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BOOK REVIEW ESSAY

Ecology and Energy in Latin America

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This essay reviews the following works:

Sweet Fuel: A Political and Environmental History of Brazilian Ethanol. By Jennifer Eaglin. New York: Oxford University Press, 2022. $48.00 hardcover. Pp. 282. 16 halftones. ISBN: 9780197510681.

Hydropolitics: The Itaipu Dam, Sovereignty, and the Engineering of Modern South America. By Christine Folch. Princeton, NJ: Princeton University Press, 2019. Pp. 272. $27.95 paperback, $80.00 hardcover. ISBN: 9780691186603.

Nationalizing Nature: Iguazu Falls and National Parks at the Brazil-Argentina Border. By Frederico Freitas. Cambridge: Cambridge University Press, 2021. Pp. xv + 312. $99.99 hardcover. ISBN: 9781108844833.

The Extractive Zone: Social Ecologies and Decolonial Perspectives. By Macarena Gómez-Barris. Durham, NC: Duke University Press, 2017. Pp. xx + 188. $ 24.95 paperback. $94.95 hardcover. ISBN: 9780822368977.

Mas allá del PIB: El otro desarrollo. By Gabriel Loza Tellería. La Paz: Plural Editores, 2023. Pp. 176. Paperback. ISBN: 9789917625445.

Plant Kin: A Multispecies Ethnography in Indigenous Brazil. By Theresa L. Miller. Austin: University of Texas Press, 2019. Pp. 297. $29.95 paperback. ISBN 9781477317402.

Loss and Wonder at the World's End. By Laura A. Ogden. Durham, NC: Duke University Press, 2021. Pp. 189. $24.95 paperback, $94.95 hardcover. ISBN: 9781478014560.

Colonial Cataclysms: Climate, Landscape, and Memory in Mexico's Little Ice Age. By Bradley Skopyk. Tucson: University of Arizona Press, 2020. Pp. xv + 313. $55.00 hardcover. ISBN: 9780816539963.

Fueling Mexico: Energy and Environment, 1850–1950. By Germán Vergara. Cambridge: Cambridge University Press, 2021. Pp. xii + 322. $99.99 hardcover. ISBN: 9781108831277.

Scholars, activists, policymakers, and others concerned with the planetary crisis are at an inflection point. There is increasing acceptance of the idea that the Earth has entered a

new geological age, the Anthropocene, in which human society has become the most powerful force shaping the global climate and the ecologies it sustains. But there is also increasing recognition that the Anthropocene concept fails to specify which people and practices are to blame for environmental destruction, to account for nonhuman nature, or to recognize multispecies relations of care. Scholars have thus proposed alternative concepts, such as the Capitalocene (Moore), the Third Carbon Age (Klare), the White (M)anthropocene (Chiro), and the Chthulucene (Haraway), among others, that account for power differences within human society and human relationships with other beings. Donna Haraway in particular invites us to move away from totalizing narratives of destruction and despair and instead "imagin[e] and car[e] for other worlds, both those that exist precariously now ... and those that we need to bring into being in alliance with other critters."[1] Multispecies well-being is not only possible; it has existed and continues to exist.

Historical and anthropological scholarship on the environment has a crucial role to play in differentiating among different groups' relationships with the nonhuman environment, assessing the impacts of those relationships, and not only exposing human abuse of the environment but also elevating stories of care and reciprocity. The region now known as Latin America has been a generative site for environmental scholarship due to the complexity of its precolonial societies, early timing of both European colonization and independence, its role as a supplier of natural resources to the world, the persistence of Indigenous peoples and communities with distinct environmental ideas and relationships, and dynamic social movements that have demanded rights to and for nature.

Recent debates about how to characterize the current geological age mirror the trajectory of discussions about how to characterize human relationships with the environment among environmental historians over the past half century. Early scholarship on Latin American environmental history, from the 1970s to the 1990s, focused on the ways that Old World people, livestock, and plants harmed their New World counterparts. Alfred Crosby, for instance, ended his field-defining 1972 study with this bleak conclusion: "The Columbian Exchange has left us with not a richer but a more impoverished genetic pool. We, all of life on this planet, are the less for Columbus, and the impoverishment will increase."[2] In Elinor Melville's telling, Spanish sheep stomped out Indigenous agriculture to produce a "barren" landscape that favored European livestock and facilitated Spanish economic and political power.[3] In Warren Dean's history of Brazil's Atlantic Forest, human "invaders," both Indigenous and Portuguese, inflicted wanton and senseless destruction.[4] These accounts identified environmental damage and named culprits but tended to neglect the ways that people, especially Indigenous people, have cared for nature and persevered in the face of adversity. As Skopyk remarks, "the ethical considerations of the Spanish conquest have certainly skewed the conversation" (18).

In roughly the past two decades, a new wave of scholarship has shown that, while significant and often destructive, European and creole influences were not as powerful as colonizers, or their critics, long claimed them to be. According to Karl and Elisabeth Butzer, Old World livestock, such as cattle and sheep, at times complemented local ecosystems.[5]

[1] Donna Haraway, "Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene," *Eflux Journal* 75 (2016): 7.

[2] Alfred Crosy, *The Columbian Exchange: The Biological Consequences of 1492* (Westport, CT: Greenwood Press, 1972), 219.

[3] Elinor Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* (New York: Cambridge University Press, 1997), 16.

