industria petrolera en México*, 2d ed. (Morelia: Universidad Michoacana de San Nicolás de Hidalgo, 1996); Adolfo Gilly, *El Cardenismo. Una utopía mexicana*, (Mexico City: Cal y Arena, 1994); Friedrich E. Schuler, *Mexico Between Hitler and Roosevelt: Mexican Foreign Relations in the Age of Lázaro Cárdenas, 1934-1940*, (Albuquerque: University of New Mexico Press, 1998); and Jonathan C. Brown and Alan Knight, eds., *The Mexican Petroleum Industry in the Twentieth Century*, (Austin: University of Texas Press, 1992). For an analysis of the environmental implications of the early twentieth-century petroleum industry, see Myrna I. Santiago, *The Ecology of Oil: Environment, Labor and the Mexican Revolution, 1900-1938*, (Cambridge: Cambridge University Press, 2006).

² Luis Suárez, *Cárdenas: Retrato inédito: Testimonios de Amalia Solórzano de Cárdenas y nuevos documentos*, (Mexico: Política Mexicana, 1986), 269.

³ *Diario Oficial*, January 15, 1936.

program of natural resources that included, but extended far beyond, oil. After a day of picnicking with his family, swimming in the alpine lakes, and hiking in the woods, Cárdenas returned to the city invigorated and refocused to face the nation and the world.⁴

The juxtaposition of Cárdenas's nationalization of a strategic natural resource and his retreat to a newly created National Park encapsulates the sort of relationship between people and the natural world that the president hoped to promote during his 1934-1940 term. Cárdenas did not regard the environment as a mere storehouse of natural wealth that he could place at the disposal of rural communities and Mexican corporations. He also saw it as a privileged site for the promotion of the physical discipline of moral rejuvenation – that is, as a space that had multiple didactic possibilities. He and his followers conceived the environment as a potentially threatened part of the nation's patrimony, yet one whose proper use would ensure national development and social change. Indeed, a fundamental element of his ambitious social and political agenda was to rationalize and expand the use of natural resources *in tandem* with social reform. For a nation that was still overwhelmingly rural, this meant nothing short of reordering the relationship between nature and society through such measures as conservationist regulations, the creation of national parks, and a massive push to cooperativize work in the countryside. Land reform was undeniably a central component of this vision, but it constituted only one part of a far broader process we call "social landscaping" through which the Cardenistas sought to develop and conserve the nation's forests, waters, and land through the concomitant rationalization of the landscape and rural society itself. In a sense, the Cardenistas saw the environment as the setting for an immense public works project that would harness and stabilize

⁴ Amalia Solórzano de Cárdenas, *Era otra cosa la vida*, (Mexico: Nueva Imagen, 1994), 61; Toluca remained a favorite spot for Cárdenas and his grandchildren have fond memories of going there with him, Camila Cárdenas Batel, *Se llamó Lázaro Cárdenas*, (Mexico: Centro de estudios de la Revolución Mexicana Lázaro Cárdenas, Grijalbo, 1995), 130.

the nation's resource endowment, provide labor for thousands of workers, and create the infrastructure necessary to make small-scale campesino production the engine of national development.

Historians are already familiar with the most spectacular components of Cárdenas's political project: an invigorated land reform process that broke the back of the landed elite and gave community land parcels known as *ejidos* to 800,000 rural families; a massive expansion of public education that featured a strong dose of moralizing anticlericalism (and often conservatism as well); state support for unions and other collective organizations linked to the ruling party; and the nationalization of the petroleum and other key industries.⁵ But this essentially political understanding of the Cárdenas administration remains incomplete and partially distorted. Historians have not fully recognized the extent to which these policies entailed a state-managed transformation in the way that the popular classes made use of the environment.⁶

⁵ In addition to the sources mentioned in footnote 1, fundamental works on that touch on these elements of Cardenismo include Alicia Hernández Chávez, *La mecánica cardenista*, (Mexico: El Colegio de México, 1979); Arnoldo Córdova, *La política de masas del Cardenismo*, (Mexico City: Era, 1974); Luis González y González, *Los artifices del Cardenismo*, vol. 14 of *Historia de la revolución mexicana*, (Mexico City: El Colegio de México, 1979); Arturo Anguiano, *El Estado y la política obrera del cardenismo*, (México, Era, 1975); Nora Hamilton, *The Limits of State Autonomy: Post-Revolutionary Mexico*, (Princeton, N.J.: Princeton University Press, 1982); Mary Kay Vaughan, *Politics of Revolution: Teachers, Peasants, and Schools in Mexico, 1930-1940*, (Tucson: University of Arizona, 1997); Christopher R. Boyer, *Becoming Campesinos: Politics, Identity, and Agrarian Struggle in Postrevolutionary Michoacán, 1920-1935*, (Stanford: Stanford University, 2003); Adrian Banjes, *As If Jesus Walked On Earth: Cardenismo, Sonora, and the Mexican Revolution*, (Wilmington DE: Scholarly Resources Books, 1998); Alexander Dawson, *Indian and Nation in Revolutionary Mexico*, (Tucson: University of Arizona Press); Jocelyn Olcott, *Revolutionary Women in Postrevolutionary Mexico*, (Durham: Duke University Press, 2005); and a series of articles by Alan Knight, including "Cardenismo: Juggernaut or Jalopy?" *Journal of Latin American Studies* 23:1 (1994), and "Revolutionary Project, Recalcitrant People," in *The Revolutionary Process in Mexico*, ed. Jaime E. Rodríguez O. (Berkeley and Los Angeles: University of California Press, 1990).

⁶ A few authors have included Cardenismo in longer-term discussions of the environment, including Luis Aboites, *El agua de la nación. Una historia política de México (1888-1946)*, (México: Centro de Investigaciones y Estudios Superiores en Antropología Social, 1998); Myrna I. Santiago, *Ecology of Oil*; Joseph Cotter, *Troubled Harvest: Agronomy and Revolution in Mexico, 1880-2002*, (Westport, Conn.: Praeger Publishers, 2003); Martha Micheline Cariño Olvera, *Historia de las relaciones hombre-naturaleza en Baja California Sur, 1500-1940* (Mexico, Secretaría de Educación Pública, Universidad Autónoma Baja California Sur, 1995); and perhaps most notably Lane Simonian, *Defending the Land of the Jaguar: A History of Conservation in Mexico*, (Austin: University of Texas Press, 1995). None of these makes Cardenismo its primary topic of analysis, however. For a study that does, see

We believe that the Cardenistas consciously initiated the process that we call "social landscaping" that made the rationalization of resource use and social reform two sides of the same coin. They accomplished this by enacting a series of mutually reinforcing social and ecological reforms intended to give rural communities greater control over natural resources but also placed them under the tutelage of experts. At the same time, Cardenistas drafted plans to reorganize and conserve the use of natural resources on a national scale in a manner that would simultaneously provide the raw material that a developing nation required and yet give rural communities a greater share of the wealth this process generated. This article begins by explaining the underpinnings of social landscaping, then turns to a discussion of the initiatives that Cardenistas either initiated or expanded in a bid to rationalize the use of nature and teach rural people to become efficient stewards of natural resources. Finally, we turn to forests, which were particularly privileged sites of social landscaping. More than any other ecosystem in the post-revolutionary landscape, forests seemed to promise that nature and peasant practices could be re-organized in ways that would not only protect delicate ecosystems, but spark development both on a national scale and within some of the nation's most marginalized communities.

Social Landscaping and Cardenismo

At its heart, Cardenista social landscaping was a state-driven process structured around the concomitant goals of modernizing the way that rural people understood nature, creating new efficiencies in the use of natural resources, and maximizing the economic viability of community production in rural areas. The relationship between labor and landscape has not been lost on environmental historians. Richard White has observed that most people historically have

experienced nature by working within it. Workers on the Columbia River, he argues, have tended it like industrial workers tend a machine and thus "knew the river through the work the river demanded of them."⁷ The Cardenista project also put people to work in nature, but the mechanism for doing so came not through the logic of the free market, nor even did it originate with a productivist model as in the United States. The Cardenistas self-consciously intended to create programs that both spurred development *and* sought to teach people about nature in White's sense. That is, they intentionally tried to (re)shape Mexicans' interactions with nature (while achieving other political and economic goals as well). Rather than putting people to work on a particular river, the Cardenistas operated on a national scale. They found new purposes for existing social programs and invented new ones that reached up rivers, down into the soil, and out to the tops of trees. They made unprecedented investments in road building, irrigation and dam construction, and the scientific study of resource use. We are not the first historians to remark on such processes.⁸ Our contribution is to highlight the fundamental co-dependency between initiatives that aimed to organize and mobilize the popular classes, on the one hand, and the effort to rationalize and expand rural people's use of land, forest, water, and mineral wealth, on the other.

Social landscaping had conceptual, operational, and didactic elements. The conceptual framework – deciding where roads should run, how to teach peasants modern agricultural

⁷ Richard White, *The Organic Machine: The Remaking of the Columbia River*, (New York: Hill and Wang, 1995), 4.

⁸ Luis Abortes Aguilar, *La irrigación revolucionaria: historia del sistema nacional de riego del Río Conchos, Chihuahua, 1927-1938* (Mexico City: SEP/CIESAS, 1987); Adolfo Orive Alba, *La irrigación en México* (México: Grijalbo, 1970); Dana Markiewicz, *The Mexican Revolution and the Limits of Agrarian Reform, 1915-1946*, (Boulder, Colo.: Lynne Rienner Publishers, 1993); John J. Dwyer, *The Agrarian Dispute: The Expropriation of American-Owned Rural Land in Postrevolutionary Mexico*, (Durham: Duke University Press, 2008); Sterling Evans, "Yaqui vs. Yanquis: An Environmental and Historical Comparison of Coping with Aridity in Southern Sonora" *Journal of the Southwest* 40:3(1998), 363-396; Wendy Waters, "Re-Mapping the Nation: Road Building as State Formation in Post-Revolutionary Mexico, 1925-1940" (Ph.D. diss., University of Arizona, 1999); Benjamin Fulwider, "Driving the Nation: The Construction of a Road Transportation Network in Mexico, 1925-1960" (Ph.D. diss. Georgetown University, 2009).

techniques, which forests should be logged, and so on – ultimately rested on the chiefs of federal departments involved in agriculture, water management, road-building, national parks, and forestry. Much of the actual operational work to carry these plans fell on a newly expanded network of experts empowered to design and build new public works projects and regulate the use of natural resources. Both the chiefs and the experts doused their programs in a moralizing discourse of didactic politics, adding instruction even where it was not needed or welcomed. And while the project of social landscaping did extend the state's reach into the countryside, a number of factors limited the expansion of bureaucratic power. In the first place, the small number of experts charged with carrying out the project relative to the task at hand limited their effectiveness. In the second, they encountered a popular class mobilized by years of upheaval and organized in institutions capable of making their own claims on state and natural resources, including ejidos, unions, cooperatives, and political organizations of various stripes. Finally, the project of social landscaping had to contend with the oftentimes-harsh ecology of the Mexican countryside, where water flowed either too little or too much, the sun baked the ground, and growing seasons were short and tenuous.

