

“THE FORESTS CANNOT BE COMMONS”: *Spanish Law, Environmental Change, and New Spain’s Council on Forests*

ABSTRACT: This article examines the sylvan political ecology of late colonial New Spain and the colonial government’s attempt to address deforestation through the Council on Forests, the first body in the kingdom’s history dedicated to the conservation of natural resources. Drawing primarily from the corpus of documents produced by and remitted to the council, this article gives a trans-regional perspective on colonial forest use and argues that the Spanish crown’s usurpation of indigenous communities’ eminent domain over forests was the first step in a process that over centuries progressively severed the cultural ties that bound communities and forests by converting common-pool resources into open-access commons. The catastrophic mortality of the Spanish invasion was the second step, which rendered conservation measures seemingly unnecessary among both woodcutters and officials. But it was during the eighteenth century that older Habsburg notions of protectionism intersected with economic and political changes associated with Bourbon rule to further compel this cultural severance. While previous works have studied the ecological impacts of mining, ranching, and flood control, this article moves beyond the study of a single industry to suggest some of the larger ecological consequences of Spanish colonialism.

KEYWORDS: New Spain, forest history, Mexico, deforestation

In August of 1799, José Villamil y Primo, the local magistrate (*subdelegado*) of Tacuba, sat down to pen his response to a questionnaire from the newly established Council on Forests (Junta de Montes, or Junta de Bosques) in Mexico City. As part of the first coordinated effort in the kingdom’s history to regulate forestry practices, the questionnaire responses, the council hoped, could be used to draft a new general forestry code for New Spain, one that would supersede the piecemeal laws, edicts, and rulings that had governed the use of forests for nearly three centuries. “The state of the forests in this

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district,” Villamil wrote, “is not today very advantageous because the excessive cutting of wood, for firewood as well as charcoal, has destroyed them.” In his mind, this excessive cutting was the outcome of the long-term failure to develop any system of forest management. There was simply “no other method observed, other than that of going and cutting everything” that was appropriate for one’s uses, and the perpetrators were “principally the Indians that live in the district, as they have no other means for their subsistence.”¹

More than 100 miles to the west, in the mountainous interior of Michoacán, another official observed that local residents “cut when they see fit, without order or method,” and that they even set fire to the forests on occasion.² However, this report offered a very different assessment of the situation: far from denuding the landscape and causing hardship, the clearing of forests was highly beneficial to the expansion of maize cultivation, and agriculture more generally. Although the 93 reports ultimately remitted to the council and recovered for this study do suggest that forest degradation by the end of the eighteenth century was significant near major cities and mining centers, the reports from Villamil and the Michoacán official represented an aberration. As this article will demonstrate, the common thread among the reports was not deforestation—in fact, many regional officials complained about “excessive” forests rather than the opposite—but the maintenance of forests as unregulated open-access commons.

This article offers three major contributions to the environmental, legal, and political history of New Spain. First, it explores the emergence of a colonial forestry regime in New Spain that, although constructed on a base that was both autochthonous and Iberian, was distinct from both. Second, this article examines the emergence in the late eighteenth century of New Spain’s first state forestry program and the program’s ultimately quixotic attempt to draft a general forestry code for the kingdom. Finally, this article uses the documents produced by and remitted to the Council on Forests, along with others, to demonstrate that the relationship between society and forests in late-colonial New Spain evolved over time, through reciprocal interactions between Spanish law, its interpretation by litigants, magistrates, and viceroys, and changes in the natural environment.

Over the past few decades, the environmental history of New Spain has emerged as a vibrant and growing field in its own right, with particular focus on the impact

1. José Villamil y Primo, Report on the state of the forests, August 20, 1799, Archivo General de la Nación [hereafter AGN], *Industria y Comercio*, vol. 31, exp. 29, fols. 590-590v.

2. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, *Industria y Comercio*, vol. 31, exp. 20, fols. 430-430v.

of Afro-Eurasian animal domesticates, mining, water and flood control, climate, and epidemic disease.³ Because the field is relatively young, much of this scholarship has focused on the local and regional level to establish patterns of landscape change.⁴ While some scholars have pointed to signs that may indicate environmental regeneration following the Spanish invasion, the general focus has been on the negative environmental impacts of the colonization and the ways in which Spanish preferences for extensive methods of production, relative to Mesoamericans, intensified ecological pressures.⁵ In the long run, this certainly happened, but “intensification,” if understood primarily in terms of imported European technology, animals, and practices, obscures other important ecological, sociopolitical, and legal aspects of the colonial regime. While much research remains to be done on local processes, the documents consulted for this article offer a unique opportunity to consider the inter-regional aspects of human-forest relations during the late colonial era.

Although the Council on Forests emerged late in the Bourbon monarchy’s project to revitalize and modernize the Spanish empire, the practices, laws, and expectations that constituted New Spain’s forestry regime remained very much

3. The literature is too vast to reproduce fully here, but for some key works on domesticated animals, see Elinor Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* (Cambridge: Cambridge University Press, 1994); Karl Butzer, “Cattle and Sheep from Old to New Spain: Historical Antecedents,” *Annals of the Association of American Geographers* 78:1 (1988): 29–56; Karl W. Butzer and Elisabeth Butzer, “Transfer of the Mediterranean Livestock Economy to New Spain: Adaptation and Ecological Consequences,” *Global Land Use Change: A Perspective from the Columbian Encounter*, B. L. Turner, ed. (Madrid: Consejo Superior de Investigaciones Científicas, 1995), 151–193; and Karl W. Butzer and Elisabeth K. Butzer, “The ‘Natural’ Vegetation of the Mexican Bajío: Archival Documentation of a 16th-Century Savanna Environment,” *Quaternary International* 43 (1997): 161–172. On the environmental impacts of mining, see Daviken Studnicki-Gizbert and David Schecter, “The Environmental Dynamics of a Colonial Fuel-Rush: Silver Mining and Deforestation in New Spain, 1522–1810,” *Environmental History* 15:1 (2010): 94–119; John F. Richards, *The Unending Frontier: An Environmental History of the Early Modern World* (Berkeley and Los Angeles: University of California Press, 2003), 366–370; Elizabeth Dore, “Environment and Society: Long-Term Trends in Latin American Mining,” *Environment and History* 6:1 (February 2000): 1–29; and Robert West, *The Mining Community of Northern New Spain: The Parral Mining District* (Berkeley and Los Angeles: University of California Press, 1949). On water and flood controls, see Vera S. Candiani, *Dreaming of Dry Land: Environmental Transformation in Colonial Mexico City* (Stanford: Stanford University Press, 2014); John F. López, “The Hydrographic City: Mapping Mexico City’s Urban Form in Relation to Its Aquatic Condition, 1521–1700” (PhD diss.: Massachusetts Institute of Technology, 2014); Georgina Endfield and Sarah O’Hara, “Conflicts over Water in ‘The Little Drought Age’ in Central Mexico,” *Environment and History* 3:3 (October 1997): 255–273; Louisa Hoberman, “Bureaucracy and Disaster: Mexico City and the Flood of 1629,” *Journal of Latin American Studies* 6:2 (November 1974): 211–230; and Richard Boyer, “Mexico City and the Great Flood: Aspects of Life and Society, 1629–1635” (PhD diss.: University of Connecticut, 1973). On disease, see Noble David Cook, *Born to Die: Disease in New World Conquests, 1492–1650* (Cambridge: Cambridge University Press, 1998); and Alfred Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT: Greenwood Publishing, 1972).

4. An important exception is geographer Andrew Sluyter, who has developed a model he calls the “colonial triangle,” based primarily on his work on the Veracruz lowlands, to move us toward a general theory of landscape change. *Colonialism and Landscape: Postcolonial Theory and Applications* (New York: Rowman & Littlefield Publishers, Inc., 2002).

5. Some works noting possible afforestation during the colonial era are Emily Wakild, “A Panorama of Parks: Deep Nature, Depopulation, and the Cadence of Conserving Nature,” in *A Living Past: Environmental Histories of Modern Latin America*, John Soluri, Claudia Leal, and José Augusto Pádua, eds. (New York: Berghahn Book, 2018), 249; and Georgina Endfield and Sarah O’Hara, “Degradation, Drought, and Dissent: An Environmental History of Colonial Michoacán, West Central Mexico,” *Annals of the Association of American Geographers* 89:3 (1999): 413.

a construction of Habsburg rule. The starting point was political: as a right of conquest, the Spanish crown usurped the eminent domain once enjoyed by indigenous towns over forests and other lands and brought them under direct royal jurisdiction, with rights to be dispensed at the royal pleasure.⁶ In 1542, for instance, the Nahuatl town of Ecatepec, to the southeast of Mexico City, appealed directly to viceroy Antonio de Mendoza for assistance in driving some outsiders from their community forests. After reviewing the community's testimony and hearing witnesses, Mendoza personally appointed a local man to the position of "constable and guard of the said forests" and charged him with preventing intrusions from outside parties.⁷

The Hispanic cabildo of Mexico City, on the other hand, was employing a guard named Juan Gallego, under its own authority and as early as 1533, to keep watch over Chapultepec Forest.⁸ Thus, from inception, the crown never invited the people of the constituent towns of the República de Indios, as conquered subjects, to be full participants in the setting and enforcing of local regulations. As a result, forestry rights in practice came to be defined primarily through litigation. And precisely because communitarian rights were deeply rooted in both Castilian and Mesoamerican traditions, and because property rights are always an expression of power inseparable from the sociopolitical context, litigation created opportunities to shape new and potentially hybrid commons that pulled from their constituent parts but were also distinct from them.⁹

ORIGINS OF THE COLONIAL FORESTRY REGIME

The legal basis for the colonial forestry regime was consolidated during the period of the Iberian reconquest, as Christians settled on formerly Islamic lands, founded new towns, and negotiated contractual rights (*fueros*) and territorial grants with the monarchy. Royal codes, from the thirteenth-century *Siete Partidas* onward, defined forests as commons and recognized municipal management rights, but retained for the monarchy eminent domain to make impositions for state needs and to adjudicate disputes. That forests were legal commons did not imply that

6. Bernardo García Martínez was among the first to suggest this in "Jurisdicción y propiedad: una distinción fundamental en la historia de los pueblos de indios del México colonial," *European Review of Latin American and Caribbean Studies* 53 (December 1992): 49. Jonathan Amith, in his monumental spatial history of Guerrero, agrees. *The Möbius Strip: A Spatial History of Colonial Society in Guerrero, Mexico* (Stanford: Stanford University Press, 2005), 86.

7. Antonio de Mendoza, Nombramiento de Alguacil de Montes, June 26, 1542, AGN, Mercedes, vol. 1, exp. 185, fols. 77v-78.

8. *Actas de cabildo de la Ciudad de México*, vol. 3, 65, December 12, 1533.