[4] Warren Dean, *With Broadax and Firebrand: The Destruction of the Brazilian Atlantic Forest* (Berkeley: University of California Press, 1995).

[5] Karl W. Butzner, "Ecology in the Long View: Settlement Histories, Agrosystemic Ecological Performance," *Journal of Field Archaeology* 23, no. 2 (1996): 141–150; Karl W. Butzer and Elisabeth Butzer, "The 'Natural' Vegetation

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Judith Carney and Andrew Sluyter, among others, have shown that enslaved Africans brought seeds and cattle-herding techniques from Africa that diversified New World ecosystems.[6] Barbara Mundy's work reveals that Mexico City's water systems remained fairly stable, thanks to Indigenous engineering expertise and labor.[7] Richard Conway has found that Indigenous lake dwellers in nearby Xochimilco molded lake environments to preserve a high degree of ecological autonomy in spite of colonial disruptions.[8] This scholarship has revealed the agency, resilience, and creativity of Indigenous and Afro-descended peoples in their relationships with an ever-changing environment that they helped shape.

The works reviewed here deepen our knowledge of Native and Afro-descended people's environmental ingenuity while also centering the influence of nonhuman forces and beings more than scholars have in the past. Each book shows how people and nonhuman nature, from the climate to oil to rivers to beavers, have made and remade each other and cocreated evolving multispecies environments. They also continue to move the study of nature away from commodity histories toward socioenvironmental histories. There are more studies of energy than in the past, no doubt due to concern with climate change and interest in transitions away from fossil fuels. These books have much to teach us about how relationships among different groups of people are mediated by relationships with and struggles over the nonhuman environment, and about dynamic human-environmental and multispecies interactions. As these studies make clear, these relationships are never static, and changes are not only anthropogenic in origin. The question is what people and the earth do in response to social, political, economic, and environmental changes they help shape but do not control, and how their responses in turn impact the world around them. These studies move beyond narratives of gloom and destruction, on the one hand, and rosy pictures of stability and adaptation, on the other, to reveal the ways that people (and to some degree other species) respond creatively to social and environmental challenges, even if those responses have had mixed results.

Skopyk's study of Mexico's Little Ice Age (LIA) during the colonial period transforms our understanding of both this event and Mexico in the colonial period more generally. Previous scholarship had deemed Mexico's LIA an age of drought, and most scholarship on the colonial period in Mexico has ignored climate altogether. Skopyk shows that the LIA was a time of both water scarcity and flooding, arguing that these "colonial cataclysms were moments of opportunity, contestation, struggle, and even renewal" (15). He focuses on Indigenous producers in the Teotihuacán Valley (in the modern state of Mexico) and the Zahuapan River basin (in the modern state of Tlaxcala) who drew on local environmental knowledge to respond to environmental challenges. Rather than victims of European plants and animals, Indigenous people had "profound experience with new and old biota [that] gave them a natural advantage in agrarian innovation" (15).

The Little Ice Age was most intense in Mexico and globally from around 1570 to around 1720. But it began early in Mexico in the 1540s when large floods, extreme cold, and frosts killed crops and livestock and contributed to epidemics in people and epizootics among livestock, "decimating these populations" (13). Skopyk calls this period of extreme wet and cold from 1540 to 1620 the "Colonial Mexican Pluvial." Like British colonists in North

of the Mexican Bajio: Archival Documentation of a Sixteenth-Century Savanna Environment," *Quaternary International* 43–44 (1997): 161–172.

[6] Judith Ann Carney, *Black Rice: The African Origins of Rice Cultivation in the Americas* (Cambridge, MA: Harvard University Press, 2001); Andrew Sluyter, *Black Ranching Frontiers: African Cattle Herders of the Atlantic World, 1500–1900* (New Haven, CT: Yale University Press, 2012).

[7] Barbara E. Mundy, *The Death of Aztec Tenochtitlan, the Life of Mexico City* (Austin: University of Texas Press, 2015).

[8] Richard M. Conway, *Islands in the Lake: Environment and Ethnohistory in Xochimilco, New Spain* (New York: Cambridge University Press, 2021).

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America,[9] sixteenth-century Spanish chroniclers assumed that the environmental conditions they encountered were the norm. Historians, too, have downplayed climate and ecology as causes of mortality and impoverishment, inadvertently reproducing ahistorical ideas of static environments and Indigenous peoples.

In contrast to existing accounts of ungulate eruptions and Spanish domination of livestock operations, Skopyk finds that Indigenous Tlaxcalans "dominated early shepherding operations in the province" (74). When flooding reduced sheep numbers, Tlaxcalans began to raise Asian pigs that fed on wetland plant roots, thus making "creative and productive use of the new hydrology, ancient native plants, and new biota traveling across the Pacific on Spanish galleons" (77). They stepped up cultivation of cochineal to meet European demand for this native insect used for dye during the early Pluvial, making themselves rich, but moved away from it when temperatures dropped and rainfall increased. Rather than suffering from ungulate land degradation, Tlaxcalans engineered "ecological renewal" (79) during the Mexican Pluvial, using a combination of local and European plants, animals, and tools to do so.