In some ways, social landscaping in Mexico paralleled other national experiences. Environmental historians have observed that some modern states dramatically reshaped nature in the name of efficiency and development, often with devastating implications for their own citizens. James Scott, for example, has shown that twentieth-century “high-modernist” states harnessed nature to buttress their own legitimacy and eradicate complexity and difference. Scott suggests that states' efforts to render legible and simplify physical spaces – ranging from the *Normalbaum* forests of Germany to the collective villages of Tanzania – constituted an integral

part of these states' authoritarian projects to refashion and "improve" society as a whole.⁹ Many of these studies have focused on forests, whose management entails balancing exploitation against conservation and local use against national development. Studies of Java, India, and the United States have shown how state forestry projects can simply shunt aside the basic needs (and local knowledge) of rural people, either in the name of conservation or of scientific management that seeks to maximize a predictable yield.¹⁰ More recently, Arun Agrawal has shown that foresters' scientific efforts to describe, regulate, and manage woods in India established Foucauldian interplay between state authority and self-control that converted rural people into "environmental subjects" who willingly regulated their own behavior in the woods.¹¹ Whether authoritarian or hegemonic, these homogenizing and oftentimes violent processes unfolded at the expense of poor or marginalized groups, particularly those who depended most readily on wresting subsistence from the environment.

The Cardenistas' alignment with at least certain aspects of the social demands unleashed in the revolution and revitalized in the 1930s made such overtly exclusionary and authoritarian practices untenable. Instead, they proposed an admixture of community-centric economic development, political incorporation, and social justice in the guise of land reform and collectivization. To be sure, this project did draw some of its ideas from the same ideological

⁹ James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven, Conn.: Yale University Press, 1999). See also Madhav Gadgil and Ramachandra Guha, *The Use and Abuse of Nature, Incorporating This Fissured Land: An Ecological History of India*, and *Ecology and Equity*, (New Delhi: Oxford University Press, 2000).

¹⁰ Jake Kosek, *Understories: The Political Life of Forests in Northern New Mexico*, (Durham, N.C.: Duke University Press, 2006); Ramachandra Guha, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*, exp. ed. (Berkeley and Los Angeles: University of California Press, 2000); Nancy Peluso, *Rich Land, Poor People: Resource Control and Resistance in Java*, (Berkeley and Los Angeles: University of California Press, 1991). For a study in the same spirit that includes non-forest resources, see Joachim Radkau, *Nature and Power: A Global History of the Environment*, trans. Thomas Dunlap (New York and Cambridge: Cambridge University Press, 2008).

¹¹ Arun Agrawal, *Environmentality: Technologies of Government and the Making of Subjects*, (Durham, N.C.: Duke University Press, 2005).

well as Scott's high modernists.¹² Agronomists, foresters, and engineers regarded local knowledge with contempt in Mexico, just as they did elsewhere—but a critical difference in politics set them apart. These experts often felt drawn to the revolutionary orientation of Cardenismo and hesitated to run roughshod over campesino expectations (insofar as they understood them).¹³ Their "revolutionary" attitude helps to explain why Cardenista social landscaping took place on a more human scale than other, more authoritarian experiments in socio-environmental engineering. The Cardenistas also demonstrated an uncommon degree of ecological pragmatism as they tailored their modernizing development projects to specific communities and particular natural landscapes. In the far southern state of the Yucatán, for example, Cárdenas ordered the nationalization, collectivization, and technocratic management of former-henequen haciendas, in what turned out to be a misguided attempt to rationalize production and channel funds to indigenous communities.¹⁴ Likewise, extension agents in Cárdenas's home state of Michoacán established a community-based turpentine industry that used pine resin collected in community forests.¹⁵ In the deserts of Chihuahua and Sonora, the Forestry Department fostered producers' cooperatives dedicated to wax making from candelilla and cordage from lechuguilla, but watched closely to ensure that collectors did not over-harvest

¹² Scholars have been particularly critical of the Cardenista project of collective agriculture on *ejidal* lands, particularly in the long run. Among the best studies are John Gledhill, *Casi Nada: A Study of Agrarian Reform in the Homeland of Cardenismo*, (Austin: Institute for Meso-American Studies, 1991); Iván Restrepo and Salamón Eckstein, *La agricultura colectiva en México: La experiencia de La Laguna*, (Mexico City: Siglo XXI, 1971); and Raymond Wilkie, *San Miguel: A Mexican Collective Ejido*, (Stanford, CA: Stanford University Press, 1971).

¹³ See, for example, Michael Ervin, "The 1930 Agrarian Census in Mexico: Agronomists, Middle Politics, and the Negotiation of Data Collection," *Hispanic American Historical Review* 87: 3(August, 2007), 537-70.

¹⁴ Ben Fallaw, *Cárdenas Compromised: The Failure of Reform in Postrevolutionary Yucatán*, (Durham, N.C.: Duke University Press, 2001); and José Luis Sierra Villarreal and José Antonio Paoli Bolio, *Cárdenas y el repartimiento de los henequenes*, (Mérida: Gobierno del Estado de Yucatán, 1986).

¹⁵ Report of Jesús Ceja Banajas, October 8, 1941, Archivo General de la Nación, Ramo Político Forestal (hereafter AGN-PF), Caja 2-3, exp. 212, leg. 2; and report of David Riquelme July 7, 1939, AGN-PF Caja 880, exp. 32298, leg. 1.

the plants.¹⁶ In all these cases, experts designed programs that both altered peasant practices and shifted the purpose of nature to meet the goal of social development in a way more consonant with than destructive of local environments.

Historians who have studied twentieth-century social and economic development projects in other national contexts have often found that they depended in the first instance on the deployment of science and technology.¹⁷ Scientists and engineers typically abstracted human economies from their natural surroundings and ignored or misread the ecological functions that supported them. From rubber extraction in Brazil to sugar plantations in Cuba to banana fields in Honduras, a consistent folly of scientific agriculture was its failure to recognize a single crop's place within a nexus of ecological functions.¹⁸ Engineers, policy makers, and scientists in rapidly developing countries often turned to what Paul Josephson has labeled "brute force technology" in a bid to engineer mega-projects capable of harnessing natural resources such as forests, rivers, and fisheries into de-facto factories capable of jump-starting industrialization, often at terrible social and ecological costs.¹⁹ Such initiatives ignored the realities of biological interdependence and relied instead on images of mechanical precision, in which laborers (not people) used resources (not nature) to produce profit (not sustenance). Nature in this industrial vision did nothing more than supply inputs of greater or lesser economic value and often required

¹⁶ "Informe sobre los principales Trabajos desarrollados por el Departamento Forestal y de Caza y Pesca durante el año de 1936," *México Forestal*, 15:1-2 (Jan.-Feb., 1937), 6 and report on the Compañía Ixtlera del Norte, S. de R. L, March, 1938, AGN-PF, caja 152, exp. 870.

¹⁷ In addition to those listed above, see Richard Gruisin, *Culture, Technology, and America's National Parks*, (Cambridge: Cambridge University Press, 2004); and Stuart McCook, *States of Nature: Science, Agriculture, and Environment in the Spanish Caribbean, 1760-1940*, (Austin: University of Texas Press, 2002), especially 77-104.

¹⁸ Warren Dean, *Brazil and the Struggle for Rubber: An Environmental History*, (Cambridge: Cambridge University Press, 1987); Reinaldo Funes Monzote, *From Rainforest to Cane Field in Cuba: An Environmental History since 1492*, trans. Alex Marin, (Chapel Hill: University of North Carolina Press, 2008); John Soluri, *Banana Cultures: Agriculture, Consumption, and Environmental Change in Honduras and the United States*, (Austin: University of Texas Press, 2006).

¹⁹ Paul R. Josephson, *Industrialized Nature: Brute Force Technology and the Transformation of the Natural World*, (Washington: Island Press, 2002). See also his *Resources under Regimes: Technology, Environment, and the State*, (Cambridge, Mass.: Harvard University Press, 2005).

substantial modification or enhancement "by man" – in a both the generic and gendered senses – to reach its "true" potential.²⁰

Monocropping and brute-force technological fixes had their appeal in Mexico as well, but with an important distinction: Rather than promoting an abstract and ultimately inegalitarian concept of "development," Cardenista social landscaping aimed in great measure to promote collective wellbeing.²¹ In comments he delivered at a 1936 exposition in support of the Six-Year Plan, for example, Cárdenas explained the transformation of desolation into productivity for the collective good. He argued, "Enormous extensions of fertile lands, forests, and pastures, lay deserted, unproductive, completely devoid of economic activity. And now, these extensions have been reclaimed by the efforts of man, harnessed by the vigor of pioneers who decided to cultivate their wellbeing in them, contributing at the same time to the wellbeing of all."²² His words foregrounded human action in the equation and placed the labor of rural Mexicans at the center of the nation's transformation into a growing and interconnected whole. In this way, the state provided the plan for reclamation, cultivation, and general productivity as a template for social progress.

In this sense, the guiding metaphor of Cardenista social landscaping depended less on the concept of a machine than that of a garden. Rather than regarding nature as a factory, Cardenistas took into account the web of connections between humans and nature. Government policy-makers sought to strengthen, not to sever, the organic links between families, communities,

²⁰ The historiography on this topic is vast. Much of it can trace its intellectual origins to works such as William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983); Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco: Harper and Row, 1980); and Vandana Shiva, *The Violence of the Green Revolution: Third World Agriculture, Ecology, and Politics*, (London: Zed, 1991).

²¹ For a critique of developmentalist thought, see Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton, N.J.: Princeton University Press, 1985).