9. In his comparative history of the commons in the Americas, Allan Greer has shown that litigation over land in the Americas did not balance on a private/commons scale, but instead involved significant negotiations between competing ideas of ownership and property rights that often permitted the endurance of certain indigenous rights. *Property and Dispossession: Natives, Empires and Land in Early Modern North America* (New York: Cambridge University Press, 2018).

they were available to anybody who wished to use them, but instead embodied the legal recognition of a “communitarian tradition” of municipal management according to local ecological and economic conditions.¹⁰

Town councils set regulations and maintained forest guards to monitor and prevent illicit activities and outside depredations.¹¹ Practices like coppicing and pollarding were widely adopted and allowed towns to balance the needs of different industries for firewood, shade, and grazing. However, as the Habsburg state was consolidated and market production expanded during the sixteenth century, conflicts arose between local practices, state demands, and expanding market-oriented industries like iron.¹² Carlos V and Felipe II both worked to promote the conservation and acquisition of oak for shipbuilding, leading to the establishment of the office of the Superintendent of Forests in 1574.¹³ Royal policy increasingly supported the creation of guided pollards through the *horca y pendón* method, in which two or three main branches are left atop oak trees, to protect stocks of these key species for shipbuilding. Although *horca y pendón* was often used in Spain, the logic was frequently at odds with the desires of charcoal makers, who supplied industries like iron and preferred to maximize profit by felling entire trees.¹⁴ Although the reach of the Superintendent of Forests never extended across the Atlantic, colonial officials often made reference to *horca y pendón* because it appeared in written law and was familiar to many Spaniards as evidence of “rational” forestry practices. However, the method does not seem to have been employed by Mesoamericans prior to the conquest, or, for the most part, during and after it.

10. On Spain’s communitarian tradition, see David Vassberg, *Land and Society in Golden Age Castile* (Cambridge: Cambridge University Press, 1984), esp. chapt. 1.

11. Helen Nader has shown that all lands in Castile fell within the boundaries of municipalities, and that towns largely managed their own affairs without the intervention of the monarchy, including the appointment of local judges, sheriffs, and other local officials, among them forest guards. Citizens (*vecinos*) of a given town paid taxes and participated in civic life, and in return were allowed to make use of local pastures, arable lands, and forests. *Liberty in Absolutist Spain: The Habsburg Sale of Towns* (Baltimore: Johns Hopkins University Press, 1993). See also the discussion in David Vassberg, *The Village and the Outside World in Golden Age Castile: Mobility and Migration in Everyday Rural Life* (Cambridge: Cambridge University Press, 1996), 14–20; and Vassberg, *Land and Society*, esp. chapt. 2.

12. Álvaro Aragón Ruano, “Una longeva técnica forestal: los trasmochos o desmochos guiados en Guipúzcoa durante la Edad Moderna,” *Espacio-Tiempo y Forma* 4:22 (2009): 100–103. Coppicing involves cutting a tree near the ground to encourage regrowth, while pollarding involves moving the cut higher up the trunk of the tree to prevent grazing animals from consuming the regrowth, which was increasingly important in Spain as stock-raising expanded from the late fourteenth century. For an excellent technical discussion of these methodologies in England, see Oliver Rackham, *Ancient Woodland: Its History, Vegetation and Uses in England* (Colvend, Kirkcudbrightshire: Castlepoint Press, 2003).

13. On state forestry in Spain, see John T. Wing, *Roots of Empire: Forests and State Power in Early Modern Spain, c. 1500–1750* (Leiden and Boston: Brill, 2015).

14. Aragón Ruano, “Una longeva técnica forestal,” 77–78; and “Guided Pollards and the Basque Woodlands During the Early Modern Age,” in Rotherham, *Cultural Severance and the Environment*, 150–151.

The largest indigenous groups of central Mexico, including Nahuas, Zapotecs, Mixtecs, Otomí, and Totonacs, all entered the Spanish colonial era with their own methods of complex communitarian management that were well suited to local conditions. They did not possess any preservationist cultural mores entirely unique to themselves, but instead, like other peasant societies including Castile, these groups learned through centuries of trial and error to manage scarcity to mitigate vulnerabilities.¹⁵ Proxy data strongly correlate the expansion of maize-based agriculture after about the sixth millennium BCE and, after about 1500 BCE, the emergence of state-level societies with decreased forest cover. Conservationist practices like coppicing, pollarding, pruning, and replanting were adopted, along with cultural and religious mores to reinforce the importance of such measures, so as to maximize the human share of resources without increasing risks of famine.¹⁶

Many Mesoamericans also entered the Spanish colonial era with experience living within organized political states with complex legal systems, although less bureaucratized than those of the Spanish and with greater reference to spoken, rather than written, law.¹⁷ Among the Nahuas of central Mexico, where the population on the eve of conquest ran well into the millions, forests were incorporated within the territories claimed by individual ethnic states, the *altepeme*, and remained under the eminent domain of each *tlatoani*, or sovereign. Upon ascending to the throne as the *tlatoani* of Texcoco in 1473, Nezahualpilli gave a speech in which he mentioned “taking charge of the forests” among the duties of his office, suggesting his responsibility to prevent significant degradation and to adjudicate disputes between commoners.¹⁸ Direct authority over forests was likely exercised by the leaders of local wards, the *calpolli* or *tlaxilacalli*, who often controlled the allocation of lands and other local resources. The cutting and collecting of timber, firewood, plants, and incense were specialties of certain members, who often exchanged their goods at local markets.¹⁹ Forest management remained a distinctly local affair, and

15. Not all Mesoamericans were agriculturalists, but south of the more arid zones of the north agriculture was the predominant subsistence strategy.

16. Charles M. Peters, “Precolumbian Silviculture and Indigenous Management of Neotropical Forests,” in *Imperfect Balance: Landscape Transformations in the Precolumbian Americas*, David L. Lentz, ed. (Columbia University Press, 2000), 208–209. Both coppicing and pollarding are depicted in the sixteenth-century Mapa de Cuauhtinchan no. 2. David Carrasco and Scott Sessions, *Cave, City, and Eagle’s Nest: An Interpretive Journey through the Mapa de Cuauhtinchan* (Albuquerque: University of New Mexico Press, 2007), 273.

17. Susan Kellogg, *Law and the Transformation of Aztec Culture, 1500–1700* (Norman: University of Oklahoma Press, 2005), xxvi–xxix.

18. Diego Durán, *Historia de las Indias de Nueva España y Islas de Tierra Firme*, vol. 1, José Ramírez, ed. (Mexico City: J. M. Andrade and F. Escolante, 1867), 41.

19. James Lockhart, *The Nahuas after the Conquest: A Social and Cultural History of the Indians of Central Mexico, Sixteenth through Eighteenth Centuries* (Stanford: Stanford University Press, 1992), 101.

recent research suggests that today Mexico’s diverse agroforestry systems retain a strong imprint from the pre-Hispanic period.²⁰

Without the apparatus of state forestry, the crown’s role in forestry matters in New Spain remained primarily that of an arbiter of disputes, a role deeply rooted in the Habsburg philosophical conception of the monarchy’s responsibility to maintain “the relations of each thing to all others.”²¹ As Susan Kellogg has shown, Spanish law created space for indigenous vassals to negotiate their new circumstances, which worked not only to strengthen Habsburg legitimacy but also to reshape their expectations and practices.²² During the sixteenth century, indigenous litigants learned to defend and establish forestry rights through the legal system, and often cited laws protecting the rights of usufructuaries to make use of the commons.²³ The viceregal notarial registers for the sixteenth century are filled with conflicts over forest rights and grants specifying where, when, and how much could be cut.²⁴ And then, by the seventeenth century, these requests and grants all but disappear from these registers and, apparently, from official concern. Why?

The first explanatory factor is demographic. As is well known, the Spanish invasion set in motion a series of epidemics that intermittently decimated the indigenous population, which plummeted calamitously during the century after the 1540s before beginning a gradual recovery.²⁵ Afforestation in many areas

20. Ana Isabel Moreno Calles et al., eds., *Etnoagroforestería en México* (Mexico City: Universidad Nacional Autónoma de México, 2016), 13; David Barton Bray, Leticia Merino-Pérez, and Deborah Barry, eds., *The Community Forests of Mexico: Managing for Sustainable Landscapes* (Austin: University of Texas Press, 2009).

21. Brian Owensby, *Empire of Law and Indian Justice in Colonial Mexico* (Stanford: Stanford University Press, 2008), 34; Woodrow Borah, *Justice by Insurance: The General Indian Court of Colonial Mexico and the Legal Aides of the Half-Real* (Berkeley: University of California Press, 1983); Richard L. Kagan, *Lawsuits and Litigants in Castile, 1500–1700* (Chapel Hill: University of North Carolina Press, 1981), x; Colin MacLachlan, *Criminal Justice in Eighteenth Century Mexico* (Berkeley: University of California Press, 1974), 9–10. Per MacLachlan: “The monarch’s position as supreme arbitrator between the classes depended on the acceptance of the king’s right to impose his will. In effect the crown’s political power rested on its ability to enforce royal jurisdiction.” *Criminal Justice in Eighteenth Century Mexico*, 21.

22. Susan Kellogg, *Law and the Transformation of Aztec Culture*.

23. On the history of the commons, see Derek Wall, *The Commons in History: Culture, Conflict, and Ecology* (Cambridge: MIT Press, 2014), 7–8. On the English American uses, see 9, and 24–25. Relevant laws can be found in the *Recopilación* of 1681, vol. 2, book 4, title 17.

24. For just a few examples from sixteenth-century registers, see Lorenzo Suárez de Mendoza, Orden a su señoría, March 16, 1583, AGN, Indios, vol. 2, exp. 633; Luis de Velasco, Licencia concedido a los Indios del pueblo de Tenango, September 19, 1591, AGN, Indios, vol. 3, exp. 990; Luis de Velasco, Licencia para que los naturales de Pahuatlan, por esta vez, puedan cortar, AGN, Indios, vol.5, exp 231; Luis de Velasco, Se concede licencia a la cofradía de Transito, October 19, 1591, AGN, Indios, vol. 6, part 2, exp. 90; Francisco Ceinos and the oidores of the Audiencia de México, Licencia para Jorge Cerón Carvajal, November 5, 1565, AGN, Mercedes, vol.8, fol. 179; Lorenzo Suárez de Mendoza, Licencia a doña Catalina Gutiérrez para que pueda cortar la leña que necesitare de los montes, AGN, General de Parte, vol. 2, exp. 1363, fols. 286-286v.

25. The time and scale of recovery depended significantly on location, but 1650 is generally accepted as the demographic nadir of New Spain’s indigenous population. Even if Cook and Borah’s pre-Hispanic number of 25,200,000 for central Mexico alone is high, a pre-contact population well into the millions is widely accepted; that population was reduced by as much as 90 percent by the middle of the seventeenth century. See Woodrow Borah and

subsequently reduced the ratio of people to forests, which led to our second factor: a decline in the perceived need among usufructuaries and officials for the strict enforcement of forestry regulations that were not well suited to New Spain's changing circumstances.²⁶ Since the purpose of Habsburg law was, above all, the maintenance of social harmony, it was often easier to ignore requirements that *horca y pendón* be left or that trees not be felled—both of which were relics of shifting Iberian circumstances—than to enforce laws that would lead to needless resistance. Because the Habsburg legal apparatus was intended to be flexible, justices were expected to apply written law with reference to local customs, circumstances, and communally defined notions of fairness (*equidad*).²⁷ Considering these circumstances and the Habsburg monarchy's paternalist position vis-à-vis indigenous subjects, more often than not this meant prioritizing access to forests over the strict enforcement of conservation measures.