In the seventeenth century, Indigenous cultivators increased cultivation of maguey for pulque production. While they had previously kept plants close to home, these farmers now began to cultivate maguey on terraced slopes, creating a "new ecology" (107). But when drought hit in the 1690s, famine set in, people and animals died, and pulque fields were left abandoned, setting the stage for "soil movement on an unprecedented scale" (92) when rains and floods returned in the 1730s. Soils from untended terraces washed down into floodplains, choking rivers, filling wetlands, clogging hydrological networks, and flooding roads, churches, and convents. What began as an ingenious and profitable response to the Mexican Pluvial ended up causing destructive alluviation, a second "colonial cataclysm." But once again, disaster created opportunities for Indigenous farmers, in this case to cultivate newly silted land and build chinampas on the edges of rivers and reservoirs.

As he traces the ebbs and flows of water and soil, Skopyk refuses to separate human and "natural" forces of historical change, instead exploring the coevolution of people and the biophysical world. The climate, people, and dirt all acted on and reacted to one another. Yet eighteenth- and nineteenth-century Mexicans' inability, or at least unwillingness, to conceive of a different past environmental reality, connected to their efforts to affirm property rights as the ground shifted, led to a "false sense of environmental stasis" (200) that has inhibited historians' ability to see change in historical evidence. Skopyk ably brings both Indigenous peasants and environmental forces back into the story. *Colonial Cataclysms* humanizes a group too long considered either passive beneficiaries or helpless victims of Spanish colonizers and the pathogens, animals, and crops they brought with them. Even more novel is the way he brings the climate, water, and soil into the story as dynamic players that acted on and responded to human activity. The book is a model of how to move beyond simplistic stories of either decline or adaptation with the latter's implications of easy responses to environmental change. Reality, as Skopyk shows us, is messy and mixed.

Fueling Mexico picks up the story of human-nature relationships in Mexico where Skopyk leaves off. Vergara seeks to explain how and why Mexico moved from a society dependent on human and animal muscle power in the mid-nineteenth century to one dependent on fossil fuels by the mid-twentieth, and the consequences of this transition for people and the nonhuman environment. This "fossil fuel revolution," as Vergara calls it, occurred in three stages—increasing use of coal in the 1880s, oil in the early twentieth century, and natural gas in the 1940s—and ultimately fueled "unprecedented industrial and economic growth between 1940 and 1970, the so-called Mexican economic miracle" (5). Like Eaglin's

[9] William Cronon, "The Trouble with Wilderness; or, Getting Back to the Wrong Nature," in *Uncommon Ground: Rethinking the Human Place in Nature*, edited by William Cronon (New York: Norton, 1995), 69–90.

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study of ethanol in Brazil (see below), *Fueling Mexico* moves beyond a commodity-history approach focusing on exports and the global economy to look instead at local consumption and environmental interactions and changes. To Myrna Santiago's work on the environmental history of oil production in Mexico, Vergara adds discussion of oil's environmental impacts in sites of consumption.[10]

Unlike most political histories of Mexico, this energy history emphasizes continuity between the 1880s and the 1940s.[11] Before the development of fossil fuels, Mexico depended on a "solar energy regime" based on human and animal muscle power, wood burning, and hydraulic and wind power. Steam engines were the first catalyst of the energy transition. In the late 1800s, steam power began to power textile factories, sugar mills, and electricity in the capital before a wood supply crisis in the 1880s led to the adoption of coal, the first stage of the fossil fuel revolution. Unlike waterpower, coal was portable, making it especially useful for cities and railroads. Yet the transition to coal ironically accelerated deforestation because railroads faciliated lumber transport, leading authorities to regulate tree cutting.

Coal served as what Vergara calls an "energy bridge" between the solar energy regime and the "oil-powered industrial model" (95) at the turn of the twentieth century. But the coal bridge from solar to oil was short because coal was difficult to access and expensive to transport—and because warring revolutionary armies destroyed coal fields during the 1910 revolution. By 1912, oil was already cheaper than coal and quickly became Mexico's most important fuel and "an essential part of Mexico's national identity" (134) in the postrevolutionary period. By the time the Mexican president Lázaro Cárdenas nationalized oil in 1938, Mexico was already consuming 76 percent of the oil it produced. Factories, trains, electrical plants, and motor vehicles all ran mainly on oil. Roads began to replace tramways after the revolution in the 1920s and, like in the United States, came to represent progress and modernity. By 1950, "oil had become Mexico's lifeblood" (175) but with high environmental costs, including deforestation of formally isolated forests, species decline, and urban air pollution.

The postrevolutionary state played a major role in the fossil fuel revolution. It invested in oil infrastructure, built a road system for motor vehicles, and used oil revenues to fund state spending and state-sponsored import substitution industrialization (ISI) programs. But the fossil fuel energy transition was not total. The rural poor continued to use charcoal and wood, which for Vergara suggests their desire for "autonomy and control over the energy sources they depended on" (174). Rural farmers understandably were loath to pay high prices for energy that belonged to someone else, came from far away, and used imported technology. At midcentury, then, there were two Mexicos: one that was rapidly industrializing and urbanizing using fossil fuel energy and another agrarian Mexico that "remained caught in the solar energy regime" (198).

In some ways, the 1970s-era Green Revolution was an effort to extend the benefits of the fossil fuel regime to the Mexican countryside. As Vergara writes, "abundant and cheap fossil energy in the form of synthetic fertilizer, tractors, electricity for irrigation, and other inputs" made the Green Revolution in Mexico, its birthplace, possible. But the Green Revolution mostly benefited large landowners and pushed small farmers off their farms into poorly paid seasonal labor, to cities, or north to the United States. The industrialization of food likely led to the "disappearance of many local corn varieties." While Vergara credits oil for "industrial and economic growth and improv[ing] the living standards of many," he blames it for "unchecked urban and population growth; rural

[10] Myrna Santiago, *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900–1938* (New York: Cambridge University Press, 2006).