²² Quoted in "El Departamento Forestal y de Caza y Pesca en la Primera Exposición del Plan Sexenal" *Protección a la Naturaleza*, 2:2 (October 1937), 20.

nature, and the economy in a bid to build a national project and solidify state power.²³ Reformers conveyed a message of timely planting, patient cultivation, and diligent stewardship of the land, from cornfields to forests. Such a garden relied upon an engaged citizenry to bring abundant harvests and intergenerational rewards. Cardenistas then spread their agenda everywhere they went by fostering links between campesinos (and their children) and nature in discourse and in practice. Indeed, this vision allowed them to treat the revolution itself as an ongoing process of cultivation, one that required tending and pruning as well as interdependent work.

Images of cultivation often appeared in Cardenista discourse. For instance, political leaders occasionally described their actions as “sowing the seeds of Revolution.”²⁴ In a similar vein, SEP sub-secretary Luis Chávez Orozco ordered the creation of “Committees of Tree Cultivators and Tree Protectors” in all primary schools to link the productive development of children and of saplings.²⁵ Discussions of rural schools, including one in Río Blanco, Veracruz, deepened the symbolism between nurseries for trees, and nurseries for citizens. SEP administrators there argued that classes could be held in the open air because, “in addition to adequate alimentation, undernourished children need sun and pure air. Only during exercises like writing should they remain inside a classroom because the knowledge of nature provided among the trees brings the whole world to life in the eyes of a child.”²⁶ Sunshine and water aside, Cardenistas described a nation whose development and growth depended on more than technological fixes. It needed to be rooted in the soil.

²³ For a discussion of how gardens function as repositories of human culture and often hold an exalted place in the national consciousness, see Leo Marx, *The Machine in the Garden: Technology and the Pastoral Idea in America*, (Oxford: Oxford University Press, 2000[1964]), 9. In an important use of the metaphor’s inverse, José Drummond noted that Tijuca Forest in Rio de Janeiro was replanted in the nineteenth century to preserve the urban watersheds, thus reproducing a garden within the city’s machine. José Drummond, “The Garden in the Machine: An Environmental History of Brazil’s Tijuca Forest,” *Environmental History* 1:1 (January 1996); 83-104.

²⁴ “El Plan Sexenal en Guanajuato se realice de manera integral,” *El Nacional*, November 26, 1937.

²⁵ “Comités de protección de árboles” *El Nacional*, August 6, 1937.

²⁶ Gonzalo Vázquez Vela, *Memoria de la Secretaría de Educación Pública, Septiembre de 1938 a Agosto de 1939*, (Mexico: Secretaría de Educación Pública, 1939).

Another cultivation metaphor equated well-tended forests with physical and economic wellbeing. In some cases, officials suggested that forests could serve as a fount of wealth in rural communities. Remarking on a fruit tree planting enterprise sponsored by the Forestry Department, for example, one forester argued that the “intense cultivation of fruit trees now being propagated will clearly create new sources of employment that will provide real stimulus for the campesino masses.” Likewise, the Department declared in 1938 that that it had revamped its management policies in order to “develop the economic capacity of the campesino class.”²⁷ In other cases, the Cárdenas administration equated forests with public health itself. Forestry Department employees called for the establishment of local nurseries alongside streets and playgrounds and described them as “true belts of beauty, promoting health and hygienic recreation, transforming the sad and desolate aspects of our cities, and promoting civic culture.”²⁸ The Department facilitated reforestation efforts by building a system of tree nurseries that provisioned schools, ejidos, roads, and parks around the country. By 1939, foresters, horticulturists, and bureaucrats had established an orderly confederation of ninety-two national nurseries. This system disseminated more than three million plants from two main nurseries in Mexico City, Viveros de Coyoacán and Nativitas, to scores of local propagators.²⁹

The Cardenista “garden,” then, was not a decoration but a fully reorganized society in which rural communities could use nature to shake off the stigma of marginality and take on a more active role in the economic life of the nation. It divided the landscape into different spaces dedicated to the production of particular goods and products based both on the needs of the

²⁷ “Impulso a la arboricultura frutal en Tepoztlán, Morelos” *Protección a la Naturaleza*, 2:10 (June 1938), 26-27; Miguel Ángel de Quevedo, “Resumen de los principales trabajos desarrollados por el Departamento Forestal y de Caza y Pesca, durante el año de 1937,” *México Forestal* 16: 1-3 (January-March 1938), 90.

²⁸ Ángel Roldán, “Necesidad de los Viveros de Árboles” *Protección a la Naturaleza*, 2:10 (June 1938), 5-8.

²⁹ Miguel Ángel de Quevedo, “Síntesis de las actividades del Departamento Forestal y de Caza y Pesca desde el año de 1935 hasta el actual,” *México Forestal* 17:7-12 (1939), 55-58.

nation and the particular qualities of the land. It emphasized lines of connection—like roads, warehouses, nurseries, and irrigation works—to strengthen the reliance of rural functions on each other. Like the a well organized garden, the productivity of Cardenista social landscaping was not measured only in terms of short-term output; it was intended to cultivate rural prosperity over the long term as well.

Forests, as we have already seen, constituted particularly privileged sites of Cardenista social landscaping. While most scientists regarded forests as uniquely vulnerable ecosystems and sometimes imagined a woodlands unencumbered by peasant communities, most of them regarded the (tightly managed) peasant forestry sector as eminently practical. Nor did they advocate for a strict preservationist regime that would put an end to all production and return the forests to an imagined state of pristine wilderness. Such a goal was both "absurd and unscientific," as forester José de la Macorra told his audience at to the 1930 Inter-American Conference on Agriculture, Forestry, and Animal Industry in Washington, D.C. "It's absurd to develop a source of wealth and then not use it; and it's unscientific to try to contradict the principles of Economic and Forestry Science, whose goals [*postulados*] are to obtain from the woods (just like any other resource) an even, annual, and maximal production."³⁰ Inspired in part by American forestry reformers such as Gifford Pinchot, Mexico's scientific elite aimed to systematize the use of forest resources to reach a sustained yield that provided the greatest possible benefits to the economy.³¹

³⁰ José de la Macorra, "El Problema Forestal," *México Forestal* 8:10 (October 1930), 242.

³¹ This was also the predominant view in the United States at the time. Classic works on the topic include Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920*, 2d ed. (Pittsburgh: University of Pittsburgh Press, 1999 [1959]), especially 27-48; and, from a different perspective Roderick Frazier Nash, *Wilderness and the American Mind*, 4th ed. (New Haven: Yale University Press, 2001 [1967]), particularly 82-131.

Yet there remained the problem of how to achieve such a goal in the context of an expanding land reform that placed vast forests into the hands of rural people, whose productive and intellectual competencies provoked no small apprehension among forestry experts. The most prominent worrier was Miguel Ángel de Quevedo, a distinguished, European-educated civil engineer and the nation's foremost advocate for forest conservation, whom Cárdenas somewhat incongruously selected to lead the newly created Department of Forestry, Fish, and Game.³² Quevedo regarded rural productive practices as primitive at best and savage at worst.³³ He did not discount the possibility that education might teach rural people "to respect and love trees," but he usually advocated for a more direct approach of "fortress conservation" that denied rural people access to the woods.³⁴ Before taking the helm at the Forestry Department, Quevedo repeatedly proposed that forests be exempted from the land reform altogether. At a minimum, he believed that Mexico should follow the example of more "advanced nations, where the villagers [*pueblos*] in forests are legally defined as minors" and he set his sights on running a forest service that managed production in accordance with "a technical plan of organized management."³⁵

Cárdenas never approved of Quevedo's proposal to reduce campesinos to wards of the state, but he did embark on a course of scientific paternalism that placed the Forestry Department

³² Departamento Forestal y de Caza y Pesca, which we will refer to for simplicity's sake as the Forestry Department.

³³ Simonian, *Defending the Land*, 91-93, and 107-108. On Quevedo's conservation, see also Emily Wakild, "'It Is to Preserve life, to Work for the Trees:' The Steward of Mexico's Forests, Miguel Ángel de Quevedo, 1826-1946," *Forest History Today* (Spring-Fall, 2006), 4-14. On Quevedo's political development during the Porfiriato, see Víctor Cuchí Espada, "Las circunstancias de un tecnócrata. Miguel Ángel de Quevedo y el fin del ayuntamiento capitalino," Munich Personal RePEc, Archive Paper 1790, 1988.

³⁴ Miguel Ángel de Quevedo, "Principales trabajos llevados a cabo por la Sociedad Forestal C. L." *México Forestal*, 4:1-2 (Jan.-Feb. 1926), 16. For an example of the ways indigenous community leaders translated some of these scientific concerns, see Andrew S. Mathews, "Unlikely Alliances: Encounters between State Science, Nature Spirits, and Indigenous Industrial Forestry in Mexico, 1926-2008," *Current Anthropology* 50:1 (2009), 75-101. Dan Brockington developed the concept of fortress conservation to describe the policy of removing rural people from a game preserve in Tanzania, in the name of ecological preservation; see Brockington, *Fortress Conservation: The Preservation of the Mkomazi Game Reserve*, (Bloomington: University of Indiana Press, 2002).

³⁵ Miguel Ángel de Quevedo, "La preservación de los bosques comunales y ejidales," *México Forestal*, 8:4 (April 1930), 77.

in a position to manage all the nation's woods on public, private, and ejidal land.³⁶ Led by Quevedo, the Forestry Department set out to categorize forests into regions where (scientifically regulated) production could take place while setting aside areas as preserves of one sort or another. The Forestry Department also required rural communities to form producers' cooperatives intended to keep the wealth generated from logging inside the community and facilitate supervision of local production. Like the other projects of social landscaping, these initiatives made surprisingly little distinction between the environment and those who lived in it. It constituted part of a startlingly ambitious vision whose dimensions this article can only begin to sketch out. We begin with an overview of some of the most noteworthy efforts to transform society and the landscape before returning to the forestlands for an idea of how technocrats tried to implement their project, at times with the consent of rural people but other times over their vehement objections.

Land Reform and Rural Development

Land reform was the signature project of Cardenismo, and the one with which scholars feel most familiar. Cárdenas famously expanded the redistribution of land mandated by Article 27, and by the end of his administration 14,680 ejidos accounted for 15 percent of the national territory, encompassing around a fifth of the nation's forests and nearly half of the land in agricultural production.³⁷ Haciendas ranging from the patrimonial estates of southern Yucatán to the highly capitalized agribusinesses of large northern states gave way to a patchwork of ejidal land reform parcels. The partition and redistribution of private properties ran up against all sorts

³⁶ On Quevedo's paternalism, see Christopher R. Boyer, "Revolución y paternalismo ecológico: Miguel Ángel de Quevedo y la política forestal, 1926-1940," *Historia Mexicana* 57:1 (July-Sept., 2007), 91-138.