The final factor was primarily economic. While Habsburg rule saw the development of major cities, market economies, and the movement toward the consolidation of landholdings, the Bourbon accession to the Spanish throne at the dawn of the eighteenth century ushered in a period of unprecedented economic growth. Following the seventeenth-century *arbitristas*, Bourbon policymakers sought to revive the glory of the sixteenth-century Siglo de Oro to make Spain once again competitive with the ascendant monarchies of Europe, particularly the British, by replacing the old composite monarchy of the Habsburgs with a modern, centralized state. Regalism, the subordination to all authority to that of the crown, was the instrument through which reformers sought to spur economic and demographic growth in the colonies to

Sherburne F. Cook, *The Aboriginal Population of Central Mexico on the Eve of the Spanish Conquest* (Berkeley and Los Angeles: University of California Press, 1963). By contrast, the total population for all of New Spain was around 6,122,000 in 1814. After a century and a half of recovery, this number still amounted to probably less than half the population in 1519. For a summary of the debates and issues surrounding the pre-Hispanic population, see Lourdes Márquez Morfin and Rebecca Storey, "Population History in Precolumbian and Colonial Times," in *The Oxford Handbook of the Aztecs*, Deborah L. Nichols and Enrique Rodríguez-Alegría, eds. (New York: Oxford University Press, 2017).

26. There is suggestive research connecting the reduced burning of neotropical forests following the European invasion with afforestation, increased carbon sequestration, and climate change. R. J. Nevle, D. K. Bird, W. E. Ruddiman, et al., "Neotropical human-landscape interactions, fire, and atmospheric CO₂ during European conquest," *Holocene* 21:5 (2011): 853–864; Robert A. Dull, Richard J. Nevle, William I. Woods, et al., "The Columbian Encounter and the Little Ice Age: Abrupt Land Use Change, Fire, and Greenhouse Forcing," *Annals of the Association of American Geographers* 100:4 (2010): 755–771. See also the discussion in Emily Wakild, "A Panorama of Parks," 249.

27. Brian Madigan, "Law, Society, and Justice in Colonial Mexico City: Civil and Ecclesiastical Courts Compared, 1730–1800" (PhD diss.: University of California, Berkeley, 2013), 6. This key point was previously expressed by Woodrow Borah, *Justice by Insurance: The General Indian Court of Colonial Mexico and the Legal Aides of the Half-Real* (Berkeley and Los Angeles: University of California Press, 1983), 3–5; and Charles Cutter, "The Administration of Law in Colonial New Mexico," *Journal of the Early Republic* 18:1 (1998): 102.

maximize revenues in Spain, although much of this expansion occurred independently of reformist efforts.²⁸

Among Bourbon policymakers, economic expansion gradually overtook the maintenance of social harmony as the guiding philosophy of the monarchy.²⁹ Policies loosening trade restrictions and attacking corporate privilege, along with strong demographic growth, encourage commercial production and urban expansion, which in turn increased the value of productive land and encouraged elite encroachment on indigenous communal lands. Feeling both the push and pull of encroachment, Nahuas, Otomís, and others took to the forests to produce timber, firewood, and charcoal to supply urban demand and to feed the rapacious appetite of the mines, silver refineries, and gunpowder factories in and near Mexico City.

As the history of the Council on Forests shows, the royal “men-on-the-spot” in New Spain who undertook the project were imbued with certain elements of the monarchy’s regalist philosophy, but they were also influenced by older Habsburg notions and local ecological, political, and social realities that constrained their desire and ability to fully abandon their commitments to protectionism and the pursuit of social harmony.³⁰ *Hacendados* were among the first to recognize the potential threat that deforestation might pose to their rural enterprises, and in 1756 they received a favorable *auto acordado*, a form of judicial precedent intended to resolve future forest conflicts, from the Audiencia de México. The auto upheld the usufruct rights of indigenous commoners while also emphasizing that these rights were contingent upon leaving horca y pendón. In addition, products obtained under usufruct were to be directed toward subsistence uses only and not the pursuit of profit, upon pain of deprivation.³¹ But the reality was that as many indigenous people were pushed and pulled into the market economy, profit increasingly was essential to their subsistence. Yet, this measure was almost never fully enforced—for the very reasons that made it necessary.

28. While some scholars have painted the Bourbon reforms in terms of inconsistencies and failures, they were in fact built around a fairly coherent set of objectives, even if policymakers disagreed over the means to achieve them. Gabriel Paquette, *Enlightenment, Governance, and Reform in Spain and Its Empire 1759–1808* (London: Palgrave Macmillan, 2008); Colin Maclachlan, *Spain’s Empire in the New World: The Role of Ideas in Institutional and Social Change* (Berkeley and Los Angeles: University of California Press, 1988); Stanley J. Stein and Barbara H. Stein, *Apogee of Empire: Spain and New Spain in the Age of Charles III, 1759–1789* (Baltimore: Johns Hopkins University Press, 2003).

29. Paquette, *Enlightenment, Governance, and Reform*, 64–66.

30. Gabriel Paquette discusses the importance of local constraints on ideology in *Enlightenment, Governance, and Reform*, 115–116.

31. This was often cited in the years after this date. For instance, the auto was cited to resolve litigation brought by the Conde de San Bartolomé de Xala, owner of the Hacienda de Zavaleta, against several towns in the Chalco region that had been cutting wood from the property. Expediente promovido por el Conde de Xala, November 24, 1784, AGN, Tierras, vol. 1666, exp. 3, fol. 20v.

It was during the eighteenth century that these political, ecological, and economic factors collided within the forest commons of New Spain. While some scholars have applied Garrett Hardin's "tragedy of the commons" thesis to explain the destruction of common resource systems, his work was largely ahistorical—and wrong on empirical grounds. At the least, it grossly oversimplified the ways in which humans can and do manage common resource systems for the long term.³² In her Nobel Prize-winning study, the political economist Elinor Ostrom theorized a distinction between common-pool resources, which are owned and managed by the commoners who derive benefit from them, and open-access commons, which are unowned and difficult to regulate.³³ Ostrom extrapolates a series of factors typical of successfully managed commons, which include the establishment of clear boundaries between commoners and outsiders, the rights of commoners to set and enforce rules through graduated sanctions, provision for swift and affordable resolution of conflicts, and recognition by higher authorities that commoners have the rights to set these rules.³⁴ In short, Ostrom suggests that the successful long-term management of commons is best achieved by empowering the communities that make use of them, and more recent research by Ian Rotherham has further lent weight to the notion that cultural severance, the separation of nature from local community ownership, closely correlates with negative environmental outcomes.³⁵

However, New Spain's legal, economic, and political circumstances tended to disempower local decision-making, with deleterious results. In their attempt to come to grips with an unsustainable political ecology they did not fully understand, respondents to the forest surveys of the Council on Forests tended to place blame not on the larger system, but increasingly on a set of cultural

32. See Michael Perri, "Ruined and Lost": Spanish Destruction of the Pearl Coast in the Early Sixteenth Century," *Environment and History* 15 (2009): 129–161. While Perri does not distinguish between managed and unmanaged commons, his conclusions about the eventual destruction of the Cubagua pearl beds hold. But as Molly Warsh shows, the Spaniards who exploited these pearl beds were deeply imbued with notions of communitarianism, and they attempted to conserve the oyster beds through rotation, the rejection of potentially harmful technologies, and the defense of local practice. See Warsh, "A Political Ecology in the Early Spanish Caribbean," *William and Mary Quarterly* 71:4 (October 2014): 517–548; and Garrett Hardin, "The Tragedy of the Commons," *Science* 13:162 (December 1968): 1243–1248.

33. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990).

34. The full list includes eight specific criteria: 1) That boundaries between those who can and those who cannot withdraw resources from a particular pool be clearly defined; 2) that rules about how, when, and in what quantity resources can be extracted be tailored to local needs, and that the required labor, materials, and money be provisioned for this; 3) that the rules of conservation be agreed on by the commoners; 4) that effective monitoring take place; 5) that graduated sanctions be established for violators either by the commoners themselves or an accountable official; 6) that conflict resolution be swift and affordable; 7) that higher authorities recognize the rights of appropriators to set their own rules; and 8) that multiple layers of nested enterprises be established to coordinate different systems with different needs at the regional and state level. Ostrom, *Governing the Commons*, 91–102.

35. Ian D. Rotherham, ed., *Cultural Severance and the Environment: The Ending of Traditional and Customary Practice on Commons and Landscapes Managed in Common* (Dordrecht: Springer, 2013), 19.

and racial assumptions they chauvinistically ascribed to the people they called *indios* or *naturales*, whose economic marginalization tended to reinforce these beliefs. While respondents to the council’s surveys recognized the need for increased local control, they were far more comfortable in the milieu of the late Bourbon period in assigning this responsibility to the regalist state, and never seriously considered the possibility of empowering communities to set and enforce their own rules. None seem to have realized that the prescribed program for Spain’s economic and political revitalization, that is, the disempowerment of local corporate groups and the facilitation of economic expansion, was itself a fundamental source of the problem.

ORIGINS OF THE COUNCIL ON FORESTS

As in Spain, state-sanctioned conservation measures emerged not out of concern for the needs of vassals but for the promotion of key state interests, particularly silver and gunpowder manufacturing, both of which required significant inputs of firewood and charcoal at multiple levels of production. The specific roots of the Council on Forests are found in a rather prosaic 1792 conflict involving the forests of the state-owned Hacienda de San José de Chalco, located to the southeast of Mexico City, which the crown had seized from the Jesuits following the order’s expulsion from the Spanish realms in 1767. Diego de Bulnés had recently rented the estate from the Royal Treasury, which was administering the formerly Jesuit property until it could be sold, under the condition that he share the seeds, pastures, and tools with Julián de Lezaun, the former administrator. Bulnés complained to the crown attorney dealing with treasury matters (*fiscal de real hacienda*) that Lezaun abused this relationship by usurping hacienda lands and, most egregiously, by wantonly destroying some of the hacienda’s forests, which had already prompted him to hire a forest guard to stop these abuses. Because these activities were potentially harmful to royal finances, the fiscal ordered an inspection that confirmed Bulnés’s account: the property had been largely despoiled of oaks and reduced to only some small poplars of little utility.³⁶

Anxiety over the destruction of these forests quickly spread to other areas of the royal government in Mexico City as evidence mounted that the disappearance of San José de Chalco’s forests was not an isolated incident. The *defensor de temporalidades*, who oversaw the bidding process on the formerly Jesuit estates, became alarmed by reports that the felling of entire trees “was the custom in

36. Juan de Bulnés Villar to the fiscal de Real Hacienda Defensor de temporalidades, May 9, 1792, AGN, Tierras, vol. 3557, exp. 17, fols. 2-5v.