[11] Helga Baitenmann's *Matters of Justice: Pueblos, the Judiciary, and Agrarian Reform in Revolutionary Mexico* (Lincoln: University of Nebraska Press, 2020) is an important exception.

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exodus on a large scale; mechanized production and chronic labor insecurity; a transport system often favoring cars and trucks over mass transit; and massive ecological degradation" (219). He concludes that "Mexico's model of a modern, capitalist, industrial nation appears environmentally unviable in the long run, despite some of its genuine and distinct conservation efforts" (225).

Eaglin's *Sweet Fuel* tells the story of another energy transition in Latin America: from oil to ethanol in Brazil's auto industry. Like Vergara, Eaglin is interested in how and why this transition happened and how it affected people and the environment. Her study traces how Brazil became one of the world's forerunners of biofuel promotion, production, and consumption from the 1930s to the 2010s. She argues that state and business leaders and rural workers engineered this transition through a shifting array of appeals, including national interests, modernity, energy autonomy, migration away from fossil-fuel dependence, job creation, and environmentalism. Like *Fueling Mexico*, *Sweet Fuel* is one of the first energy histories of a country outside the US and Western Europe. In fact, as Eaglin explains, Brazil's ethanol program is "the lone example in the world of a largescale alternative fuel initiative that successfully transitioned a country's domestic transportation fuel away from petroleum" (4). But as Eaglin shows, the industry took a hidden toll on workers and rural people and production sites.

A combination of state and private initiatives propelled ethanol's ascent. State support for ethanol production began during Getúlio Vargas's administration in the 1930s and consistently favored São Paulo rather than the Northeast, due, Eaglin argues, to São Paulo's association with whiteness. (The Northeast, in contrast, has long been associated with Blackness and the legacies of slavery.) State backing for the ethanol industry ebbed in the 1950s amid low oil prices, but even then, state assistance continued. In the 1960s and 1970s, producers began to bill ethanol as modern, cultivated links to the military government, and tapped into concerns about dependence on foreign energy sources as oil prices skyrocketed. The resulting National Ethanol Program, begun in 1975, jumpstarted ethanol car production. By 1985, 95 percent of new cars in Brazil ran exclusively on ethanol. While scholars have long critiqued Brazil's development model for being overly dependent on foreign investment and technology, Eaglin finds that domestic sugar producers imported foreign technology with local and national funding, maintained control of production, and expanded domestic industrial equipment industries.

Eaglin's critiques are about energy self-sufficiency's high environmental and social costs. Producers disposed of ethanol's by-product known as vinasse in local waterways, harming aquatic flora and fauna along with human health. Affected citizens protested and won regulations, but enforcement and compliance were limited. Industry workers protested low wages and onerous working conditions. While they sometimes won their demands, they often faced police repression. Given this context, industry leaders' promotion of ethanol as a local and green alternative to fossil fuels seems cynical.

State support mostly continued after the return of democracy in 1985 across neoliberal and Workers' Party administrations, in part due to ethanol's environmentally friendly reputation. As Eaglin writes, ethanol "transformed from a domestic solution to the international oil crisis during the 1970s into a global solution to a global climate crisis in the twenty-first century" (179) despite its rural sacrifice zones. Eaglin's study is, needless to say, particularly timely. By bringing the environment and rural workers and residents back into the story, Eaglin challenges romanticized ideas of non-fossil-fuel energy sources. The lessons Eaglin offers are many: that the state has a fundamental role to play in orchestrating energy transitions, and "developing countries" like Brazil can successfully industrialize without overdependence on foreign capital, technology, or expertise. But even autonomous transitions to alternative fuels have social and environmental costs. Therefore, as Eaglin convincingly concludes, "changing consumption practices must be part of, if not central to, a real, long-term energy solution" (190).

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Freitas's study of Brazil and Argentina's Iguaçu and Iguazú National Parks also assesses the role of the state and nationalism in shaping people's relationships with the natural world. *Nationalizing Nature* argues that the Brazilian and Argentine governments created the parks to nationalize and settle border regions in an area of intense trinational competition in the Brazil-Argentina-Paraguay borderlands from the 1930s to the 1980s. Argentina founded Iguazú National Park in 1934, and Brazil's Vargas administration followed suit with Iguaçu National Park in 1939. The Brazilian and Argentine governments were also interested in conserving the falls, protecting animals and their habitats, promoting public use, and facilitating and managing commercial logging.

Unlike national parks in the US meant to depopulate landscapes, Iguaçu and Iguazú were originally intended to attract settlers to these border zones. But like in the US and many other places around the world, the parks displaced Indigenous (Guaraní) communities who colonization companies and white settlers "steadily pushed away . . . from prime agricultural land at the border" (269). Support for the parks continued under dictatorship in the 1960s and 1970s, when dictators on both sides of the border tried to adopt the "Yellowstone model" of displacing and excluding inhabitants of all kinds from the park. Authorities in both countries removed park residents in those years, in the Brazilian case using "arson, beatings, rape, and murder against settlers" (154). In Brazil, the government paradoxically used agrarian reform to forcibly resettle park inhabitants, expropriating their land to create the park. Residents contested displacement, contending that, as Freitas explains, "expropriating small proprietors to cobble together idle latifundia was exactly the opposite of what the law defined as agrarian reform . . . . Ultimately that was how settlers and their lawyer understood the national park—an enormous expanse of unused land that would be in better use if put into production" (183).