³⁷ Mexico, *Segundo Censo Agrícola-Ganadero de los Estados Unidos Mexicanos 1940*, (Mexico City: Secretaría de la Economía, 1951), 11.

of technical and social hazards, and a number of scholars have shown that rushed schedules, local intrigue, and occasional lapses of foresight lay just behind the agrarian reform's technocratic façade. The abortive experiment in collective farming on the soviet model proved particularly ill-conceived and wreaked havoc on the henequen fields of Yucatán, Michoacán's *tierra caliente*, and the Laguna region in Coahuila and Durango. Even so, historians and many campesinos have tended to recall the Cárdenas land reforms as the most enduring legacy of postrevolutionary social justice.³⁸

Yet land reform went well beyond the transfer of property to rural communities or even a project to change the nation's agricultural base. It was also a project to forge an entirely new postrevolutionary landscape. The cartography of Cardenista Mexico was sketched out by surveyors and land reform officials, and filled in by the efforts of civil engineers, agronomists, foresters, extension agents, and others. The rationalizing goals of land reform were not lost on the more technically minded. Contemporary analysts – or at least those with the greatest faith in the state's capacity for promoting social change – regarded land reform as a project to build a peasant agricultural sector that made the most efficient use of natural resources, promoted rural development and most importantly met the nation's demand for a reliable and inexpensive supply of food. For example, Nathaniel and Sylvia Weyl portrayed land reform as a project to improve peasant productivity. They optimistically predicted mechanizing collective ejidal labor would "solve the social and technical problems of agriculture" that the nation confronted.³⁹ In 1936, Cárdenas himself described the ejido both as a vehicle of social justice and "a system of

³⁸ See for example Arturo Warman, *Y venimos a contradecir. Los campesinos de Morelos y el estado nacional*. (Mexico City: INAH, 1976).

³⁹ Nathaniel Weyl and Sylvia Weyl, *The Reconquest of Mexico: The Years of Lázaro Cárdenas*, (New York and London: Oxford University Press, 1939), 198 and 171-227 generally.

agricultural production" designed to feed the nation.⁴⁰ From this point of view, it made little sense to distinguish between the organization of ejidal labor and the organization of the productive landscape. One could not proceed without the other.

The land reform process literally functioned to fix boundaries of community. The central documents needed to formally establish an ejido included a formal census of the potential beneficiaries and a survey of the lands. Naturally, these elements fit with the Cardenista vision of a planned and well-organized landscape free from property disputes and inefficient uses of land. The imperative to create a bounded and planned productive environment went far beyond simply turning land over to peasants. The Cardenista state intended to provide – or foist upon – rural communities the credit, planning, communications, and irrigation necessary to make rural communities maximally productive, mapped and planned.

The cover of the 1941-42 almanac of the Agrarian Department took this rationalizing aesthetic to its logical extreme. It portrayed a huarache-clad campesino surrounded by lush corn stalks and preternaturally large sheaves of wheat, gazing delightedly at an idealized map of an indigenous rural community. This was far from the first time that cartographers had used maps to reify the country and depict it as a more-or-less isomorphic national space comprised of interlocking parts.⁴¹ But this map was different. It did not purport to describe a real place. Instead, it represented an idealized picture of how a rural community *might* spatially organize its use of the land. The "map" included ejidal and common lands, an irrigation district, grazing land, a communal forest, and a national park. It set each district off from each other using a distinct color and straight-lined boundaries that figuratively distinguished one form of land use from

⁴⁰ Cited in Jesús Silva Herzog, *El agrarismo mexicano y la reforma agraria. Exposición y crítica*, (Mexico City: Fondo de Cultura Económica, 1959), 409.

⁴¹ Raymond B. Craib, *Cartographic Mexico: A History of State Fixations and Fugitive Landscapes* (Durham, N.C. & London: Duke University Press, 2004); Michael A. Ervin, "Statistics, Maps, and Legibility: Negotiating Nationalism in Revolutionary Mexico," *The Americas*, forthcoming.

another –or, in the case of the collective ejido, one labor regime from another. The landscape became an orderly mosaic, more an expression of an environmental aesthetic than an actual topography. Although this image appeared two years after Cárdenas left office, the particular division of agricultural zones (forestlands, collective ejidos, national parks) reflected the idealistic Cardenista template. The problem lay in its realization.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Cover from the 1941-1942 *Memoria del Departamento Agrario*. Author's Collection.

Land reform and social landscaping meant maximizing ejidal production. That, in turn, implied regimenting Mexico's notoriously capricious supply of water. Like the land reform itself, irrigation projects responded in part to popular expectations. The Zapatistas had famously included access to water – along with access to land and forests – in the Plan de Ayala, and some *ejidatarios* sometimes demanded water rights as part of their land grant.⁴² The administration of President Plutarco Elías Calles did undertake a project of "revolutionary irrigation" in historian Luis Aboites's terminology, but not necessarily in the ways that villagers had hoped. Calles established the National Irrigation Commission, or CNI, in 1925 and charged it not with providing water to ejidatarios but instead to smallholders and colonists in the agriculturally modernizing north, in a bid to foster small scale, independent farmers and to break hacienda owners' grip on precious water resources. A new law passed in 1929 complemented the irrigation legislation and gave the federal government jurisdiction over rivers, dams, and other water sources. Drawing upon Article 27 of the constitution, its authors gave bureaucrats access to water for CNI-sponsored irrigation projects as well as land reform parcels. It also invested federal authorities with the right to regulate water use and, if *utilidad pública* (a formal declaration of public interest) demanded it, authorized federal authorities to expropriate water rights and privately owned hydraulic works.⁴³

The Cárdenas administration took advantage of this institutional legacy to construct a water policy that would both rationalize resource use and put it at the service of the land reform. The administration prioritized small-scale irrigation projects for lands that grew corn and wheat,

⁴² María del Refugio García (Zitácuaro) August 25, 1921 to Múgica, Archivo Histórico del Centro de Estudios de la Revolución Mexicana "Lázaro Cárdenas," A.C. (Jiquilpan, Michoacán), Papeles de Francisco J. Múgica, Documentación Sueta (hereafter ACE-FJM-DS), 13/4145; Mariano Valdés (Zitácuaro) November 19, 1921 to Múgica, ACE-FJM-DS 13/4243. For the Chichimequillenses' ongoing aggressiveness, see *Amparo* of Francisco Rodríguez Hernández, December 16, 1924, AHPEM-Amp. C 335 E s/n.

⁴³ Aboites Aguilar, *La irrigación revolucionaria*, 32-53. See also Aboites, *El agua de la nación*, 103-11; 135-7.

which, as Enrique Ochoa has shown, various federal dependencies began to warehouse and distribute to the cities.⁴⁴ Moreover, the Department of Agriculture began work on five large-scale dam projects during the Cárdenas *sexenio*, although most of them did not come on line until the 1940s.⁴⁵ As Mikael Wolfe has recently explained, engineers voiced grave doubts about the potential of the Palmitas dam to collect enough water to guarantee a predictable, year round source of irrigation. Nevertheless, the twin lures of rationalizing the flow of the untamed Nazas and of supporting the massive land reform in the Laguna swamped any objections.⁴⁶ The appeal of inscribing the land with curtains of concrete that promised to give ejidatarios a predictable source of water for their crops simply fit too well within the emerging environmental aesthetic.

Rationalizing ejidal production, even with irrigation, would not matter much unless rural producers or, more commonly, the various agencies devoted to purchasing, warehousing, and distributing food had a way to bring agricultural and forest products to market. President Calles had established the Federal Road Commission in 1925 and charged it with planning and building the first highways radiating outward from Mexico City. Seven years later, the commission came under the more centralized control of the Public Works Department (CNOP) and was simultaneously charged with empanelling local *juntas* of state and local officials and

⁴⁴ Enrique C. Ochoa, *Feeding Mexico: The Political Uses of Food since 1910*, (Wilmington, Del.: Scholarly Resources, 2000), 42; 53-54.

⁴⁵ These included two mega-projects: the El Palmito dam on the Nazas in the Laguna; and the Azúcar dam on the San Juan in Tamaulipas. The three smaller dams were the Solís dam on the Lerma in Guanajuato; the Sanalona dam on the Tamazula in Sinaloa; and the Angostura dam in the Yaqui Valley of Sonora. See Orive Alba, *La irrigación en México*, 82-83.

⁴⁶ Mikael Wolfe, "The Revolutionary Emblem of a Nation: Narrative, Ecology, Technology and politics in the Making of 'La Laguna,' Mexico, 1850-1992" (Ph.D. diss., The University of Chicago, 2009), 305-360. For discussions of how dam-building fit into broader agrarian development projects, see Dwyer, *The Agrarian Dispute*, 134-35.

stakeholders in road construction (such as logging companies) to map where roads would travel.⁴⁷

Following a familiar pattern, the Cárdenas administration adapted the existing road building project to its own political cartography. It ratcheted up the rate of construction, and built over 4,470 kilometers of improved and unimproved roadways, a 39% increase over the previous six-year average.⁴⁸ The Road Commission consciously shunned the use of labor-saving machinery in a bid to keep employment figures high, and nearly 50,000 day laborers (*jornaleros*) worked on a highway crew at one point or another.⁴⁹ And while local officials in the 1920s typically expected rural communities and ejidos to volunteer for work crews in an updated version of the colonial *faena* (unpaid service labor), the patrimonial flavor of such demands made them less palatable during the Cárdenas administration, leading some local authorities to seek federal funds for road building.⁵⁰ In other areas – particularly in the woodlands, where work could not proceed without logging roads – the expansion of rural production created new demands for villagers to provide free or discounted labor on work gangs. Indeed, the boilerplate language of the presidential orders handing ejidos over to communities in the forestlands expressly required them to cooperate in the construction of roads.⁵¹ Paid or unpaid, rural people felled trees, graded roads, and dug run-off channels as they etched cobwebs of logging tracks, dirt roads, and highways onto the landscape. To civil engineer Mauricio Gálvez de Forbes, the arrival of roads ever deeper into the countryside "is the mark of a profoundly redemptive

⁴⁷ Ing. Mauricio Gálvez de Forbes, "La Dirección Nacional de Caminos" *Caminos* 1:1 (Jan-Feb. 1938) 9-29; Waters, "Re-Mapping," 47 -69.

⁴⁸ Waters, "Re-Mapping," 81.

⁴⁹ Leonel R. Pacheco. "[La DNC] Tercera Sección," *Caminos* 1, no. 1, 63-73, p. 69.