that district,” despite the harm done to the “farm and the public,” and he pointed directly to Isabel and Fernando’s 1496 pragmatic prohibiting such practices. Based on what he had heard, viceroy Revillagigedo ordered an extensive inspection of the entire province, which confirmed his fears that “razing to the ground and putting an end to the forests” was the normal practice.³⁷

In July 1793, the fiscal wrote to the viceroy regarding his concerns and his recommendations that “nothing can bring a greater utility than to cut short similar abuses in all this kingdom.”³⁸ He cited a number of legal precedents, including Bourbon Spain’s 1748 forestry code, which had never been applied in New Spain because it was not specifically designated to do so, and pointed to the threat deforestation posed to mining and gunpowder manufacturing.³⁹ “To ensure the correct measure,” he wrote, “Your Majesty should instruct the Intendents of this viceroyalty . . . to inform on the state of the forests in their respective districts, and the method practiced in the cutting of firewood and timber.”⁴⁰ Revillagigedo was convinced of the urgency of the matter and shared the defensor’s concern that destructive practices had become normalized and that “similar abuse and harm will be irreparable if not prevented in time.”⁴¹

Revillagigedo issued a *cédula* the same day ordering the kingdom’s regional officials to report on the state of the forests within each respective district “with reference to the Royal Cédula of 7 December 1748,” the first modern forestry code issued for the metropole. Following on the *cédula* came an 11-question survey that was dispatched to regional officials. These surveys were based directly on the method of forest reconnaissance employed in Spain by the Marqués de Ensenada in the 1730s that culminated in the 1748 code, which was copied in Mexico City, possibly for the first time, in March 1794.⁴² The viceroy and his advisors thus hoped to develop a unified code, one that while adapted to the particularities of the kingdom differed little in premise from metropolitan law. While the more than 90 reports remitted to Mexico City between 1794 and 1800 demonstrated the futility of this endeavor, in 1794 officials in Mexico City were optimistic about the prospect of bringing uniform order to bear upon the king’s subjects to protect royal interests.

37. Ramón de Posada y Soto to the Conde de Revillagigedo, July 16, 1793, AGN, Industria y Comercio, vol. 31, exp. 19, fols. 317-317v.

38. Ramón de Posada y Soto to the Conde de Revillagigedo, July 16, 1793, AGN, Industria y Comercio, vol. 31, exp. 19, fols. 317-317v.

39. Felipe III in 1614 ordered that only laws designed specifically for the Indies would apply there.

40. Ramón de Posada y Soto to the Conde de Revillagigedo, July 16, 1793, AGN, Industria y Comercio, vol. 31, exp. 19, fols. 317v-318.

41. Conde de Revillagigedo, Por las diligencias practicadas en virtud de superior orden de 14 de diciembre, July 17, 1793, AGN, Tierras, vol. 3557, exp. 17, fol. 36.

42. A copy of this 1748 code, as reprinted in 1794, appears in AGN, Industria y Comercio, vol. 31, exp. 24, fols. 485-505v.

The report from the mining center of Guanajuato, which alone produced between a fifth and a quarter of New Spain’s silver output throughout the eighteenth century, confirmed fears that deforestation might shortly shutter the mines, which by the 1790s were importing wood from distances of nearly 100 miles.⁴³ Yet, officials in Guanajuato did not blame the deplorable state of the region’s forests on the mining industry itself but rather on the complete lack of conservation practices that had grown up around it. The author of the report, Juan Antonio de Riaño, a military veteran appointed to the Intendancy of Guanajuato in 1792, painted a grim picture of a province “in perfect abandonment.” Yet, even in this mining district things were not always so grim. “In no time has the conservation of [the forests] been attempted,” he wrote, “because the consumption is inferior to the richness of [the land’s] production, since the forested parts of it since antiquity have outpaced the destruction,” suggesting that regeneration had blunted concerns over poor forestry practices.⁴⁴

By the 1790s, however, the situation was so dire that the Diputación de Minería de Guanajuato, a creation of the 1783 mining ordinances intended to adjudicate property disputes, issued a separate plea to the Tribunal de Minería in Mexico City on the immediacy of the threat.⁴⁵ The letter echoes Riaño’s sentiment: not only had every forest within roughly 13 miles been obliterated, but the still-living stumps had been uprooted to produce boxes, extinguishing any possibility of coppicing or pollarding. The deputies who wrote the letter, Gervasio Antonio de Irizar and Francisco de Septién y Arce, both well-placed merchants, also pointed to the unmanaged and unregulated system of forest use as the origin of this disaster, stating specifically that “there is not a palm of land that is not occupied by individuals,” and that the town of Guanajuato had been left without “*ejidos*, *dehesas*, pastures, woodlands, or forests, against all the spirit of

43. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fols. 431-431v. The report mentions wood traveling to Guanajuato from Tlazazalca, which is about 90 miles distant. For an excellent treatment of Guanajuato’s mining industry during the eighteenth century, see David Brading, *Miners and Merchants in Bourbon Mexico, 1763–1810* (New York: Cambridge University Press, 1971), 129–130, 132–137, 261.

44. Juan Antonio de Riaño to the Conde de Revillagigedo, Report on the state of the forests, December 18, 1795, AGN, Industria y Comercio, vol. 31, exp. 22, fol. 469. Studnicki-Gizbert and Schecter note that the human impact on the environment lessened during the first two centuries of Spanish rule, and that the greatest destruction of forests near mining centers occurred during the eighteenth century. “The Environmental Dynamics of a Colonial Fuel-Rush,” 97.

45. Gervasio Antonio de Irizar and Francisco de Septién y Arce to the Real Tribunal de Minería, October 30, 1795, AGN, Industria y Comercio, vol. 31, exp. 21, fols. 438-441v. For a brief history of the Diputación de Minería of Guanajuato in the late eighteenth century, see Brading, *Miners and Merchants*, esp. chapt. 10 (“The Deputation”), 329–339. Brading shows that the deputation operated through the election of a seven-man committee, chosen by a vote of all registered miners, who selected the deputies of the junta. It was these deputies, and not the committee itself, who were most important in setting policies. In Brading’s words, the deputation was “in many ways . . . the most powerful institution in Guanajuato.”

our legislation and in great public harm.”⁴⁶ Far from managing the forests they owned, hacendados simply charged a fee for woodcutters to enter and take what they wished, which over centuries created a barren wasteland where “nature, without the hand of man, had situated beautiful and thick forests.”⁴⁷

During late 1795 and early 1796, the Mining Deputation, the intendant, and other Guanajuato officials dispatched several letters to Mexico City offering their recommendations for reforms, in which they emphasized the urgent need to establish forest guards and to coordinate the management of forests among the city’s *ayuntamiento*, the deputation, and the intendancy.⁴⁸ In addition to the feckless felling of trees, officials pointed to the intrusion of goats into recently deforested lands: their “venomous teeth” lifted the vulnerable roots of saplings from the earth, wreaking destruction that could have been prevented with the establishment of pollards.⁴⁹ On February 16, 1796, viceroy Branciforte, who succeeded Revillagigedo, issued a comprehensive cédula in response to the petitions received from Guanajuato, ordering the posting of broadsides to remind subjects of royal conservation laws, the establishment of forest guards to enforce them, and the expulsion of goats from recently deforested lands. The next month in Guanajuato, Riaño convened a council consisting of himself, city council member Lic. don Martín Coronel y Jorganes, and two mining deputies, don Juan Francisco de Villamar and the aforementioned Francisco de Septién y Arce, to pen a reply to the viceroy’s order. In the letter, they noted that previous orders to post broadsides accomplished nothing because of “the shortcoming of the people charged with their observation” and thus concurred with the urgent need to establish mounted guards.⁵⁰ They suggested that two

46. Gervasio Antonio de Irizar and Francisco de Septién y Arce to the Real Tribunal de Minería, October 30, 1795, AGN, Industria y Comercio, vol. 31, exp. 21, fol. 438. Ejidos in Spain were common uncultivated lands located adjacent to towns and generally served a variety of purposes including the keeping of stray animals. In New Spain, the term denoted communal lands owned and worked collectively by towns. After independence and especially following the Mexican Revolution, ejidos became associated specifically with communal indigenous landholdings. *Dehesas*, which could be commons or private property, were pastures that were often partly forested and partly cultivated. See Vassberg, *Land and Society*, 26–32.

47. Gervasio Antonio de Irizar and Francisco de Septién y Arce to the Real Tribunal de Minería, October 30, 1795, AGN, Industria y Comercio, vol. 31, exp. 21, 438v.

48. Fausto de Elhuyar, Josef Manuel Valcárcel, and Josef Luis de Fagoaga to Marqués de Branciforte, December 7, 1795, AGN, Industria y Comercio, vol. 31, exp. 21, fols. 442–445.

49. While the impact of sheep on land degradation in the sixteenth century is well known to scholars of colonial Mexico, goats were most often singled out for this in the eighteenth century because they consume more shrubs and plants across a wider range of taxa, and because modern evidence supports the connection between goats and soil desertification. Committee on the Economic Development and Current Status of the Sheep Industry in the United States, *Changes in the Sheep Industry in the United States: Making the Transition from Tradition* (Washington, DC: National Academies Press, 2008), 61; Mario Manzano and José Nívar demonstrate a significant association between the overgrazing of goats and the decrease in leaf cover and a general reduction in shrubs and wood plants in favor of herbs and grasses in the modern state of Tamaulipas. “Process of desertification by goats overgrazing in the Tamaulipan thornscrub (matorral) in north-eastern Mexico,” *Journal of Arid Environments* 44 (2002): 1–17.

50. Acuerdo of the intendant and ayuntamiento of Guanajuato, March 8, 1796, AGN, Industria y Comercio, vol. 31, exp. 21, fol. 454v.

horses be requisitioned for that purpose and that four *guardamontes* be appointed and assigned to work along strategic routes throughout the sierra, their salaries of 400 pesos to be drawn in part from the city’s coffers and in part from those of Diputación de Minería.

Regarding the expulsion of goats, the council Riaño had convened pointed to the stiff resistance this order had faced from estate owners like the Condesa de San Mateo Valparaíso who, along with her husband don Miguel de Berrio y Zaldívar, owned numerous haciendas scattered throughout the viceroyalty, including some near Guanajuato on which she raised goats that fed a good portion of the region’s population.⁵¹ The condesa’s lawyer pointed out that goats “were not less useful to the labors of the mines and the necessities of life” than firewood; that the laws of the Indies stipulated that trees should be reserved as shade for animals; and that it made no sense to “destroy one necessary thing to foment another.”⁵² Though self-serving, the argument derived directly from Castile’s communitarian tradition of local management to coordinate forest use among different economic sectors. The lawyer explained, echoing earlier arguments from the Diputación de Minería, that since a goat “cannot knock down a tree or cut off a branch,” the problem was not the presence of goats but the unregulated cutting that proceeded “heedless and disorderly, without having any other rule than self-interest.”⁵³ For the condesa, the problem was that since forests were defined as commons under the law, and since the 1783 Mining Ordinances explicitly protected the supply of firewood to miners, the *cédula* “opens a free door to all who want to enter and cut wood in forests owned by individuals, destroying them” and leaves the owners “without the least means of recourse.” If people were to show up with axe in hand claiming “that they are going to cut wood for the mines, you can’t say a word to them.”⁵⁴ The reality was that in most places with an established market for wood, hacendados and their mayordomos were happy to permit cutting in exchange for fees.

