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Hoofprints: Ranching and Landscape Transformation

In 1976, geographer James Parsons (1989, 278) warned of an “almost mindless mania for converting forest to pasture.” As the din of chainsaws and the crackle of burning underbrush crescendoed, so too did the condemnations of cattle—and hamburgers—as the primary driver of deforestation throughout tropical Latin America. Yet for all the significance of ranching as a major source of environmental change, this history has been misinterpreted in two ways. First, there is a prevailing notion that the environmental impact of ranching was felt to any serious degree only from the mid-twentieth century. Second, the expansion of cattle into the forests of Latin America has been driven fundamentally by incentives located outside of the cattle economy. Here we qualify these perceptions by showing how the environmental impact of livestock has a much longer (and more varied) history than assumed, and we argue that the expansion of ranching has been tied to the growth of both domestic and export market demand, and the biological advantages of cattle.

The population explosion of Old World domesticates introduced to Latin America in the wake of European conquest is well known. In the early sixteenth century, Alonso de Zuazo claimed that a cattle herd, let loose in the disease- and competitor-free environment of the Antilles, would increase tenfold in the space of three to four years. On the great grasslands of Latin America—the Pampas, the Llanos, and northern Mexico—cattle populations grew quickly, eventually numbering in the millions. What were the environmental consequences of this livestock boom? In one of the classic works of Latin American environmental history, Elinor Melville (1994) claimed that they were disastrous: by the late sixteenth century, the proliferation of sheep in the Mezquital Valley of northern Mexico had caused the resource base to collapse, leading to desertification. Various other scholars, however, contend that Melville exaggerated the environmental impact of sheep, partly by overestimating their numbers and downplaying their seasonal movements. Undoubtedly, European livestock helped to change the species composition of their forage base through selective or even overgrazing. In some cases, this might have even caused its productive capacity to drop. Through fire and the extensive rotations of shifting agriculture, ranchers and farmers also formed new grasslands on forest margins. But the declensionist narratives typical of early

environmental history are probably overstated when it comes to the early impact of livestock on their New World environments. For the most part, livestock ranged extensively on natural grasslands (in the case of pigs, woodlands); and their numbers, however impressive in some places, generally do not seem excessive relative to the local resource base. Most evidence suggests that the environmental impact of cattle and other livestock was limited through the colonial period and into the nineteenth century.

Starting in the mid- to late nineteenth century, however, ranching became one of the driving forces of landscape change. A combination of economic integration into the North Atlantic economy (through the export of commodities such as coffee, bananas, sugar, wheat, forest products, and minerals) and population growth spurred the demand for livestock. Most of this demand originated in the domestic market, but in some cases the export of meat, hides, and wool was a significant factor. Expanding markets for livestock products also went hand-in-hand with the settlement of the frontier, where the raising of cattle, sheep, pigs, horses, and mules often came to dominate economic relations. In this process of territorial expansion—and through the modernization of ranching, however slow and uneven—livestock began to radically reshape Latin American environments.

Between roughly 1850 and 1950, this impact was felt principally in three biomes. While horses and other animals were constant companions in the expansion, environmental impacts were driven primarily by beef cattle. The first biome was the dry tropical forests stretching from central Mexico through Colombia and extending into the Caribbean. As ranchers sought to expand beyond the confines of colonial ranching, some took over lands abandoned by export commodity production, such as sugar and tobacco, and others converted agricultural land to pasture in the wake of mid-nineteenth-century liberal economic reforms. But the most significant environmental shift was to start clearing forests in order to plant pasture, usually African introductions such as *pará* and *guinea* grass (see Figure 1). Not only were these grasses seen as more productive and resilient than most native species, but their rapid and dense growth also facilitated the conquest of lowland forests. How fast and far this conversion process occurred is hard to determine, but scattered evidence across Latin America suggests that it was well under way by the end of the nineteenth century and accelerated over the first half of the twentieth century. Even the plantation sector often



Figure 1:
Guatemalan
cowboy in a field
of guinea grass.
Source: Pan
American Union.
*Bulletin of the Pan
American Union*,
vol. 44 (Jan–June
1917): 450.

reserved large areas of land for pasture. By the 1950s, there were about ten million hectares of planted pasture in Colombia, representing two-thirds of the forage base.