⁵⁰ See a condensed version of this argument in Waters, "Remapping Identities: Road Construction and Nation Building in Postrevolutionary Mexico," in Mary Kay Vaughan and Stephen E. Lewis, eds., *The Eagle and the Virgin: Nation and Cultural Revolution in Mexico, 1920-1940*, (Durham and London: Duke University Press, 2006), pp. 226-29.

⁵¹ See e.g. Ing. Gustavo Martínez Baca to Agrario Consultivo de Michoacán, January 4, 1937, Archivo de la Secretaría de la Reforma Agraria (Morelia), leg. "El Asoleadero."

enterprise to unite, amalgamate, and incorporate the segment of society that lives in the deepest valleys and most inaccessible mountain ranges with the life-giving torrent of civilization. It is, in sum, to build the nation [*hacer patria*]."⁵²

Gálvez was one of a small army of experts who regarded the rationalization of the landscape as their patriotic duty. The Cárdenas *sexenio* represented a high-water mark for the training and deployment of a technocratic elite who considered the systemization of natural resource use as a means to deliver rural folk from poverty and stoke the engines of national development. The federal government rapidly developed an infrastructure for the production of specialized knowledge, creating what turned out to be short-lived research institutes in biotechnology, forestry, and research agronomy.⁵³ Scientists completed the nation's first agrological map of national soil samples, began to teach courses on agricultural genetics, and created thirteen experimental farms to improve seed varieties.⁵⁴ They deployed this knowledge not only in the public works projects and research institutions, but more importantly in the countryside itself.

While agriculture and forestry (and the roads and irrigation works that supported them) received by far the most sustained attention, political leaders and landscape experts also turned their eye to fauna on land and sea. The Department of Forestry, Fish, and Game put a substantial premium on the management of wildlife, mostly by trying to enforce and update existing regulations on hunting. It reformed the hunting season of some species in a bid to rebuild their populations and banned eagle, bear, and deer hunting altogether. Even so, the official in charge

⁵² Ing. Mauricio Gálvez de Forbes, "La Dirección Nacional de Caminos" *Caminos* 1:1 (Jan-Feb. 1938): 9-29, p. 26.

⁵³ Antonio Arellano Hernández, *La institucionalización de las ciencias de la agricultura en México* (Toluca: Universidad Autónoma del Estado de México, 1991), 53.

⁵⁴ Alfonso González Gallardo. *Introducción al estudio de los suelos. Su formación, características y clasificación, con algunas anotaciones de agrología aplicada y un primer intento para agrupar los suelos de México entre los grandes grupos del Mundo*, (Mexico City: Banco Nacional de Crédito Agrícola, S. A., 1941), 295-302; Ochoa, *Feeding Mexico*, 42; Arellano, *La institucionalización*, 56-64.

of the program lamented the lack of resources and his inability to control North American poachers.⁵⁵ Yet, as in other areas, management did not mean complete prohibition. New roads opened up areas with rich hunting grounds to tourists, particularly in the northern states, and various private hunting and fishing clubs developed relationships with the Department.⁵⁶ Indeed, the active conservationist Aldo Leopold took numerous hunting trips to Chihuahua and Coahuila in the 1930s and remarked on the abundance of big game he found there.⁵⁷

The Cardenistas put more emphasis on the study and regulation of fisheries. A Japanese expert, Yoshiichi Matsui was hired and charged with studying and rebuilding fish populations in Michoacán's fabled Lake Pátzcuaro.⁵⁸ In tandem with the efforts to build sustainable populations, Department employees hoped to change cultural perceptions of fish and proclaimed the "need to teach the public that consumption of fish is not damaging to your health, but to the contrary, quite beneficial."⁵⁹ The Forestry Department also inherited oversight of a commercial and scientific expedition to lay the groundwork for developing Pacific coast fisheries, in which two Japanese trawlers netted fish while Mexican officials onboard studied their habitats and began mapping out ecological zones on the western seaboard.⁶⁰ To the Forestry Department, such a project would allow it to expand its network of fishing cooperatives whose members would "take advantage of the practical lessons given by the Japanese experts, as well as the advice and instruction of the Department... to familiarize themselves with systems of rational exploitation"

⁵⁵ "Acuerdo que establece las vedas par alas diferentes especies de caza," *Diario Oficial*, January 24, 1938; "Trabajo presentado por el C. Juan Zinzer, en la tercera conferencia norteamericana de la fauna silvestre," *Boletín del Departamento Forestal y de Caza y Pesca* 10 (March-May, 1938), 99-105.

⁵⁶ Juan Zinzer, "La caza como atractivo del turismo" *Protección a la Naturaleza* 2:2 (October 1937), 12-15.

⁵⁷ Aldo Leopold, "Conservationist in Mexico," *American Forests*, (March 1937), 118-120;146.

⁵⁸ Yoshüi [sic] Matsui, "Proyecto de los trabajos que se desarrollarán en la estación linmológica de Pátzcuaro, Mich," *Boletín del Departamento Forestal y de Caza y Pesca* 6 (January-March, 1937), 145-48.

⁵⁹ "Alimentación con pescado y mariscos" *Protección a la Naturaleza*, 2:2 (October 1937), 16-19 and "Consuma usted Pescado. La alimentación con peces y mariscos da salud al hombre y mantiene su vitalidad juvenil purificando la mente y el espíritu" *Protección a la Naturaleza* 3:1 (September 1938), 16.

⁶⁰ "Exploraciones técnico-comerciales de pesca realizadas en 1937." *Boletín del Departamento Forestal y de Caza y Pesca* 9 (December, 1937-March, 1938), 71-85.

of marine resources.⁶¹ Not all of these initiatives bore fruit. Matsui's efforts to develop the pearl industry of Baja California, for example, nearly destroyed coastal oyster beds before World War II put an end to the nascent scientific collaboration with Japan.⁶²

The administration also developed new uses for the rural credit bank (the Banco de Crédito Agrícola) inherited like so much else from the Calles regime. The bank had done little to support the land reform program since its founding in 1926. In its first years of operation, it primarily lent to highly capitalized producers and directed less than a fifth of its loans to ejidatarios and producers' cooperatives. Most loans went to landowners with a proven ability to repay, particularly the owners of the rich, well-irrigated land around Delicias, Chihuahua and in La Laguna. In 1935, the Cárdenas administration tried to end these practices, breaking it into two separate entities: the Banco Nacional de Crédito Agrícola (BNCA), theoretically charged with providing credit and technical assistance to irrigation districts and private landholders and the Banco Nacional de Crédito Ejidal (BNCE) dedicated, eponymously, to ejidal development.⁶³

Although the Secretary of Agriculture had its own, much-touted extension service, in practice the development banks took the lead and sent the agronomists and community development specialists to the ejidal sector. More than any other single group, these experts brought a Mexican gospel of efficiency to campesinos, not all of who appreciated the gesture.⁶⁴ Joseph Cotter has shown that agronomists and other bank-affiliated experts sketched out a new productive regime, dismissing local knowledge in favor of modern techniques and attempting to replace subsistence agriculture with commercial production more in line with the demands of a

⁶¹ "Informe de las exploraciones de caracter científico y técnico-comerciales..." *Boletín del Departamento Forestal y de Caza y Pesca* 8 (September-November, 1937), 163.

⁶² On the pearl industry, see Micheline Cariño and Mario Monteforte, "Fisheries and aquaculture of nacre and pearls in the Gulf of California," in Christopher R. Boyer, ed., *Contested Landscapes: Essays on the Environmental History of Modern Mexico* (Tucson: University of Arizona Press, forthcoming).

⁶³ *Primer censo agrícola-ganadero* (vol. 1, p. 23); Nathaniel and Silvia Weyl, 193-204.

⁶⁴ For criticisms of the bank, see Bantjes *As If*, 142; and Gledhill, *Casi Nada*, 33-34; 97.

modernizing agricultural sector. As the key advocates of Cardenista rational resource use, they tried to cajole campesinos into growing new crops and varieties, and ultimately to create a mental map more in tune with the idealized cartography of production depicted above.⁶⁵ These efforts rarely succeeded, yet they did plant the seeds of a rationalizing and legible productive aesthetic. This was particularly true in the forests, where bank officials, often in uneasy alliance with foresters, struggled to bring rural folk in line with their vision of a well ordered and scientifically managed ecosystem.

Social Landscaping in the Forest

Cardenistas saw the entire countryside as their canvas for social landscaping, but they viewed forests as particularly crucial repositories of natural wealth that, if properly managed, would provide a wide array of services. If agriculture drew its wealth out of the environment, in the view of these scientists, forests returned resources—particularly water, fertile soil, and a stable climate—that agriculturalists depended upon. Not only were forests able to provide stability, forests were owned, managed, and used by diverse social groups. This made forests culturally and economically ripe for many types of investment and full of potential productivity. The Cardenista vision made accommodations for private landowners and industrialists, and they did not forgo aims of larger profit and resource exploitation, but reserved the greatest benefits for rural communities. Cardenistas did not propose to wrest the forests away from peasants but instead to reform their inhabitants, to keep them on the land, and to supervise them with rational scientists, foresters, and other experts.

Driven by the twin demands of agrarian reform and national reconstruction, Cardenistas resolved to include forests in the process of social landscaping, alongside irrigation districts and

⁶⁵ Cotter, *Troubled Harvest*, 81-123.

well-communicated and funded agricultural plots. Cardenistas used forests as the setting for such policies because of the intergenerational scale of forest growth, the vast decline in forest extensions despite the prodigious woods that remained, and the benefits—from lumber, to turpentine, to shade—that forests provided to other rural enterprises. Reformers aimed at rehabilitating lands (particularly those around Mexico City) through reforestation projects and rescuing the remaining woods from inefficient squander. Such efforts rang with a religious tone and reinforced the connections between human life and forests. As one forester explained, “[since] the forests make possible and nurture our brief existence on Earth, we are obligated, after venerating and blessing them, to conserve them. If we do not, it would be suicidal.”⁶⁶

Cardenista policies sought to develop a resource economy by keeping people on the land while maintaining the integrity and quality of the landscape itself. Forests stood as environments in which government-sponsored social development, long-standing campesino communities, and nature’s endowments could be made to work together for the advancement of each. The large, high-quality extensions of forests, their hybrid ownership patterns, and the ambivalence of prior management to their import poised forests for reforms. This new and integrated approach to forests transformed a resource neglected for generations and previously given over to rapacious timber companies, into a foundation of socially oriented reforms. In doing so, it reinforced the idea of forests as special—indeed spectacular—places and expanded the state’s size and scope by rooting federal power directly in the landscape.