Josef de Peón Valdés, the intendant of the old mining zone of Zacatecas, echoed many of Riaño’s sentiments about Guanajuato, including the observation that

51. Ramón María Serrera Contreras, *Guadalajara ganadera: estudio regional novohispano, 1760–1805* (Seville: Escuela de Estudios Hispanoamericanos, 1977), 310–311. The document mentioning the three haciendas owned by the condesa, Deceosdilla (?), Rincón, and Cabras (“Goats”), is in AGN, Industria y Comercio, vol. 31, exp 19, fol. 396.

52. The stipulation about shade for animals is found in the *Novísima Recopilación*, Book 7, title 24, law II, which was issued by Carlos V in 1537. The phrase from the condesa’s complaint is found in AGN, Industria y Comercio, vol.31, exp 19, fols. 389-89v.

53. Petition on behalf of the Condesa de San Mateo Valparaíso, N/D, AGN, Industria y Comercio, vol.31, exp 19, fols. 390v-391.

54. Petition on behalf of the Condesa de San Mateo Valparaíso, N/D, AGN, Industria y Comercio, vol.31, exp 19, fols. fol. 393.

significant deforestation was a recent phenomenon that had become truly severe only during the past 18 to 20 years. In his report, Peón wrote that “it is not doubtful that the origin of these evils, and those that successively, in just a few years, have been experienced in this place, they come from the bad method that is observed in the cutting of wood.” The method that Peón described differed little from what was practiced in Guanajuato: the owners and renters of forests simply charged an entry fee for woodcutters, who, “bringing no other aim than their own self-interest,” felled trees at their discretion and left a significant portion of the wood to decompose in the forests.⁵⁵ He also attributed the problem to the long-standing negligence of local officials in enforcing and carrying out the laws regarding the use and replanting of forests. Finally, he pointed to the use of fire to clear forests to open new pastures for livestock, again, like the condesa, highlighting the lack of coordination among key industries.

EVOLUTION OF THE COUNCIL ON FORESTS

The situation in Guanajuato and Zacatecas is instructive, not just because of the mines and their voracious appetite for wood or because Bourbon conservation measures were concerned primarily with protecting this industry, but because the “abuse and disorder” so often mentioned in the documents echo dominant forestry practices throughout the kingdom. Riaño’s explicit connection between the lack of municipal management and the land’s ability to “outpace destruction” since antiquity suggests an evolving political ecology in which forest regrowth seemingly rendered conservation measures unnecessary. Indeed, despite numerous reports by the 1750s of indigenous people, some local and some from distant parts, invading the hills near the city and clear-cutting forests, rulings and injunctions continued to defend the pasturing of goats and the free cutting of wood as compatible industries.⁵⁶ It is also notable that the recommendations from the diputación—that forest guards be posted, that local practices be established through local cooperation, and that the needs of different rural industries be balanced against each other and the common good—were all expected duties of municipalities in Spain.

The lawsuit involving the Condesa de San Mateo Valparaíso and the early reports received in Mexico City laid bare the theoretical problems of the universalizing program and set in motion discussions about how to proceed. In addition to

55. Diligencias practicadas por el justicia de Xilotepeque, sobre si está comprendido en los bienes de comunidad el monte de dho pueblo. 1782. AGN, Tierras, vol. 2824, exp. 1, fol. 551v.

56. El conde de San Mateo Valparaíso y el convento y hospital de Betlemitas, contra los leñadores y carboneros de la sierra de Santa Fe, 1757-1791, AGN, Tierras, vol. 800, exp. 1.

the intendants, ministers, and judges already weighing in, several *fiscales protectores de Indios*, officials who investigated complaints by indigenous people and served as their advocates before the colonial government, expressed their concerns that a universal law was neither possible nor desirable. “The diversity of circumstances that are advised from one province to another, and even among places within just one, according to the reports from the Señores Intendentes” they advised, “does not permit a general resolution.”⁵⁷ In other words, a general forestry law was too blunt an instrument to account for differing and often contentious local practices. In part this was because, while deforestation posed a significant threat in some areas central to the Spanish economy, elsewhere forest regrowth hampered economic development.

As seen in the reports from the Intendancy of Valladolid (Michoacán), it was simply “useful to permit, and even secure, the arbitrary cutting of wood” so as to open fields and roads that had been swallowed by expanding forests (*emboscados*), while elsewhere it was necessary to establish strict oversight of cutting and replanting efforts.⁵⁸ In this sense, the *fiscales protectores* were in agreement with conservatives like viceroy Antonio María Bucareli, who in the 1770s had expressed deep skepticism that New Spain, an ecologically diverse land dominated by expansive haciendas and isolated Indian pueblos rather than Hispanic towns, could be governed by the same laws as Spain.⁵⁹ But the *fiscales* did want reform, recommending the establishment of a system whereby rules could be adapted to each province “according to nature and the circumstances of the forests, of the immediate population,” and permitting the provinces to raise funds to cover the salaries of the needed guards. In some cases, they suggested, *vecinos* could rotate this responsibility among themselves “according to the practice in the Kingdoms of Spain.”⁶⁰ Such statements reflect a growing awareness of the need to return to a system of localized control.

In February 1799, the judges of the Audiencia of México convened a royal council known as a Real Acuerdo (Royal Agreement) to advise the viceroy on the best course of action. Based on the recommendations and reports they had seen, the Real Acuerdo agreed that “it is not possible to make uniform in everything the government of the domains of Spain with those of this America, because of its

57. Petition on behalf of the Condesa de San Mateo Valparaíso, N/D, AGN, Industria y Comercio, vol. 31, exp 19, fol. 398.

58. Petition on behalf of the Condesa de San Mateo Valparaíso, N/D, AGN, Industria y Comercio, vol. 31, exp 19, fol. 398. While the verb *emboscar* today generally means to prepare for an ambush, as one might do in the forests alongside a road, in the eighteenth century the word primarily meant to disappear into the forests. See entry in Real Academia Española’s 1732 dictionary, vol. 3, 392.

59. Brading, *Mimers and Merchants*, 46–47.

60. Petition on behalf of the Condesa de San Mateo Valparaíso, N/D, AGN, Industria y Comercio, vol. 31, exp 19, fol. 398v.

expansive area, climate, people, and many other circumstances that make them different.”⁶¹ They pointed to many of the aforementioned difficulties: that some areas suffered extensive deforestation while others owing to the “fertility of the land” needed greater clearing; that private owners charged fees for access to forests without providing any reciprocal care for their conservation; and that conservation measures had to be balanced against the needs of indigenous subjects. The Real Acuerdo thus recommended that the viceroy issue an order to each intendant instructing them to convene councils of their own comprised of local stakeholders, including the mining deputations and Hispanic town councils, to produce a set of rules best adapted to the local circumstances of their jurisdiction, but based on the laws of Spain and the Indies. The rules would then be remitted to Mexico City for examination and approval.

The approval of regional ordinances and the establishment of regulations for the Intendancy of México would require a body of men dedicated to the task and possessing the requisite knowledge and experience to understand the potential impact of regulation on different economic sectors. To this end, viceroy Miguel José de Azanza, the duque de Santa Fe, extended invitations to six men during the summer of 1799 to form a new committee known as the Council on Forests. The highest-ranking member of the council to accept the viceroy’s invitations was Francisco Fernández de Córdoba, the marqués of San Román, whom Alexander Von Humboldt described as “an enlightened administrator.”⁶² More important than his fidelity to enlightened reform was Fernández’s appointment as superintendent of the Royal Mint in Mexico City. Other members were similarly drawn from key areas of royal interest: the director of mining, the director of gunpowder, a municipal lawyer from Mexico City, and Antonio Rodríguez de Velasco, a lawyer and councilman of the cabildo of México.⁶³ A representative of the tanners’ guild (*gremio de curtidores*) of Mexico City, a group that depended heavily on tannins contained in tree bark to tan the hides they produced, was also appointed to the junta.

The Council on Forests had three primary objectives: to review ordinances remitted from the provinces, to draft a set of ordinances for the Intendancy of Mexico, and to inform the viceroy of their proceedings so that he could advise and issue laws. Within the Intendancy of México, *subdelegados* drafted their reports and submitted them directly to the viceroy and the council, as did some

61. Real Acuerdo de México, February 25, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 401.

62. Alexander von Humboldt, *Political Essay on the Kingdom of New Spain*, vol. 3 (London: Longman, Hurst, Rees, Orme, and Brown, 1814), 479. In a 1799 letter to the viceroy, Rodríguez de Velasco expresses his gratitude for the appointment and accepts the post. Antonio Rodríguez de Velasco to the Duque de Santa, August 12, 1799, AGN, Industria y Comercio, vol.31, exp 29, fols. 573-574.

63. The posts were *juez de cañerías* and *de aguas*.

subdelegados from adjacent areas. However, if the Council on Forests ever produced a comprehensive code, it has not been recovered, and the only comprehensive ordinance remitted from another intendency that has been recovered was written by the vigilant Felipe Díaz de Ortega, a locally well-connected successor to Riaño as intendant of Valladolid, dated February 5, 1800. His 12-article code emphasized the need for greater state oversight of forest cutting and highlighted the difficulties facing statist conservation efforts. While several of his articles emphasized the need to encourage the supply of wood to silver, saltpeter, and sugar producers at “comfortable prices, for the interests of the state,” others spoke of the need to control the destructive behavior of the primarily indigenous charcoal producers and woodcutters, whom Díaz de Ortega called the “moth (*la polilla*) of the forests.”⁶⁴ He, like many others of his social class, attributed the “disorderly” nature of indigenous forestry practices to what he saw as limited mental horizons and a penchant for lawlessness. Thus, while these reports did not lead to any significant innovations in forestry practices in New Spain, they offer a trove of information about both the realities and elite perceptions of forest use during the waning years of the viceroyalty.

DEFORESTATION AND ITS CAUSES

How generalized was the problem of deforestation during the final decades of colonial rule? Some 93 reports contain enough information to classify the state of a region’s forests as sufficient, fair, or poor.⁶⁵ “Sufficient” forests were those that clearly met the needs of the local economy, and indeed were often a nuisance. A total of 48 (51.6%) of the reports fall into this category. Forests classified as “fair” were those that supplied sufficient timber and fuel to meet local needs but either required traveling some distance to achieve this or led authors of the reports to express concern that local practices might soon lead to scarcity. A total of 20 reports (21.5%) met this classification. “Poor” forests that did not meet local needs also accounted for 25 jurisdictions (26.9%). Of these 25 jurisdictions, the “poor” status of 18 (72%) was clearly associated with human activities, since some regions, like the sandy Gulf Coast city of Alvarado, were not favorable to forest growth, or the fact that the reports did not contain enough information to judge the reasons for inadequate forest

64. Felipe Díaz de Ortega, Ordenanza que para los cortes de madera, y leña, y conservación de montes, ha formado el Intendente de Valladolid don Felipe Díaz de Ortega, February 5, 1800, AGN, Industria y Comercio, vol. 31, exp. 29, fols. 621-621v. The 1791 *Diccionario de la Lengua Castellana* mentions that “polilla” could be used to refer to something that “destroys a thing imperceptibly,” that is, gradually or subtly, as a moth does to clothing.