The parks' contradictory preservationist and development missions often clashed. While the parks did protect some forested land, much of the forest became farmland. By the 1980s, conservation and biodiversity took precedence over development, perhaps because the parks had accomplished their original task of staking each country's claim to these borderlands.

The studies by Eaglin and Freitas offer useful context for Folch's study, the first of several historically informed ethnographies reviewed here. *Hydropolitics* tells the story of another set of falls on Brazil's border—the Itaipú and the Guairá on its border with Paraguay—and the development of another energy alternative: hydropower, South America's most widely used alternative energy. Two-thirds of the electricity produced in the continent comes from renewable sources, primarily hydropower, making South America the only region in the world not to depend on fossil fuels for most of its electricity, despite the presence of some of the world's largest known hydrocarbon deposits. Folch thus suggests that South America "offers a glimpse into what a post-fossil-fuel future might look like" (7).

Like Freitas, Folch examines national governments' efforts to exert power over borderland regions. But whereas Brazil and Argentina are roughly peers in terms of economic and political power, Paraguay has long felt threatened by its larger and more powerful neighbors. Indeed, Paraguay suffered terrible losses of life and territory to Brazil and Argentina in the War of the Triple Alliance in the nineteenth century. In the early twenty-first, controlling its share of the electricity produced by the Itaipú Binational Hydroelectric Dam, co-owned and comanaged by Brazil and Paraguay, has been central to the latter's efforts to assert and defend its sovereignty, Folch argues. Her deeply researched study of Paraguay's "hydropolitics," which she defines as a political economy based on "industrialization and electrification powered by water" (4), shows that turning water into electricity has undergirded political and economic power in Paraguay since the dam began operations in the 1990s. This is in large part because revenue from Itaipú has

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"served as an alternative to taxes" (83) that the executive could spend with little oversight or input from the population or the legislature.

The idea for the dam emerged out of a border dispute in 1965. Negotiations to avoid war yielded a plan to build and share a dam on the border. Like in Iguaçu and Iguazú, dam construction from 1975 to 1991 displaced Indigenous Guaraní communities from ancestral lands along riverbanks, forcing them to relocate to less desirable areas. While the dam is co-owned and operated, inequalities and power differences between Brazil and Paraguay became inscribed in dam operations. The fact that hydroelectricity is place based and cannot be easily stored means that local actors exercise greater control over it than is usually the case with other energy sources. Technical debates have thus frequently become political tests of patriotism and central to contests for political power in Paraguay due to asymmetrical binational power relations. For instance, critics of the ruling Colorado Party frequently charged that the government was beholden to Brazilian interests to cast doubt on its legitimacy. During the presidency of Fernando Lugo (2008–2012), the only interruption to Colorado Party rule since the late 1940s, the party's opponents had an opportunity to craft a more autonomous mode of hydropolitics.

Lugo's presidency was part of Latin America's "Pink Tide" of center-left governments that sought to wrest control of natural resources away from foreign companies and leverage rents for progressive ends in the early 2000s. During his campaign, Lugo rallied support for what he called "hydroelectric sovereignty." As president, he negotiated a new binational agreement with fellow leftist president Luiz Inácio "Lula" da Silva that gave Paraguay freedom to sell its energy at market rates in Brazil. Lugo also aimed to move away from government dependence on dam revenue and to invest it in economic diversification instead. Folch's close ethnographic work reveals important differences within Lugo's government between activist advocates of state-led development and a technocratic market-oriented wing. Both groups, however, agreed on the need for state oversight of the economy as well as management of natural resources and regional economic integration. Like Pink Tide governments elsewhere, the Lugo government creatively mixed state and market approaches to development. In fact, this had been and continues to be the Colorado Party's approach as well. Like in Brazil with ethanol, the Paraguayan government has maintained its commitment to state-led hydropower generation across dictatorship, neoliberalism, the Pink Tide, and the recent conservative backlash. And as in Brazil and many other countries, Lugo's government overlooked the environmental costs of its approach.

Hydropower is not as environmentally friendly as the Lugo administration claimed. Its promoters "hail it as 'renewable,'" Folch explains, "not because it is permanent, but because extraction does not deplete the resource" (43). Dams do not live forever. Eventually siltation and mechanical breakdown take their toll. And dams divert water away from its other life-sustaining uses. Because the state plays a leading role in hydropower production—and the oil and ethanol industries—the task of considering environmental sustainability falls to the state as well, or at least it should, according to the authors of the three energy histories reviewed here.

Loza explores leftist governments' promises to challenge environmentally destructive extractivism by situating the Indigenous concept of *vivir bien* or *buen vivir* (to live well, *sumaq kawsay* in Quechua) in the context of two centuries of economic theory. He argues that attention to quality of life and concern about the dangers of runaway growth are not new. In the early nineteenth century, David Ricardo and John Stuart Mill considered the earth an important factor in production, and Mill prioritized "the art of living." The neoclassicist John Maynard Keynes believed that economic growth would level off, allowing people to work less and focus more on happiness and well-being. But mid-twentieth-century developmentalists myopically focused on economic growth at all costs, ignoring classical economists' concern with well-being, predictions that economic growth

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would reach a "steady state" or decline, and their recognition that the earth is "a finite and exhaustible space" (5). Despite their critiques of unequal trade relations, South American developmentalists accepted the logic of gross domestic product (GDP) as the primary measure of economic success and prescribed industrialization and technological innovation as the antidote to underdevelopment.