Significant barriers stood in the way of Cardenista foresters' holistic vision of continuously productive woodlands capable of benefiting rural producers and the nation together. Scientists fulminated about denuded mountainsides along roadways and adjacent to major cities

⁶⁶ José V. Cardoso, *Legislación: Necesidad de autonomizar la dirección forestal y de caza y pesca*. AGN: LCR, 554, 501.11, n.d.

equally as much as the extensive stands of unused, "virgin" woods that, in the words of one early twentieth century forester were "composed of trees past their maturity and with manifest tendencies of decline."⁶⁷ Above all, scientists worried that campesinos lacked the knowledge and intellectual capacity, i.e., the *cultura*, to play a role in the formation of a rationalized landscape. Foresters such as Quevedo recoiled at the "irrational" way that peasants used the woods, thanks to "the lack of care and absence of respect that they bestow on the trees, the damage that they frequently cause, and their disastrous logging that leads to the destruction of forests."⁶⁸ Forestry experts were particularly eager to expand protected districts, such as national parks and forestry reserves, beyond the reach of the commercial loggers and ejidatarios, who they believed disregarded legal strictures on forest use and tended to "carry out logging in a ruinous fashion."⁶⁹ Yet these foresters recognized that the land reform had progressed too far to turn around. Moreover, foreign corporations still held some of their Porfirian-era concessions, and indigenous communities still possessed significant, though often degraded commons. To confront this on-the-ground reality, foresters elected the next-best thing: a carefully planned landscape that assigned a proper use (or non-use) to forests, depending on their ecological characteristics.

The logical starting point was to survey the woods on a national scale and categorize them into discrete zones based on scientific guidelines about which land should be placed into sustainable production and which should remain strictly protected or exempt from logging altogether. Foresters initially hoped it would be possible to create a comprehensive inventory and then systematically classify protected areas. They recognized that such an undertaking would

⁶⁷ "Plan de explotación del predio denominado Chihuahua Lumber, Bocoyna," Oct. 1928 AGN-PF, Chihuahua, 152-3.

⁶⁸ Miguel Ángel de Quevedo, "Exposición sobre la conveniencia de dar el desarrollo debido al aprovechamiento de las riquezas forestales y de caza y pesca," *Boletín del Departamento Forestal y de la Caza y Pesca* 10 (March-May, 1938), 4.

⁶⁹ Roque Martínez, "Cooperativas Ejidales," *México Forestal* 8:4 (April, 1930), 68.

take years of work, and it ultimately turned out that the lack of accurate records posed "special difficulties" that kept the Office of Statistics of Forests, Fish, and Game from ever completing such an inventory during Cárdenas's term in office.⁷⁰ The best alternative, according to Quevedo, was to put an immediate end to the practice of including forestlands in ejidal grants to communities that had no ability to use them and that "upon receiving forests, hurry to cut them down, leading to the degradation [*miseria*] of nearby agricultural lands." Quevedo suggested that the President turn nearly all forests directly over to the Forestry Department as forest preserves, which would allow only well-ordered and scientifically sound logging. "Well-ordered management," he wrote the President, "would assure the perpetual conservation and even improvement of forest reserves." He argued, moreover, that state-managed logging would provide jobs for lumberjacks working as federal employees and a source of income for the national coffers for years to come.⁷¹

When this approach, too, proved impractical, forestry experts had to settle for a more *ad hoc* approach that conformed to the political, administrative, and technological strictures of the day. Beginning in the earliest months of the Cárdenas administration, the Forestry Department began categorizing forests based on a combination of their social and ecological function: those in ejidos and indigenous commons subjected to rules for collective use; private lands and some federal property slated for commercial logging; and a welter of protected areas including Forest Protection Zones (greenbelts around urban areas), reforestation districts (*zonas vedadas*), watersheds, national parks, and forest reserves intended to allow for the regeneration of commercially valuable or threatened species of trees. The Department of Forestry systematically

⁷⁰ "Las superficies forestales de la República," *Boletín del Departamento Forestal y de la Caza y Pesca* 8 (Sept.-Nov., 1938), 127.

⁷¹ Miguel Ángel de Quevedo, "Consideraciones sobre reservas forestales necesarias para resolver el problema forestal nacional presentadas al C. Presidente de la República por el Jefe del Departamenteo Forestal y de Caza y Pesca," *Boletín del Departamento Forestal y de la Caza y Pesca* 6 (Jan.-March, 1938), 106; and 105-15 generally.

documented the creation of many of these protected zones, yet it had little ability to patrol them effectively or, in some cases, even to inform people living within them about the new regulatory regimes. Nor could it keep close track of the forests within ejidal boundaries. The result was a largely imagined regulatory cartography intended to promote conservation and rational use but which ultimately was only comprehensible to the experts who created it.

Most of the laws that the Cárdenas administration needed to create a more rational and legible forested landscape were on the books well before 1934 as forestry legislation had grown up during the previous four decades.⁷² Following a familiar trajectory, the first preservationist laws appeared on the books during Porfiriato, expanded in the years before the revolution, and then peaked during the revolutionary period. The Calles administration passed the comprehensive Forestry Code of 1926 that proposed to "regularize the conservation, restoration, propagation, and utilization" of forest resources and in this way, the Forestry Code created a set of rules that allowed foresters to manage all woodlands—private, public, communal—throughout the nation.⁷³ The regulations had provisions to protect ecosystem functions associated with forests, including air filtration and water capture, and hence afford a measure of protection against desiccation and soil erosion. The Code also allowed the state a stake in profitable forest production through taxes, permit fees, and user payments for forestry studies. The law required all logging operations from modest *ejidal* cuts to large-scale commercial ventures, to file satisfactory plans for harvest before they could receive logging permits. Perhaps most notably, it contained a stipulation (barely enforced until Cárdenas took office) that made producers' cooperatives the only entity legally able to carry out logging operations on communal lands,

⁷² In addition from the examples described in the previous section, see the case of oil discussed in Alan Knight, "The Politics of the Expropriation" p. 90-128 in Jonathan C. Brown and Alan Knight eds., *The Mexican Petroleum Industry*, (Austin: University of Texas Press, 1992), 94.

⁷³ Secretaría de Agricultura y Fomento, Dirección Forestal y de Caza y Pesca, *Ley forestal y su reglamento*, (Mexico City: Talleres Gráficos de la Secretaría de Agricultura y Fomento, 1930), 6.

including ejidos. In theory, such a requirement cut outside contractors out of the loop and guaranteed that villagers themselves would both perform the work and reap the benefits of small-scale forestry.⁷⁴

The Forestry Code antedated and became deeply embedded in another legal platform that reinforced Cardenas's reforms: The Six-Year Plan for National Development, 1934-1940. Written at a December 1933 convention in Querétaro, this plan outlined broad proscriptions from the Constitution of 1917 and reformed them into a succinct document. Rather than a radical new platform, it served as a convenient nexus for jostling an ambitious repertoire of ideas and proposals. Each facet of the comprehensive plan (there were twelve in total, ranging from public health and the army to agriculture and forestry) formed a component of the Cardenista program. Its exuberant tone challenged professionals to reclaim both the richness of the land and the sanctity of working people. Drafted hastily but encapsulating an ideal of rational social design, the plan scripted the conceptual aims for the Cárdenas *sexenio* and continuously surfaced to justify any proposal. Remarkably, Cárdenas did not deviate dramatically from the Six-Year Plan; what made him exceptional was how closely he followed it and how often it served as a guide.⁷⁵

On the whole, the Six-Year Plan promised to redesign the Mexican environment by stabilizing federally managed natural resources. The designs for social landscaping within the plan epitomized the era's overwhelming commitment to political empowerment. At the meetings where the plan was composed, the authors, consisting of representatives from each state, explained the need to create access to resources and foster avenues for profit from those resources. Luis León, an agrarian engineer from Chihuahua and Secretary of the PNR, articulated the responsibility the state had to campesinos. "The Revolution has produced *ejidal* agriculture,

⁷⁴ *Ibid.*, and Boyer, "Revolución y paternalismo ecológico" 105.

⁷⁵ Luis Javier Garrido, *El partido de la revolución institucionalizada (medio siglo de poder político en México): La formación del nuevo estado 1928-1945*, (Mexico: Siglo veintiuno editores, 1982), 165-166.

as well as small- and medium-scale agriculture," he declared. "[T]hese campesinos are the bedrock [*sostén*] of the revolutionary government, which has the obligation to create an economic system that protects and supports them."⁷⁶ The trick then was making sure that increased access also resulted in increased productivity and this quickened the need to root the masses in their rural setting. León deepened his argument, explaining that the issue of land restitution was "not simply to give out land, but rather to provide to the people [*pueblos*] who need them."⁷⁷ Redistributing lands alone was not sufficient to reach the PNR objectives because neither people nor farms lived in isolation. The final Declaration of Principles signed by all delegates at the conference explained the ways it was necessary to employ natural resources to move the country forward. These were spelled out in three clear steps: increased production; conservation of the "sources of wealth"; and a more equitable distribution of income among producers.⁷⁸ In these ways, the Six-Year Plan and its formulation underwrote structural reforms and a transition into an era of a discretely managed economy with the promise that the new system would provide a fairer manner of exploitation for land and laborers alike.

Remaking the Woods

Despite its egalitarian rhetoric, the regime of forest regulation that grew up during the Cárdenas administration promoted paternalistic assumptions, dismissed campesino expertise, and privileged foreign techniques—and sometimes even species—over native practices.⁷⁹ The process of social landscaping reinforced a tutelary role for state, one that educated citizens to be

⁷⁶ Partido Nacional Revolucionario, *Memoria de la segunda convención nacional ordinaria del partido nacional revolucionario*, (Mexico City: La Impresora, 1934), 81.

⁷⁷ Partido Nacional Revolucionario, *Memoria*, 115.

⁷⁸ Partido Nacional Revolucionario, *Memoria*, 298-299.

⁷⁹ Leopoldo Zorilla H., "En memoria del apóstol del árbol Don Miguel Ángel de Quevedo," *Suelo y Agua* 3:39 (July 1956), 1-5.

loyal to the nation (not the Church, the *patria chica*, or any other allegiance) and one that strengthened the superiority and supposed benevolence of federal centralization, all of which resonated more with foresters than with campesinos.⁸⁰ Even so, rural people developed complex and occasionally collaborative orientations toward the reforms. At times, they drew the forestry bureaucracy into local conflicts and obliged officials at the local and national level to serve as reluctant arbiters over the use of forests. At other moments, rural people invoked the Cardenistas' own populist rhetoric to demand access to woods that foresters wished to keep out of production. Despite these points of friction, the rural people – or at least a privileged subset of them – discovered some elements of the regulatory regime they could adapt to their needs. Foresters began during the Cárdenas administration to enforce the requirement that ejidal timber producers form producers' cooperatives, creating new, village-level streams of revenue (not to mention new opportunities for patronage). Even national parks in some cases offered tangible benefits to peasant communities.