65. Most reports are from the level of the subdelegación. Some, like Tlaxcala’s, which was autonomous from the Intendancy of Puebla, are not.

cover. Thus, the reports indicate that nearly three-quarters of all jurisdictions had forests that met local needs, compared to only a quarter that did not, and only 18 of the 93 classifiable reports (19.4%) clearly reflected anthropogenic degradation.

It is clear from the reports that expanding cities of any size usually had a significant negative impact on forest cover that could be felt over some distance. A brief analysis of the Valley of Toluca is instructive. Because the Valley of Toluca, most of which fell within the Marquesado del Valle, lacked significant mines and is situated across the Sierra de las Cruces about a thousand feet above Mexico City, early Spanish settlement tended to overlook the region, which remained largely indigenous despite demographic decline. However, over time the region's agricultural and stock-raising potential invited settlement from Spaniards unable to secure positions within the orbit of Mexico City's economy, and in 1662 Toluca was upgraded to a *ciudad*. The indigenous tributary population of the *corregimiento* of Toluca grew also during the second half of the eighteenth century, from 11,612 in 1756 to 16,030 in 1800.⁶⁶ While the city itself was essentially Spanish, it was surrounded by numerous Otomí, Nahuá, and Matlatzinca towns.

The 1799 report from the city of Toluca is short and rather blunt: "There are no forests at all from which wood or fuel can be cut, and thus I have nothing to report to the Council created by Your Excellency."⁶⁷ Toluca in the eighteenth century was supplied with wood from the forests near the mines of Temascaltepec in the mountains to the southwest, which by the end of the eighteenth century were "quite deteriorated" because "the cutting of timber and firewood is done at the discretion of whoever needs one or the other."⁶⁸ As forests disappeared and demand for agricultural goods increased, Toluqueños began to exert greater pressure on more distant forests. As far to the east as San Mateo Atarasquillo and San Miguel Ameyalco, trees existed in "very short quantity."⁶⁹ As early as the 1720s, the *gobernador* and *principales* of Santiago Temoaya, about 13 miles

66. María del Carmen León García, *La distinción alimentaria de Toluca: el delicioso valle y los tiempos de escasez, 1750–1800* (Mexico City: CIESAS, 2002), 71–80. Peter Gerhard shows a bottoming out of the indigenous population between the 1630s and 1740s, followed by a steep recovery after about 1750. *A Guide to the Historical Geography of New Spain*, revised ed. (Norman: University of Oklahoma Press, 1993), 331.

67. Fausto Marcial de Urrutia, Report on the state of the forests, August 14, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 577.

68. Manuel Antonio de Falla Oruña, Report on the state of the forests, August 23, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 599. On the evolution of the district, see Peter Gerhard, *A Guide to the Historical Geography of New Spain*, 3rd ed. (Norman: University of Oklahoma Press, 1993), 269–270. Temascaltepec was also known for its silver mines, which by the middle of the eighteenth century were in decline as mercury was diverted to the more productive mines at Guanajuato.

69. Manuel Antonio de Falla Oruña, Report on the state of the forests, August 23, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 413v.

north of Toluca, were complaining that vecinos of that city had been invading forests that they claimed to possess and pasturing livestock without permission:

That which is near a numerous population, or productive agricultural land, suffers deforestation. This is what has happened in the vicinity of Toluca, in whose jurisdiction there is not even a parcel of land (*una yugada*) populated with trees, although in the hills the surest signs still exist that these were once seen covered with [forests] in another time. Their total annihilation has forced those inhabitants [of Toluca] to come to this province [Meteppec] to supply themselves from the forests, that were once, without assistance, sufficient for the consumption and uses of the vecinos.⁷⁰

The towns and settlements of the northern Sierra de las Cruces were heavily involved in the harvesting of timber for Mexico City, and to a lesser extent Toluca. The region immediately surrounding Jilotepec was denuded and covered with only mesquites, but above the town in the sierra dense forests supplied royal works, including the great drainage project known as the Desagüe. The Hispanic and indigenous residents of Villa del Carbón and Chapa de Mota both subsisted largely on this trade to the capital. Near Tenango del Valle, to the south of the city, indigenous people cut “without any method or rule whatsoever,” harvesting only the best parts of the ocote pine trees for charcoal-making and abandoning the rest to the forest floor. As mentioned above, José Villamil y Primo, the subdelegado of Tacuba, attributed deforestation directly to officials’ failure to enforce royal laws, which allowed the supposedly ignorant masses to make use of these resources in self-serving, anti-communitarian, and irrational ways.⁷¹

All the reports from the vicinity of Mexico City indicate that human activities had progressively reduced forests to only the higher mountain slopes, save for Chapultepec, which was managed by the city’s cabildo.⁷² Like Tacuba, Coyoacán had also undergone extensive clearing, with forests enduring primarily in the mountains, specifically several haciendas and the Carmelite retreat of Santo Desierto, which, as one of the few intact forests within the city’s orbit, was acquired by the colonial government in the 1790s to supply the gunpowder factories at Chapultepec and Santa Fe. Yet, these forests were also threatened, and many trees could be found throughout the region

70. Antonio de Elías Saenz, Report on the state of the forests, December 8, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 618. Literally, “una yugada” refers to the extent of land that could be plowed by a yoke of oxen in a day. Los naturales del pueblo de Santiago Temoaya, sobre posesión de tierras pertenecientes a su comunidad, November 24, 1721, AGN, Tierras, vol. 1600, exp. 17, fols. 1-1v.

71. José Villamil y Primo, Report on the state of the forests, August 20, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fols. 590-590v.

72. This includes the reports from the subdelegaciones of Tacuba, Coyoacan, Tetepango, Chalco, and Cuernavaca.

decomposing and unutilized on the ground, echoing reports from Toluca and elsewhere. To the south near Cuernavaca, the situation was similarly grim, with the “greater part of [the forests] arid and barren,” save for the occasional mesquite or similarly spiny plant, a condition Francisco Javier Ramirez attributed to the lack of established order.⁷³ Near Chalco, long a major source of grains and wood in the city, there were “as in all those of this kingdom, abuses in the felling [of trees] at the whim of whoever goes to the forests, without a single person planting or caring for more than their destruction.”⁷⁴ None of these reports provide any evidence that intervention on the part of local officials had slowed the process of forest depletion.

Near Puebla, only the respondents from San Juan de los Llanos and Tetela de Tonantla, both near the mountains far to the northeast, reported having good forests.⁷⁵ The gobernador of Tlaxcala described the nearest forests as “not the most advantageous” and the hills nearest the city as reduced to small and spiny taxa. The two exceptions were the Matlalcueitl (Malinche) Volcano and the mountains just beyond Tlaxco, more than 20 miles to the north. Even these, Francisco de Lissa reported, “day by day are diminishing, since moreover there is no care by the owners of the referenced forests,” who had to accept the concentrated efforts of wood traders with decreasingly few options.⁷⁶ All forests near Huejotzingo and Cholula had been severely depleted, with the official from Huejotzingo noting that what little remained was being “destroyed because the possessors of farms (*fincas*) found therein have tried only to take from them the products that they have been able to by destroying them, without having cut with order or method.” As in forests of Tlaxcala, most of this wood was cut by Nahuas and transported to both Mexico City and Puebla. Near Cholula, forests could be found on only two small estates, and both were mostly “annihilated” from incessant cutting “without order or method.”⁷⁷ Forests near Atlixco and Tecali suffered the same fate, while those near Izúcar had been consumed by the sugar mills scattered throughout the region.

73. Francisco Javier Ramírez, Report on the state of the forests, August 9, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 412.

74. Manuel Antonio Fernández Flores, Report on the state of the forests, August 19, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 594.

75. Manuel de Flon, Report on the state of the forests, January 12, 1796, AGN, Industria y Comercio, vol. 31, exp. 25, fols. 543-549. The other towns are Atlixco, Tochimilco, Izúcar, San Juan de los Llanos, Tehuacan, Tepeji, Tecali, Huachinango, Hueyacocotla, Tetela de Tonantla, Chiautla, Ihualpan, Tlapan, Zacatlan, Acatlan, Tesiutlan, Chietla, Cholula, and Huejotzingo. There is a separate report for Tlaxcala.

76. Francisco de Lissa, Report on the state of the forests, September 3, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fols. 607-607v.

77. Manuel de Flon, Report on the state of the forests, January 12, 1796, AGN, Industria y Comercio, vol. 31, exp. 25, fols. 548-548v.

The lack of concern over the enforcement of forestry laws is also evident for regions with abundant forests. In the high Sierra Nevada mountains above Izúcar, where sugar producers turned after annihilating forests at lower elevations, forests were so abundant that woodcutters “keep no method at all, nor could the case arise that the forests would deteriorate, or that the inhabitants would be harmed with the lack thereof.”⁷⁸ In the mountains of Veracruz, all parties were similarly in the habit of cutting trees at the base, and no order was followed, because the fertility of the land meant that “it is not necessary to leave *horca y pendón*.”⁷⁹ There, indigenous commoners treated the forests “as commons without anyone impeding them” and, despite the overall healthy state of the forests, they were being diminished by this cutting, which the reports make clear.⁸⁰

Similar observations were made in other regions remote from the economic “trunk line” of the Spanish economy.⁸¹ While local conservation methods no doubt endured longer in these regions, indigenous men and women quickly learned to take advantage of the Spanish legal system as haciendas and the market economy took hold during the seventeenth and eighteenth centuries. Because of the abundant forests near Jiquilpan, to the south of Lake Chapala, indigenous people, probably Nahuas and Purépecha, cut trees at the base “with the greatest disorder, annihilating them, especially on the hillsides and slopes, making the acquisition [of wood] more expensive.”⁸² Despite rapid economic development and an influx of migrants into Guerrero during the eighteenth century, in the jurisdiction of Chilpancingo “and in contiguous ones, no method is observed at all” because the forests were “so extensive” that all parties cut freely.⁸³ In Colima, forests were “so abundant that no method in the cutting of wood has ever been established,” and the same was reported for the remote coast.⁸⁴ Near the similarly sparsely populated region near

78. Manuel de Flon, Report on the state of the forests, January 12, 1796, AGN, Industria y Comercio, vol. 31, exp. 25, fols. 544v-545.

79. Francisco Flores, Report on the state of the forests, April 23, 1794, AGN, Industria y Comercio, vol. 31, exp. 24, fols. 513-513v.

80. Francisco Flores, Report on the state of the forests, April 23, 1794, AGN, Industria y Comercio, vol. 31, exp. 24, fol. 513.

81. The railroad metaphor is James Lockhart's. See “Trunk Lines and Feeder Lines: The Spanish Reaction to American Resources,” in *Of Things of the Indies: Essays Old and New in Early Latin American History* (Stanford: Stanford University Press, 1999), 141-42.