The environmental and social costs of obsession with growth led various organizations, from the United Nations to the World Bank to the Club of Rome, to formulate new measures of development that considered (in)equality and basic human needs starting in the 1970s. In the 1990s, critiques expanded to include the environment. Alternative conceptions of development prioritizing well-being and nature also emerged in South America based on Indigenous principles of reciprocity, solidarity, and living in harmony with nature. Loza focuses on efforts in Bolivia and Chile to apply the Quechua and Aymara concept *vivir bien*, meaning to live well in community and in harmony with nature. During the presidency of Evo Morales (2006–2019), Bolivia's first Indigenous president, the term represented an effort to construct a plurinational society that would uplift Indigenous peoples and their cultures after centuries of dispossession and exclusion. It also alluded to a new development paradigm that would, in the 2007 National Development Plan's words, "change the primary export model and the principles of colonialism and neoliberalism that underpin it" (123). In this new model, the state would redistribute wealth, direct the economy away from exports toward the communitarian economy, and prioritize people's material, intellectual, and spiritual well-being in harmony with nature.

In practice, the results during Morales's presidency were mixed, to say the least. Inequality and extreme and moderate poverty levels fell, especially among Indigenous people, as per capita GDP rose and the government offered conditional cash transfers to vulnerable groups and oversaw significant land redistribution to small farmers, especially women. But the "motor" of this growth has been state-led industrialization of renewable and nonrenewable natural resource exports, most importantly hydrocarbons. Basic commodity exports rose from 87.3% of total exports to 94.8% over the course of Morales's presidency. Extraction of gold, one of the country's top exports, is especially environmentally destructive. As Loza writes, "Growing in harmony with nature is the Achilles heel of the Vivir Bien project in practice" (137). The state has played a redistributive role, but the emphasis on the communitarian economy has been mostly rhetorical, and the private sector continues to dominate in terms of GDP, employment, and exports, especially because of its presence in mining. The Morales government based its model not on the community or respect for the environment but on state-owned industries, public investment, and respect for the private sector.

Loza's discussion of Chile is understandably limited to the Gabriel Boric administration's economic plans rather than its record, given that Boric took office only in 2022 and the constitutional proposal he helped draft lost in a plebiscite later that year. The proposed constitution, which Loza calls "one of the greenest" ever, would have granted rights to nature and would have tasked the government with improving social welfare, administering natural resources, protecting biodiversity, and moving away from fossil fuels. It would also have recognized Indigenous and Afro-descended peoples' "self-determination, integrity, culture, and languages" (146) as well as their cosmovisions. Like in the rest of South America, there are powerful forces in Chile arrayed against moving away from fossil fuels, extractivism, and obsessive growth and toward an egalitarian, communitarian, ecologically minded model of living well. But as Loza shows, there is a growing consensus even among mainstream economists that the earth's stores are limited.

The greatest change under Morales, Loza argues, was that a greater share of profits from extractive industries went to state revenues that the government used to improve social welfare. Loza calls Bolivia's experience under Morales "growth with redistribution" and sees economic growth as "a necessary condition for expanding social spending and the

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redistribution of revenue" (129) in countries like Bolivia and Chile. But oddly, he does not consider the possibility of redistributing existing wealth, whether in Bolivia, Chile, or beyond, to accomplish these goals. Nor does he look at the development of the *vivir bien* concept among Indigenous people beyond Morales. Loza's study would thus be well complemented by future research into the evolution of environmental economics among Indigenous theorists and practitioners.

Like Folch and Loza, Gómez-Barris interrogates the contradictions of South America's left turn in South America. But more than state policy, Gómez-Barris is interested in uncovering "submerged perspectives" and experiences, particularly among Indigenous people in "spaces within the Américas [that] have never been fully inserted into Western capitalism" (2). Like the books reviewed here more generally, Gómez-Barris moves beyond an oppression-resistance paradigm to instead consider alternative ways of living and being outside the full reach of what she calls "colonial capitalism" (4). Using what she calls a "decolonial queer femme" method that "valorizes nonnormative embodied femininity as sources [sic] of knowing and perceiving" (9), Gómez-Barris explores five cases in what she calls the Andean "extractive zone," from Colombia to Chile.

It is precisely in areas where extractive capitalism has been most aggressive that Gómez-Barris uncovers noncapitalist ways of living. In eastern Ecuador's Yasuní Ishpingo-Tambococha-Tiputini (ITT) bioreserve, created in 2009, Yasuní seed selection and interplanting fosters biodiversity. The reserve is supposed to be protected from oil extraction, but when wealthy countries refused to comply with leftist president Rafael Correa's request that they pay Ecuador $3.6 billion to leave the oil in the ground, Correa unilaterally terminated the treaty and issued contracts for mining, hydroelectricity, industrial fishing, and oil drilling in the park and across the country, all while claiming to pursue *buen vivir*. Ecuador's Pink Tide thus brought new waves of extractivism and protest against it. In Chile, Gómez-Barris profiles the Mapuche filmmaker Francisco Huichaqueo, whose work imagines a future beyond export-oriented pine and eucalyptus production. Another chapter features the Colombian multimedia artist Carolina Caycedo, who takes her camera into rivers and repurposes satellite images to show how hydroelectric dams block rivers' flow and displace rural mestizo and Indigenous communities. There are also chapters on spiritual tourism in Peru and the anarchist-feminist collective Mujeres Creando in Bolivia.