Conflicts over forest resources were commonplace in the woodlands, and foresters occasionally found themselves in the middle of longstanding local disputes even if they objected to *either* side's treatment of the forest. One of the Forestry Department's first initiatives was to place restrictions on the use of fallen wood, a measure of the discrepant understandings of the rights associated with forests. For instance, conflicts erupted near Amecameca, Mexico State when local powerbrokers complained that campesinos abused woodlands by collecting both live and dead branches, and campesinos responded that forestry restrictions left them destitute without conceding that they violated the laws. Foresters responded by critiquing both sides by accusing the local authorities of corruption and suggesting that “campesinos only engage in

⁸⁰ Nora Louise Hamilton, “Mexico: Limits of State Authority” *Latin American Perspectives* 2:2 (Summer 1975): 81-108, p. 85.

immoderate destruction.”⁸¹ In other regions, campesinos buttressed their respective causes with ecological arguments, such as the claim made in northern Mexico State, “this chaparral will not grow any more, let us harvest it,” and pleas of desperation, like those from Veracruz that argued, “we have no other alternative than to scrape a living from the forest to feed our families.”⁸² Despite their oppositional rhetoric, increased regulation caused these complaints to be funneled through the Forestry Department, which diffused the intensity of each conflict by discouraging direct confrontation among disputing parties. By becoming the arbiters, Department employees also gained the chance to gather knowledge of local social conditions in the forest and with it, insight into what rural people hoped to gain from working in the forests.

Foresters did not always dismiss campesino concerns out of hand and try to force communities to fit into a Procrustean map of the woodlands. They occasionally jettisoned their management plans and compromised with rural communities. For example, in July of 1937, Asunción Juárez and other residents of the community of Santiago Cuauhtenco within the Iztaccíhuatl–Popocatepetl National Park, wrote a local forestry official, Francisco Varela Camacho, to justify their continued use of their communal forests located inside the park. Although foresters reminded residents that the park’s woods remained unavailable for use, these restrictions alone did not change campesino practices. Juárez began his request by explaining that “in order to sustain our local economy, we have been making charcoal from the dead wood belonging to our community.”⁸³ He went on to justify the breaking of forestry regulations by explaining that an intermediary, Loreto Rodríguez, had approached him and offered to buy his

⁸¹ For a few representative examples of the numerous such complaints, see: Forestry Inspections, Amecameca, Mexico, Contemporanea Archivo Histórico, Archivo Histórico Municipal Amecameca (hereafter CAH-AHMA) Asuntos Forestales 1931, Volume 123, file 4.

⁸² Antonio Galindo, Ricardo R. García, Catarino Reyes, to President Cárdenas, Santiago Yauntilalpan, Huizquiluca, Méx. August 26, 1935, AGN-LCR 554 exp. 501/11; Gonzalo Lavallo to President Cárdenas, October 7, 1935, Nautla, Veracruz, AGN-LCR 555, exp 501.1/87.

⁸³ Asunción Juárez, et. al., to Francisco Varela Camacho, July 5, 1937, CAH-AHMA, Asuntos Forestales 1937, vol. 159, file 22.

charcoal. Juárez admitted that he knew it broke the law to sell his goods to a *contratista* (broker) who had not made the charcoal himself and whose trade merely encouraged villagers to illegally cut wood within the park. But Juárez justified his behavior by saying that his community limited its own production and in any case had no other source of income. Juárez's community suggested that foresters should accommodate peasant woodcutters because they made artisanal rather than industrial use of the woods, as they had done for generations. By denouncing Rodríguez as a scheming outsider with no regard for the forests and arguing that his community had the capacity to conserve the forests, Juárez placed his community in an elevated position that afforded them greater considerations from the Forestry Department.

Rather than validate the foresters' calls for conservation over the campesinos' pleas for survival, Cárdenas compromised, and the conciliation reinforced rather than reduced federal authority. In response to claims like Juárez's, Cárdenas altered the existing law to allow the minimal use of forest products and he granted small-scale charcoal makers the right to continue selling on a very limited scale. This reform allowed destitute people to harvest wood products as long as the weekly value did not exceed fifteen pesos. If they were found marketing forest products in excess of this amount, the wood seller and the consumer were both subjected to fines.⁸⁴ The compromise then came between campesinos who wanted small, sustainable use and foresters who had declared universal conservation; the enterprising outsider with no ecological leanings was the party both agreed to exclude. Cárdenas changed the regulation and management of forests to incorporate campesinos' customary use while still reinforcing the overarching orientation of the scientific reforms. The ways Cardenistas utilized—and refined—the legal

⁸⁴ This exception did not apply to campesinos that already belonged to forestry cooperatives. See discussion of this reform for the municipality of Amecameca, Mexico, in CAH-AHMA, Asuntos Forestales 1937, vol.159, file 22. Also, Presidential Decree, *Diario Oficial*, June 30, 1937.

framework that oversaw forests demonstrated the flexibility of the Cardenista programs and the ways multiple layers of forest production fit into larger national development plans.

While regulations, protected zones, and usage plans established what seemed to be an authoritarian framework for social landscaping in the forest, in practice Cardenista forest management often depended on the cooperation of popular groups recruited to help move the conservationist program forward. For instance, the Campesino Union Urusulo Galván, part of the national campesino league, asked each member to plant a minimum of three trees every year.⁸⁵ Likewise, the Amigas del Árbol, a women's auxiliary association within the Mexican Forestry Society, organized festivals promoting conservation and visited schools teaching the benefits of gardens, parks, and forests.⁸⁶ While plantings consistently played a propagandistic role performing collective support for forests, cooperatives had an economic function more connected to the productive goals of the period. Forests and trees were repeatedly used as symbols of the revolutionary garden tended by people from many levels of society.

Above all, the ideal of harmonizing the interests of management and local production became clear in the Forestry Department's push to establish the legally mandated producers' cooperatives in all ejidos and indigenous communities that possessed forests. Foresters and extension agents working for the Banco Ejidal organized nearly 500 cooperatives by 1937. At the end of the Cárdenas administration three years later, 866 cooperatives operated throughout the nation.⁸⁷ The cooperatives served as a mechanism through which federal agents could fix a community onto a natural resource, intertwining their fates. The logic of this system held that stitching groups of forest workers together ameliorated local competition and forced campesinos

⁸⁵ Adalberto Cortés, Liga Nacional Campesina "Úrsulo Galván" AGN-LCR 554 exp. 501/8.

⁸⁶ "La legión de custodios del árbol y la de amigas del árbol: protectoras de la ciudad de Veracruz," *Mexico Forestal*, 12:2 (February 1934), 36-37.

⁸⁷ *Boletín del Departamento Forestal y de Caza y Pesca* 12 (September-November, 1938), 5; *Memoria del Departamento Agrario, 1941-1942*, 232.

to work together toward the same ends, which inevitably would increase national production. A cooperative sought to make campesinos responsible for the use and conservation of local woodlands if they could prove their willingness and ability to meet scientific standards.⁸⁸ By doing so, state sponsored forestry cooperatives were investments in not only communities, but also in natural systems.

However, not all forestry cooperatives had access to viable stands of timber, nor were they necessarily conflict free. In communities with access to healthy forests, cooperatives created new subsistence opportunities and allowed some communities to put the landscape into production. The village of Tepoztlán, Morelos, for example, was virtually abandoned during revolutionary fighting. When the population returned in the late 1920s, it was prepared to take advantage of the nearly 20,000 hectares of communal lands ranging from ragged cliffs and heavily wooded hillsides to agricultural fields. Upon this diversified geography, the federal government applied its preferred *leitmotif* of federal administration: the fields became an ejido, the woods a cooperative, the cliffs a national park. The pre-existing condition of these resources supported the success of these activities, particularly the cooperative. Villagers, who could draw upon the communal forest stands to successfully manufacture charcoal in earthen ovens, could earn relatively large incomes from their participation in the cooperative, which assured them access to purchasers. The producers' cooperative managed the forest and produced charcoal for the lucrative Mexico City market. Created as the first cooperative in Morelos in 1926, at its peak in 1934 the cooperative had 500 members and produced 1,209,430 kilos of charcoal for the year. A skilled producer with a well-located kiln could manufacture enough charcoal to earn fifty

⁸⁸ Christopher R. Boyer, "Contested Terrain: Forestry Regimes and Community Responses in Northeastern Michoacán, 1940-2000," in *Community Forests of Mexico: Managing for Sustainable Landscapes*, David B. Bray, Leticia Merino-Pérez, Deborah Barry, eds. (Austin: University of Texas Press, 2005), 27.

pesos a week, before deducting cooperative fees.⁸⁹ The development of this market and its reliance on the already extant trees helped transformed an activity previously stigmatized as a last resort for the destitute, into a profitable community industry.⁹⁰

Yet, local disagreements perforated the façade of cooperation as lucrative gains fed the very sort of village intrigue that federal officials had hoped to overcome. The conflicts abounded. Tepoztecos disputed with neighboring communities over the legal forest boundary.⁹¹ Villagers not adept at making charcoal detested the arrival of outsiders, from as far away as Toluca, who came to burn their forests. Many people in the community bridled at the idea of cutting trees for charcoal, and local politics became divided around the question of how rapidly the cooperative should exploit the woods and how such profits should be distributed. Some members hid clandestinely manufactured charcoal in their houses and discretely attempted to avoid cooperative permits, fees, and restrictions. Others denounced these clandestine and subversively individualistic activities.⁹² Nevertheless, the cooperative did provide an important source of employment despite the unfortunate politicization of its local administration. Most dramatically, the cooperative's president, whom many accused of political bossism (*caciquismo*) and other shenanigans was dragged from his home and executed in 1935.⁹³ Thus, while cooperatives provided a means of subsistence for villagers, they could also reinforce local power networks and cronyism, with predictably dire social and ecological implications.

⁸⁹ Claudio Lomnitz, *Evolución de una sociedad rural*, (México: Fondo de Cultura Económica, 1982), 105 and 172-175.