82. Felipe Díaz de Ortega, Report on the state of the forests, AGN, Industria y Comercio, vol. 31, exp. 20, fols. 432, 435. Though the Purépecha language predominated in the region, Jiquilpan (Xiquilpa) was settled by Nahuas and speakers of a language referred to as Sayulteca, which Gerhard believed was possibly a Nahuatl dialect. *A Guide to the Historical Geography of New Spain*, 386-387.

83. Pedro Nicolás Cadrecha, Report on the state of the forest, September 18, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 422. On the economic development of Guerrero, see Jonathan Amith, *The Möbius Strip*.

84. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fols. 431v, 427-27v. The report from Zacatula/Tecpan indicates “intact” forests and a complete lack of

Tlalpujahua, extensive forests were cited as a reason that unregulated cutting prevailed.⁸⁵

In areas of dense forests, officials were more likely to complain about their excess than their lack. In Carácuaro, in the mountains of Michoacán, the free cutting and burning of forests was preferred and actively encouraged to support the expansion of maize cultivation to feed the growing population.⁸⁶ The reports from Ario and Coahuayana, both in the jurisdiction of Valladolid (modern Morelia, Michoacán), specified the lack of cutting regulations as a boon because of the clearing that it encouraged. In Colima, cutting was similarly unregulated “because of the benefit that results in deforestation for the planting of maize and cotton,” while in Erongarícuaro it was done to expand pastures. Free cutting was also encouraged to expand cultivation and for better “ventilation” in the remote regions of Huetamo and Tacambaro.⁸⁷ The subdelegado of Metztlán lamented that forests there overgrew roads and harbored dangerous animals; he believed, as many did well into the nineteenth century, that forests brought constant deluge and cloudiness to the region.⁸⁸ He recommended that forests remain “open for any to cut freely, so that the terrain is opened and cleared and the dangerous paths be widened,” revealing an explicit awareness of the relationship between open-access regimes and deforestation.⁸⁹

While some hacendados in economically peripheral regions did enforce cutting measures, in more central regions privately owned forests generally fared little better than those remaining under royal domain. Hacendados and their mayordomos were driven by short-term economic considerations conditioned by the generally low rate of return on agricultural enterprises.⁹⁰ Agricultural

regulation by local officials. On the population of Colima, see Gerhard, *A Guide to the Historical Geography of New Spain*, 82.

85. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fol. 430v.

86. Manuel de Flon, Report on the state of the forests, January 12, 1796, AGN, Industria y Comercio, vol. 31, exp. 25, fols. 430-430v.

87. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fols. 430-434.

88. The belief that forests' vascular respiration promoted humidity was common in the eighteenth and nineteenth centuries. This was a misunderstanding of the ways in which deforestation could lead to erosion and desertification, which gave the appearance of increased aridity. For a discussion of this belief in the nineteenth century, see Christopher R. Boyer, *Political Landscapes: Forests, Conservation, and Community in Mexico* (Durham: Duke University Press, 2015), 53–54.

89. Alejandro Gabriel de la Pascua, Report on the state of the forests, October 9, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fols. 615v-616.

90. Both Eric Van Young and David Brading have confirmed that most haciendas generated only modest returns on investment. See Brading, *Miners and Merchants in Bourbon Mexico*, 208–219. Van Young shows that profits in the Guadalajara region for agricultural estates varied depending on a variety of factors, but generally remained around 5 percent. Still, these estates were always susceptible to the vagaries of weather, and a profitable estate could easily go bankrupt during times of drought. *Hacienda and Market in Eighteenth-Century Mexico*, 2nd ed. (Lanham, MD: Rowman & Littlefield Publishers, Inc, 2006), 224–228.

lands were also generally more valuable assets than forests, so the collection of fees to cut was doubly profitable.⁹¹ Forest owners surrounding Tlaxco, at the base of the forested mountains north of Tlaxcala, permitted wood traders to cut freely for a fee of three pesos annually “without any rule whatsoever.” The traders, “thinking only of the present day,” left only a small trunk incapable of regrowth and sold most of the wood in Puebla to limestone producers, meat smokers, and bakers.⁹² Nahuas from San Francisco Tetlanohcan subsisted almost entirely by selling tar that they produced by piercing the trees, which usually stunted or killed them. Forest owners near Chiautla allowed cutting for “a small gift,” and the subdelegado of Zacatecas condemned the hacendados of his jurisdiction for doing nothing other than “setting and receiving the sums that must be paid to them for the taking of wood” and making it impossible for the local justices to intervene over the use of these forests.⁹³ Estate owners near the mines of Taxco also gave open access to their forests to all who were willing to pay one *real* weekly.⁹⁴ Throughout central Mexico, hacendados, rather than towns, regularly employed forest guards—to enforce the extraction of fees rather than the conservation of forests for the common good.⁹⁵

Indigenous gobernadores at times behaved much like hacendados and allowed outside parties to exploit nearby forests for a fee, at times against the wishes of local residents. The gobernador of Jilotepec did precisely this, leading the community to complain about his despotism and the damage the intrusion of outsiders did to the nearest forests.⁹⁶ “For a small stipend,” they complained, “they have the forests at their disposition, with neither the rents nor the frequent products they take providing any common benefit.”⁹⁷ The forest report verified that “no agreement has been observed in previous times for the

91. Forests were valuable, but they were less valuable than agricultural and pastoral lands. For instance, in 1717 the alcalde mayor of Metepec, adjudicating a claim over lands between the towns of Calimaya and Tepemajalco in the southern portion of the valley, valued the agricultural lands held by the towns at twice that of forests. Reconocimiento de las tierras pertenecientes a los naturales de los pueblos de Tepemajalco y San Pedro Calimaya, 1718-1719, AGN, Tierras, vol. 1441, exp. 2, fol. 246.

92. Martín de San Juan Barroeta, Report on the state of the forests, August 31, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 607v.

93. Josef de Peón Valdés, Report on the state of the forests, April 19, 1796, AGN, Industria y Comercio, vol. 31, exp. 26, fol. 551. Acacia trees (*tehuistle*) grew near Chietla. Their heartwood was used to produce the wheels for the gunpowder factories.

94. Miguel Pacheco Solís to the Junta de Montes of the Intendencia de México, N/D, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 420. Other owners charged per animal admitted to the forest. On sixteenth-century concerns over Taxco, see Studnicki-Gizbert and Schecter, “The Environmental Dynamics of a Colonial Fuel-Rush,” 94–95.

95. Sonya Lipssett-Rivera has identified the elite use of private guards to defend private water rights in Puebla. *To Defend Our Water with the Blood of Our Veins: The Struggle for Resources in Colonial Puebla* (Albuquerque: University of New Mexico Press, 1999).

96. Diligencias practicadas por el justicia de Xilotepeque, sobre si está comprendido en los bienes de comunidad el monte de dho pueblo. 1782. AGN, Tierras, vol. 2824, exp. 1, fol. 14.

97. Diligencias practicadas por el justicia de Xilotepeque, sobre si está comprendido en los bienes de comunidad el monte de dho pueblo. 1782. AGN, Tierras, vol. 2824, exp. 1, fol. 11.

cutting [of wood]” and that local hacendados also permitted open-access cutting for a fee.⁹⁸

The expansion of arable lands and pastures to sustain local populations and to feed growing cities was another important factor. One Otomí witness from Jilotepec testified that many “recently married and poor” were unable to obtain communal *tierras de repartimiento* on which to build their homes and that many entered the trade in timber and tannins.⁹⁹ Those who did not enter the trade had the option of clearing trees to open new fields, which many did. However, beginning in the 1760s, several haciendas, particularly the Hacienda de Nixini to the southwest of Villa del Carbón, began making stronger claims to some of the lower forested slopes and pushing the impoverished woodcutters farther up the roads, making the expansion of arable fields more difficult. Most of the hacendados allowed unrestricted cutting in the forest for a fee. Testimony from the 1780s describes the use of burnt oak trees as boundary markers within the lands claimed by Nixini, suggesting the use of fire to clear the lower forests to expand pastures.¹⁰⁰ Chapa de Mota into the 1790s tried to dislodge some farmers (*labradores*) from the forests that he used to supply wood to the Real Desagüe.¹⁰¹ The complaint did not specify a single party, but rather noted that “with the passing of time the neighboring *labradores* have slowly been introducing themselves into our lands and usurping them to the point that they have legally claimed them.”¹⁰²

Several reports strongly condemned the expansion of pastures near forests. Each year in the months of March and April, ranchers set fire to their pastures and *montes* to recycle nutrients into the soil, to open new lands for planting and grazing, and to eliminate unwanted weeds and pests from the tall grasses. While this was beneficial in the short term, fires also destroyed the seeds and shoots of many trees that were beginning to sprout during the spring. Any shoots that did emerge were often consumed by goats and other draft animals. The subdelegado of Zacatecas criticized the destructive practice of burning to expand grazing land, which turned great expanses of forest into arid wastelands, while the official from Xalatlaco observed that the forests grew back

98. Juan José Valverde, Report on the state of the forests, August 27, 1799, AGN, Industria y Comercio, vol. 31, exp. 19, fols. 418-18v.

99. Diligencias practicadas por el justicia de Xilotepeque, sobre si está comprehendido en los bienes de comunidad el monte de dho pueblo. 1782. AGN, Tierras, vol. 2824, exp. 1, s/f. The specific document is found seven pages from the back of the expediente.

100. José Manzanedo, Vista de ojos del pueblo de San Jerónimo Zacapexco, May 11, 1784, AGN, Tierras, vol. 2171, exp. 6, fol. 21v.

101. Although the royal government purchased wood from these groups, in the early years of project the same communities were used in *repartimiento* to provide wood for the drainage project. See a receipt from Enrico Martínez, dated January 26, 1630, found in AGN, Indiferente Virreinal, caja 3552, exp. 23.

102. Anastacio Benítez, Los naturales del pueblo de Chapa de Mota, sobre posesión de tierras. November 11, 1794. AGN, Tierras, vol. 1519, exp. 1, fol. 3.

“unless they are burned for pastures.”¹⁰³ Livestock invasions into recently deforested lands also contributed significantly to hillside erosion. Near Toluca this practice “exposes the soil to the violence of the storms that drag the agricultural soils down to the plains below.” According to the official, “this is the origin of these slopes of Santa Fe and the hills of Toluca, and many others in this kingdom, appearing so barren and depopulated.”¹⁰⁴ The combined effects of unrestricted cutting, burning, and pasturing permanently converted high-altitude hardwood forests into an eroded and degraded landscape of little economic utility.

OFFICIAL REMEDIES

To remedy these problems, officials recommended few if any changes to existing law, believing instead that the problem was one of enforcement. The most common remedy officials suggested was the establishment of royal guards to enforce forestry laws. The subdelegado of Tenango del Valle believed that such guards could prevent the local Nahua and Matlatzincas populations, who supplied wood and fuel to the Royal Mint, from wastefully felling trees that they did not use.¹⁰⁵ The report from Taxco notes that the implementation of a rational forestry system would require the establishment of one or two forest guards to police and punish violators, a duty historically expected of municipal councils. Some respondents, however, believed that guards alone were insufficient and instead recommended the creation of a new permanent office dedicated to forest conservation. The official from Temascaltepec recommended that “in each jurisdiction or district a committee member be named by Your Excellency, authorizing him with the greatest respect with the title of Forest Conservation Judge”; the person so designated would be granted effective jurisdiction over all public and private forests. Both he and the subdelegado from Zacatecas recommended as well the appointment of trained carpenters who could recommend and verify the quantities of wood that might be taken for a project. Several reports suggested that any person who wanted to fell a tree be made to solicit the expertise of a master carpenter (at their own expense) to determine the type and quantity of wood needed.