In Gómez-Barris's telling, the state in the Andean extractive zone, regardless of the political party that runs it, is a tool of corporate capitalism. For her, the hope for a future where more of us live in harmony with other beings lies with Indigenous people who are not isolated from the extractivist economy but rather pry open life in the scars left in its wake. Policymakers and environmental engineers too often think they need to invent new ways of relating to the earth. *The Extractive Zone* reveals that Indigenous peoples are already carrying out radical conservationist work. The study at times makes homogenizing statements about "Global South epistemologies and philosophies" (100), lacks discussion of Indigenous practices that are not environmentally conscious, and contains many basic factual errors. For instance, Gonzalo Sánchez de Lozada did not oversee an authoritarian regime in the 1960s and 1970s, as the author claims. He was elected president in the mid-1990s and again in the early 2000s. During his second term, he oversaw the repression of protestors and was forced to flee the country in what became known as Black October. Other inaccuracies have been pointed out by other reviewers. Nevertheless, the book reminds readers that anticolonial environmental perspectives and practices already exist.

Miller's *Plant Kin* is a deeply researched ethnography of human-plant relationships in the Canela Indigenous Territory in northeastern Brazil. For the Canela, Miller tells us, "plants are kin." More than most environmental studies, Miller's looks at the behavior of nonhuman beings, entertaining the possibility that plants love people back. While this is mostly a story of the Canela's botanical practices, Miller takes plant behavior seriously and

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considers both people and plants her ethnographic subjects. This "sensory ethnobotany" approach yields a rich and detailed picture of people-plant relationships. She is especially interested in how these relationships fare in the Anthropocene. She finds that, "by loving and caring for their plant kin," the Canela "are resisting and becoming resilient to present and future environmental challenges" (2), including deforestation, rising temperatures, declining and irregular rainfall, drought, industrial soybean and eucalyptus plantations, uncontrollable fires, eroded soils, depleted rivers and streams, and loss of plant species.

Gender is a crucial organizing principle in Canela society that extends to their care for plants. Couples co-own garden plots, but mothers pass them down to their daughters and are their primary caretakers. Labor entails burning and clearing, planting, weeding, harvesting, sorting and saving seeds and cuttings, singing to plants, and naming them. Men harvest crops with their wives but, Miller writes, "maintain a greater distance from their crop children that mirrors their relationships with human children" (101). Shamans are the exception to the gendered division of labor. These men can talk with and turn into nonhuman beings, including plants, and identify plants' needs. The Canela believe that plants seek out relationships with the shaman to encourage harmonious plant-people relationships. While male plants engage the shaman in conversation, female plants try to seduce him.

Through intimate relations of care, creativity, experimentation, and crop exchanges within and outside the village, the Canela have nurtured incredible agro-diversity. Miller and her research assistant identified "266 cultivated crop varietals belonging to at least 45 species, as well as 54 native tree and plant types" (175). Like Gómez-Barris, Miller offers practical lessons for how to cultivate more sustainable, thoughtful, and caring relationships with the environment, even and perhaps especially in the face of social, political, and environmental threats. This requires an intimacy that Miller documents beautifully: "Feeling sandy soils, visually appreciating sweeping chapada landscapes, smelling freshly burned earth and new grass, tasting newly harvested fruit from the forest, listening to the river flow while digging into wet soils—all are embodied acts of multispecies resilience" (46–47). The lesson is clear. Regardless of what we call the current geological age, the Canela's intimate relationships with plant kin are helping them survive and thrive in it despite its threats.

Like Gómez-Barris, Miller at times makes claims that seem to imply that all Indigenous people are "creating multispecies futures of resilience and hope" (232). As scholars like Lucas Bessire have shown, not all Indigenous people have the opportunity or even the desire to cultivate such practices.[12] Are Indigenous people engaged in extractivism, from Aymara gold miners to Evo Morales, not Indigenous? And there are no unintended, less desirable consequences of the Canela's environmental creativity a la Skopyk here. But the value of this study lies in providing a concrete case of multispecies relationships and resilience. In this way, it responds to Donna Haraway's challenge to account for interconnections among all beings inhabiting the earth across time, which she calls the Chthulucene. As Miller writes, "Multispecies futures are possible if Indigenous ontological positionings that support care and resilience are taken seriously" (231).

All the anthropologists whose work is reviewed here are careful not to conduct salvage anthropology. As Miller writes, "the Canela life-world is very much alive." Instead, they contend with both harm and imagination in the face of change. Of all these studies, Ogden's grapples most with the interconnections between loss and perseverance as Indigenous people and local environments engage with colonial and capitalist forces. In the Fuegian Archipelago in the southern reaches of Chile and Argentina, warming temperatures and melting glaciers are spawning algae blooms that have forced fisheries to close, commercial forestry and natural gas production have scarred the landscape, and centuries of European

[12] Lucas Bessire, *Beyond the Black Caiman: A Chronicle of Ayoreo Life* (Chicago: University of Chicago Press, 2014).