⁹⁰ Oscar Lewis, *Pedro Martínez: A Mexican Peasant and His Family*, (New York: Vintage Books, 1967), 122.

⁹¹ Calixto Betanzos and Abundio Ramírez to Oficial Mayor de la Comisión Nacional Agraria, September 22, 1932, Archivo General Agrario, 24/3131, file 11.

⁹² Ernesto Pérez Sánchez, Biblioteca Exconvento INAH Tepoztlán: Archivo Histórico de Tepoztlán, Ramo Penal 1938.

⁹³ Oscar Lewis, *Life in a Mexican Village: Tepoztlán Restudied*, (Urbana: University of Illinois Press, 1951), 163-165; Claudio Lomnitz, *Evolución de una sociedad rural*, (México: Fondo de Cultura Económica, 1982), 159-176 generally.

While foresters created cooperatives to rationalize production, some communities viewed them as a means to avoid logging bans or official conservation regimes. Members of the Eslava Cooperative, in the northern state of Mexico bordering on the Distrito Federal, complained directly to the President that they were fined for cutting live wood at their own discretion in their community woods. The Department of Forestry representative, Manuel Corona responded that even though they were authorized as cooperative, they had to abide by restrictions on certain activities. If they were not following rules, they would have to pay the fine.⁹⁴ Eslava's neighbors in the Ocuilan Cooperative also insisted that their designation as a cooperative prioritized their use of forest resources. They claimed their cooperative's rights superseded the September 1936 declaration of a national park encompassing the forested peaks, Cumbres de Ajusco, adjacent to their forests. After more than a year of complaints by both foresters and cooperative members, including accusations of sabotage through arson, the forestry delegate invited many local residents to a meeting. Despite the unequal power relations, the community members left the assemblage with a decree authorizing them preferential rights for all down wood, a contract with a paper factory for purchasing that wood, full access to any fruits produced by the park trees, and jobs available in vigilance, among other benefits.⁹⁵ In this resolution, foresters gained local support and greater ecological protection. The national park decree was amended to contain a peripheral zone (already within the park) specifically targeted for reforestation.⁹⁶ As these examples demonstrate, campesinos joined cooperatives at least in part because they expected preferential treatment. Although they did not always receive it, cooperatives provided a collective entry point to participate in and shape the emerging social order.

⁹⁴ J. Manuel Corona to Delegado del centro, November 28, 1936, AGN-PF 1430, 21/1872, exp. 2.

⁹⁵ J. Manuel Corona, December 16, 1937, AGN-PF 1430 21/1872, exp. 2.

⁹⁶ Miguel Dehesa to Quevedo, April 7, 1936, AGN-PF 1384, legajo 1, 1/157; Cumbres de Ajusco, *Diario Oficial*, April 15, 1938.

Control over forest resources seemed to rest on pitting one social group and one type of use against another. Sometimes it did so, yet, the vigorous reinvestment created by the vast environmental reforms of the period did not hinge on the issue of conservation versus exploitation or forester versus campesino. For one, conservation, for the federal foresters, did not mean letting the woods lie idle but putting them to more rational—and also more lucrative—uses. Rational uses included ecosystem services such as anchoring soil from erosion, stabilizing the climate, providing shade and habitat, and the like, but rational use also meant better marketing, processing, and distribution of lumber and fostering more value added products (like turpentine over kindling).

Adding economic value to the landscape also meant reforming how citizens viewed nature and valued certain locales. Cardenistas had a broad vision of what productive landscapes might look like. They created national parks to serve as idealized spaces for urbanites to viewing, experience, and worship nature, for example. But national parks were the end of a spectrum of conservation measures, not seen as competing with or eclipsing inhabitants, but enhancing the awareness and recognition of valuable, fragile places. As federal administrators became explicitly involved in the governance of rural production they entered into an obligation towards ecological custodianship. Thus parks became expression of scientific rigor but also unambiguous repositories of rural heritage and nationalist grandeur. Forestry Department employees took symbolic natural landmarks and ensured their management. All mountains higher than 3,000 meters became parks and many of the forested zones around cities from Monterrey to Toluca were studied and declared. More unique geographical features—including caves, cliffs, and waterfalls—also received attention. Places with historical significance and a natural setting, such as Cerro de las Campanas and the legendary Baños de Netzahualcoyotl, or sites named for

famous historical figures, Alexander von Humboldt, Benito Juárez, and even La Malinche, entered into the pantheon of nationalized landscapes as parks. By fixing the national park title to communities and landmarks the Cardenistas embedded their physical authority but retained room to maneuver around fragmented political decisions.

Cardenistas envisioned parks as prestigious, but neither pristine nor passive. Their planners attempted to engage local communities in lauding the landscape and rehabilitating degraded spaces. Reforestation campaigns, understory clearance, and mistletoe extirpation programs aimed at park residents sought to reform them without removing their labor. Park decrees initially prohibited extractive activities within park boundaries, but contestations by residents caused planners to reform those restrictions. Park planners even fully recognized and advocated the need for roads, picnic tables, parking lots, and even kiosks to sustain tourist interest. For example, park employees proposed extending the road from Cumbres de Ajusco to the nation's first national park, Desierto de los Leones, to create a corridor to both foster tourism and prolong better vigilance between the forests.⁹⁷ By developing certain "improvements," officials' commitment to conservation perpetuated an ethic of forest protection (a park for all citizens) while it also facilitated development (a road built by local labor). Foresters also universalized arguments for the parks and reinforced the global appeal of forests' "natural landscape," claiming that international tourism not only gave people access to a healthy environment but also "enhances the friendship and commerce between nations."⁹⁸ Parks could put Mexico on the world stage, but there was no imagining a wilderness here. Like other forms of forest regulation, parks allowed Cardenistas to perpetuate the remaining forests and the communities around them by recognizing their interdependence. By 1940, Mexico had more

⁹⁷ Salvador Guerrero to Cosme Hinojosa, January 20, 1937, AGN: SARH 1430, 21/1872, exp. 2.

⁹⁸ "La creación de los parques nacionales y sus ventajas" *Boletín del Departamento Forestal y de Caza y Pesca*, 14 (March-May 1939), 62.

national parks than any country in the world because national parks coincided with broader federal aims to refashion the landscape and reform society.⁹⁹

Conclusion

Cardenista social landscaping took place in actual, physical space. It resided not in the realm of abstract, ideological, or rhetorical expressions but rather in specific ecological and social *places*. By 1940, a tour around the Mexican landscape revealed a mosaic of roadways, irrigation districts, dams, ejidos, producers' cooperatives, forest reserves, and national parks that showcased the depth of the Cardenistas' ecological footprint. The landscape transformation occurred unevenly across the country as certain locales proved more readily adaptable to rural production and reformers designated different uses for the natural world. Among the diversity of geographic sites, forests proved especially relevant caches of wealth because of their capacity for renewal, symbolic importance, and multiple possible uses. For example, the President wanted parks that all citizens could visit but he also envisioned rural people's livelihoods taking place in the forests. Charcoal and lumber cooperatives developed to solidify communities' rights to communal property by putting them to sustainable use. Some forests even went into production as sources of pine resin for turpentine. In the Cardenista vision, the environment never became a bourgeois oasis. It was emphatically a place where rural people lived and worked. They envisioned it as a focus of reform, a repository of value, and a site of empowerment rather than a passive, uniform, and stable backdrop.

If the rural landscape proved the location for Cardenista social change, rural society was the primary focus of attention. Many campesinos unenthusiastically received attention from

⁹⁹ Emily Wakild, "An Unexpected Environment: National Park Creation, Resource Custodianship, and the Mexican Revolution" forthcoming manuscript.

federal reformers but others readily engaged the opportunities that a focus on rural production afforded them. Cooperatives, ejidos, and even parks aimed to keep people on their land by expanding rural production. In contrast to other countries in this period, this social transformation relied upon keeping people laboring in the natural world, not excluding or evicting them from their reliance upon it. Such a conception proved imperfect. At times, foresters disdained and dismissed campesino practices, communities descended into conflict, and enterprising intermediaries sought to take advantage of potential sources of profit. But on the whole, the network of reforms we call social landscaping met some success in building upon and institutionalizing complimentary relationships between a government and its people and between people and nature. The philosophy guiding this new landscape involved organizing production in a sustainable way that fostered the survival and vibrancy of both nature and society.

Environmental policies unfolded with explicit attention to social obligations and seeing the environment as a locus of social interaction illuminates the commonalties among competing groups, bringing more actors into the story of reform.

Social landscaping required a great deal of systematic and rational planning. More than the genius of visionaries and politicians, such large-scale plans required the participation of bureaucrats and experts willing to work directly with rural people. Some of them had more sensitivity than others to the rural communities into which they intruded. In the aggregate, these officials' program of social landscaping sought to join social and natural communities and make them dependent on each other for their mutual wellbeing. These conjunctures appear readily—from visits to national parks by the President himself to the activities of charcoal cooperative members. Indeed, millions of Mexicans labored and recreated in a landscape designed to fuse the connections between social change and natural wealth. From land reform decrees and ejido

restitutions to the Forestry Code and the Six-Year Plan, the federal executive articulated a regulatory patchwork that rooted campesinos in their natural communities, yet regimented their actions in ways that buttressed federal legitimacy. Rarely do plans unfold in complete accord with their designers' wishes, and this proved no exception. Federal administrators endeavored to know and understand the natural environment and the rural people who inhabited it and this alone proved an overly ambitious task. Throughout, communities contested the regulations, boundaries, and oversight imposed by outsiders and repeatedly succeeded in shifting specific usage guidelines in their favor.

Social landscaping was in this sense a process that proposed to change society by organizing nature. This flexible and dynamic course of action reshaped the countryside and reoriented rural labor in a rapid period of time. Such an ambitious program drew on traditionally understood facets of Cardenista politics—organizing communities and unions, amplifying rural education, and solidifying commitments to political reform, among other areas. But by placing these activities properly in their environmental context a much clearer picture of the scope and influence of Cardenista politics appears. In anchoring the regulatory role of the state to the participation of rural people, Cardenistas' goal of stably harnessing natural resources began to function as a link between the two. Nature became a place for the state to amass power while it empowered rural people along with federal technicians and other enterprising groups. The resilience of the federal executive has heretofore been explained as a political endeavor but the depth of Cárdenas' attention to the natural world gives cause to reevaluate the role an awareness of the power of the environment played in structuring social change. The resulting entrenchment of federal reform into the very nature of rural life had dramatic consequences for the natural world and for the way rural development proceeded in Mexico.