103. Josef de Peón Valdés, Report on the state of the forests, April 19, 1796, AGN, Industria y Comercio, vol. 31, exp. 26, fol. 552; Francisco Flores, April 23, 1794, Report on the state of the forests, AGN, Industria y Comercio, vol. 31, exp. 24, fol. 513.

104. Antonio de Elías Saenz, Report on the state of the forests, December 8, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 619.

105. Martín de San Juan Barroeta, Report on the state of the forests, August 31, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fols. 606-606v. The region of Tenango del Valle included the towns of Atlapulco and Calimaya, and others that produced charcoal for the Royal Mint. See Felipe Castro Gutiérrez, “San Pedro Atlapulco y la Real Casa de Moneda: las vicisitudes de una empresa comunitaria,” *Historia Mexicana* 57:3 (January-March 2008): 674.

Many reports reiterated the need to enforce the medieval requirement that firewood be collected from either deadwood or the small branches of trees, always leaving horca y pendón on hardwoods.¹⁰⁶ The official from Jilotepec recommended that woodcutters and traders be forbidden to fell trees larger than they needed, echoing other complaints about the cutting of immature trees that required less work to process. While most blamed deforestation on perceived indigenous racial and cultural traits they saw as incompatible with rational conservation measures, some did blame hacendados for failing to properly regulate the forests on their properties. The official from Zamora (Michoacán) noted the failure of hacienda owners to enforce the leaving of horca y pendón and recommended an order requiring them to do so.¹⁰⁷ Others saw the need to leave forests fallow for a time to permit regrowth. The respondent from Taxco suggested that local officials work with estate owners to establish a system of rotation whereby a portion of their forests would be left “to rest” (*descanzar*) and recover.¹⁰⁸ The official from Jiquilpan suggested that local magistrates demarcate areas where cutting would be permitted.¹⁰⁹

The replanting of trees, a legal requirement emphasized by Spanish state forestry officials, though with mixed success, was essentially unknown in Mexico, save for the occasional beautification project or where it would reinforce dikes.¹¹⁰ Noting this failure, the official from Metepec implored the council to take up replanting in a serious way, since plantations of trees were “one of the principal branches of the rural economy.”¹¹¹ Oak trees were particularly emphasized because of their slow rate of growth and high versatility within a mixed agrarian economy. He explained that the replanting of trees in Spain was why “the forests of the Province of Guipúzcoa,” a major shipbuilding region, “are maintained in a better state than those of the rest of Spain.”¹¹² The official who prepared the report for Temascaltepec also suggested the establishment of an oak plantation in his jurisdiction near Almoloya to the

106. Manuel Antonio de Falla, Report on the state of the forests, August 23, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 599.

107. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fol. 431.

108. Miguel Pacheco Solís to the Junta de Montes of the Intendencia de México, N/D, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 420v.

109. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fol. 432.

110. Luis Urteaga, *La tierra esquilmada: las ideas sobre la naturaleza en la cultura española del siglo XVIII* (Barcelona: SERBAL-CSIC, 1987), 133.

111. Antonio de Elías Saenz, Report on the state of the forests, December 8, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 619.

112. Antonio de Elías Saenz, Report on the state of the forests, December 8, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 619v.

northwest of Toluca, perhaps because there was still a small grove of trees there in the 1790s.¹¹³

The need for replanting was emphasized most strongly by officials from mining districts, with the official from Taxco condemning his predecessors’ failures and noting that “it is easy to conceive that these [forests] are being felled, without there having been planted a single tree in three hundred years,” and pointing to the negligence officials had displayed in enforcement.¹¹⁴ *Novohispano* officials also recommended much higher ratios of newly planted trees to those cut, demonstrating the degree of crisis. While Spanish law required the planting of three trees for each one cut, the subdelegado of Taxco suggested a ratio of seven to one, while the official from Tlazazalca suggested a ratio as high as ten to one to offset the unregulated cutting of traders who fed the mines of Guanajuato.¹¹⁵

Josef de Peón Valdés and Miguel Pacheco Solís, the responding officials from Zacatecas and Taxco, respectively, penned perhaps the strongest indictments of New Spain’s sylvan political ecology. Pacheco understood that the barren and desertified landscape of his jurisdiction resulted from a lack of cooperation among local stakeholders. Both indigenous towns and hacendados, who together owned all forests in the region, welcomed the formation of family settlements (*rancherías*), which paid fees to the owners for open access to their forests. He noted, however, that within these settlements owners appointed local captains who worked with the local justices to prevent conflict and ensure the collection of fees, and this group, he argued, could form the basis for a new conservation program. While such an undertaking might “appear at first glance harmful to the hacendados because it restricts their decisions within their absolute domain,” Pacheco thought this view was short-sighted: without the adoption and enforcement of local conservation measures, their enterprises would collapse along with the “ruin of an entire mineral province.”¹¹⁶ But Pacheco was optimistic, channeling the poet Virgil’s parable that while the descent into hell is simple, the return to light is the hard part: “Hoc opus, hic labor est.”¹¹⁷ The case highlights the late colonial tensions between older

113. Manuel Antonio de Falla, Report on the state of the forests, August 23, 1799, AGN, Industria y Comercio, vol. 31, exp. 29, fol. 600. On the rental of this small forest, see Ocurso del gobernador y naturales del pueblo de Almoloyan, sobre que les de licencia para hacer la donación de unos montes, 1790, AGN, Tierras, vol. 3058, exp. 2. Live oak was preferred because it was a native species of great economic versatility as a source of firewood, quality construction materials, and acorns for livestock fodder.

114. Miguel Pacheco Solís to the Junta de Montes of the Intendencia de México, N/D, AGN, Industria y Comercio, vol. 31, exp. 19, fol. 419v.

115. Felipe Díaz de Ortega, Report on the state of the forests, February 18, 1794, AGN, Industria y Comercio, vol. 31, exp. 20, fol. 431v. On the laws on replanting, see *Novísima Recopilación*, Book 7, title 24, Law 14, especially part 19.

116. Miguel Pacheco Solís to the Junta de Montes of the Intendencia de México, N/D, AGN, Industria y Comercio, vol. 31, exp. 19, 421-421v.

117. “This is the task, this is the hard work.” The quote is from *The Aeneid*, Book 6, Line 129.

cooperative regimes and landowners' increasingly fervent assertions of individual rights.

Peón similarly decried the failure of officials to regulate forest use and the profit-seeking hacendados' collection of rents for open access to the few remaining forests within the orbit of Zacatecas. But he was more pessimistic than Pacheco, arguing that the extreme desertification of his jurisdiction prevented the establishment of any new plantations. His understanding of the common good was also more closely linked to the Bourbon promotion of royal absolutism and private property as means toward economic revitalization. "To remedy such pernicious evils against the state, and against the same hacendados," he wrote:

I do not find any means other . . . than that the forests cannot be commons, so that in this way they come under the immediate direction of the royal judges and guards. The owners will be obliged to take special care of [the forests], that the cutters of wood do not make use of them, but only of the useful branches, reserving those that do not allow for reproduction and regrowth until the appropriate time. In this way the little trees that recently grew from a seed that fell on the ground would be able to grow, and the case of their total extermination will not arise.¹¹⁸

Peón hailed from the densely forested Spanish region of Asturias, a key supplier of hardwood for the shipping industry, which had witnessed increasingly intense efforts by state foresters during the eighteenth century to study deforestation and to bring the powers of the state to bear upon communitarian practices.¹¹⁹ It was a short leap for Peón to believe that the remedy applied in the metropole could be applied generally, even if others before him had come to different conclusions.

CONCLUSION

From the sixteenth century, interactions between woodcutters and the Spanish legal system had intersected with ecological, demographic, and economic changes in ways that tended to convert the common-pool forests of New Spain into open-access commons, which in turn created new possibilities for litigants to promote their interests. Because the crown's usurpation of indigenous communities' eminent domain over forests disempowered their ability to

118. Josef de Peón Valdés, Report on the state of the forests, April 19, 1796, AGN, Industria y Comercio, vol. 31, exp. 26, fol. 553.

119. Wing, *Roots of Empire*, 169–170. Asturias was among the most important sources of oak in Spain and received its own forest superintendent, along with Galicia and Cuatro Villas, in 1598. See Wing, *Roots of Empire*, 42, 54, 67, 137, 169–170. Peón is listed in the 1794 Padrón of Villaviciosa, near Oviedo. On Peón Valdés, see José Enciso Contreras, "La biblioteca de don José de Peón Valdés, letrado ilustrado ovetense en la intendencia de Zacatecas," in *Leer en Tiempos de la Colonia: Imprenta, Biblioteca y Lectores en la Nueva España*, ed. Idalia García and Pedro Rueda Ramírez (Mexico City: UNAM, 2010).

directly shape the rules and regulations governing local forest use, litigation became the primary avenue through which local rights were established, even when these new rights infringed upon traditional conservation arrangements. During the eighteenth century especially, population pressures and the market economy further drove the infringement of woodcutters, which in turn motivated the landed elite to seek new avenues of power through appeals to the state and the establishment of private, rather than communal, forest guards.

Like the *Novísima Recopilación*, which the monarchy intended to serve as the embodiment of Bourbon regalism throughout the empire, the reform project of the Council on Forests never lived up to the lofty goals set by its framers.¹²⁰ The documents do not record exactly why the new forestry regime was never put into practice, but informed speculation is possible. For one, less than a decade later Napoleon deposed the Spanish monarchy and set in motion the crisis of sovereignty that finally severed the political ties between Mexico and Spain. But the reform efforts had hurdles of their own. Among them was a basic contradiction: the responses and recommendations received by the council drew, in often contradictory ways, from older Habsburg notions of the *bien común*, which stressed the monarchy's imperative to protect the public good from private greed, whereas newer Bourbon interpretations elevated the monarchy's responsibility to foment economic development above such considerations.

Differences in geography, climate, economy, and entrenched interests also served to hinder efforts to establish a new general ordinance, which led the council to abandon the project in favor of a more regional approach. But most important were the expectations held by commoners, who pushed crown officials to uphold their usufruct rights, and landowners, who expected the state to uphold their “absolute domain” over privately held lands. At a time when the intellectual forces of individualization and economic growth were beginning to overtake notions of protectionism and stability as the *raison d'être* of the state, both the old and the new blended together in contentious ways within the pages of the colonial legal system. In the end, both usufructuaries and landowners got just enough of what they wanted to set in motion an evolving crisis that remained almost imperceptible for nearly three centuries, until it became impossible to ignore.

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120. Paquette, *Enlightenment, Governance, and Reform*, 90–91.