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and US colonialism and incursions have displaced and eroded the numbers of Indigenous Yagán, Selk'nam, and Kawésqar peoples. But in Ogden's telling, loss can be generative and is never total.

Ogden draws in part on the writings, photographs, and other ephemera of Charles Wellington Furlong, a US "explorer" of Tierra del Fuego, to trace the history of people, animals, and other life in the Fuegian Archipelago and to consider the power that the archive, housed at Dartmouth College, has had in depicting and shaping Indigenous lives. But while foreign travelers and settlers "consigned Yagán existence to the past and to natural history" (42), Ogden argues that both Indigenous people and other beings persist and "exceed colonial inscription practices" (43).

Much of the story centers on animals that foreigners introduced to the region. A Croatian settler brought pigs and cattle that "uprooted and flattened the land, erasing the dramatic topographic traces of Yagán existence" (41). When Anglican missionaries brought sheep to the region in the 1880s, Christian Yagán lived and worked on their estate to escape colonial violence. We meet European rabbits, gray foxes, mink, muskrats, and wild pigs, and a Brazilian virus introduced to control the rabbit population. But beavers take center stage in this history. Introduced to the Karukinka forest by the Argentine government in the late 1940s, beavers now inhabit almost every river and stream in Tierra del Fuego, where they cut down trees and build dams that flood surrounding forests. Their destructive impact has sparked debate about whether to try to eliminate them. As Ogden writes, "Grief over forest loss determines the ethical boundaries of killability" (65). Rather than accept the logic of the invasive species paradigm, whose proponents sometimes advocate "eradicating life considered out of place and unruly" (66), Ogden experiments with recasting introduced species as "animal diasporas" (66). As Ogden explains, the forests beavers arrived to had already undergone generations of clearance for settlement and lumber extraction. Diasporas ripple. Beavers have now moved out of forests onto the pampas, where they use different materials, including sheep bones and wool, to build dams.

Like Skopyk, Ogden offers a revised concept of ecological imperialism that accounts for Indigenous peoples and native biotas' prominent roles in ongoing processes of social and ecological change rather than portraying them as victims, as invasive species and Black Legend paradigms do. But while Skopyk's is more clearly a story of Indigenous power vis-à-vis European people, animals, and plants, Ogden seeks a middle ground that accounts for harm alongside endurance and transformation. The Indigenous Yagán, Selk'nam, and Kawésqar peoples in Ogden's story have had some power to mitigate colonial violence and dispossession, although less it seems than the Mexican peasants Skopyk studies.

As a history, especially an Indigenous history, this study is patchy. For instance, Ogden mentions that Selk'nam and Yagán domesticated "Fuegian dogs" descended from the culpeo (Andean fox), but leaves Indigenous-animal relations before and after settler arrivals mostly unexplored. The use of archives beyond Furlough's collection at Dartmouth could have helped Ogden bring Indigenous people, past and present, into this story more fully. But Ogden is not a historian, and this study is more theoretically than empirically driven. The most important contribution of this lyrical, meditative, and searching book is to ponder the contradictions and interconnections of harm and creation, loss and wonder, in the face of ongoing settler violence against Indigenous peoples and outsiders' extractive approaches to the nonhuman environment.

Taken together, these books show the importance of a multispecies approach to environmental studies that accounts for unequal power relations and harm, creativity and resilience, and unintended consequences and uneven outcomes. A resilience-adaptation paradigm usefully reveals the power of oppressed groups and local environments. But it risks overlooking harm and loss, past and present. The studies reviewed here implicitly urge us to move beyond defeatist destruction-focused ("declensionist") narratives on the

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one hand and triumphant stories of resilience and adaptation on the other, to instead consider complex and evolving relationships among different groups of people, other species, and other environmental forces on unequal terrains of power. Soil, water, hydrocarbons, plants, beavers, Indigenous communities, oil companies, ethanol producers, and state institutions are producers and products of an environment to which all contribute but that no one group controls. They act on and react to one another in ongoing processes of environmental transformation. Humans, especially the more powerful among us, have perhaps had outsize power in shaping the environment. But that power has never been total.

Several of these books emphasize the role and responsibility of national state institutions in environmental policy, management, and protection. National governments in Latin America have played an especially important role in energy transitions and efforts to achieve energy autonomy. Others focus on Indigenous communities' care for other species, whether soil, plants, or rivers. These histories and ethnographies show that Indigenous people have not been hapless victims of European people or biota, nor of mining and oil companies and their state backers. Indigenous people have often carved out somewhat autonomous lifeways on the edges of or within haciendas, mines, parks, dams, plantations, deforested landscapes, or hard-won indigenous territories, though not without suffering significant losses.

But what about Indigenous people—and mestizo and Afro-descended peoples—outside of expected rural places? And subordinated peoples who have more fully engaged with or joined colonial or postcolonial capitalist society? We also need studies of the environmental ideas, practices, and experiences of Indigenous miners, urban residents, merchants, economists, engineers, scientists, and policymakers.

As scholars and others concerned with the past, present, and future of energy and ecology continue to debate how to understand human impacts on the planet, we would do well to elevate stories of loss, care, and creativity that account for a diversity of ideas and experiences among Indigenous peoples and other groups. Other ways of caring for the earth are not only possible; they have long existed. As this rich set of studies illustrates, they are diverse, everchanging, and bound up with colonial, postcolonial, and capitalist society.

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