The second region was the Pampas of Argentina, Uruguay, and southern Brazil. Here, territorial consolidation extended the livestock economy geographically, but it was the rapidly expanding export trade that provided the principal dynamic. Hides were the first key export commodity, accompanied by dried beef (*tasajo*), but it was wool that led the way for an ecological transformation of the Pampas. In the province of Buenos Aires, the sheep population jumped from a couple million at the beginning of the nineteenth century to some 40 million by 1865. Uruguay experienced similar increases. Sheep displaced cattle into newly-settled frontier areas and in the process significantly transformed the region's ecology. Cattle resurged in the latter years of the nineteenth century, in response to the development of the refrigerated beef trade and the introduction of European cattle breeds, initiating further changes to the pampa ecosystem. By renting land to immigrant wheat farmers with the requirement that alfalfa be planted at termination of the contract, ranchers devised an inexpensive means of converting natural grasslands to pasture—over eight million hectares by 1920—displacing sheep to the drier and more marginal lands to the west and south.

In the rest of Latin America, ranching tended to remain concentrated on natural grasslands. While sheep were relatively important in the Andes, in the coastal range of Chile, highland Guatemala, and northern Mexico, beef cattle were the most important and pervasive form of livestock. In most regions milk production was limited, though always significant for peasant producers and for an expanding urban consumption. With the exception of the Southern Cone, northern Mexico, and some high-altitude grasslands, most cattle grazed on tropical savannas. Both the long-term presence of cattle and the frequent use of fire contributed to change the composition of these grasslands, not always for the better. While some observers recognized the significance of such transformations in the Brazilian *Cerrado* as early as the mid-nineteenth century, by the second quarter of the twentieth century warnings about falling forage production became increasingly common as hardy grasses, better resistant to fire, had come to dominate savanna landscapes. Although the environmental impact in these grasslands was not as dramatic as the wholesale transformation involved in planting pastures in forested areas or the Pampas, the vivid descriptions of the widespread use of fire to rejuvenate grasses indicated the direction in which open rangeland ranching was headed.

The 1950s mark a qualitative and quantitative shift in the environmental history of ranching in Latin America (Figure 2). At this point, the better-known story about the push of ranchers into tropical humid forests began in earnest. In Central America, and indirectly in the case of Mexico, export-led demand from the United States led to a rapid increase in the area in pasture, often cleared out of lowland forests. Between 1950 and 1970, Central American planted pasture totals doubled, then increased another 50 percent by 1983. In general, however, rising *domestic* consumption was the biggest source of new demand. In the case of Brazil, beginning in the 1960s and 1970s, the government sought to develop the interior and consolidate its territorial control over the Amazon. Government subsidies provided a major incentive to the rapid expansion of pasture in the Amazon basin, even if the long-term financial viability of cattle production was doubtful. Part of this expansion replicated a long-standing pattern of land consolidation, pushing (and later following) peasant colonizers deeper into the forest. By the early twenty-first century deforestation in the Amazon had impacted more than 60 million hectares, over 10 percent of the entire Amazon region. Some sectors were more affected than others, most particularly the southern and eastern Amazon, and the bulk of deforestation was the product of the expansion of cattle ranching. Attitudes to the land changed rapidly as the demands of ever more lucrative global and internal markets extended rancher

and investor perceptions of land as a commodity, resulting in an exponential increase in environmental impact.

On the heels of these developments, a related ecological revolution occurred on the tropical savannas of Latin America: the deliberate introduction of African-origin grasses, particularly *brachiaria* (signal grass). As in the Pampas earlier, ranchers radically transformed the natural grasslands on which they relied. Again, this began first in Brazil in the 1950s and by the early 2000s in that country alone there were over 100 million hectares of pastures, 80 percent of which were *brachiaria*. At the exhortation of government and based on the latest in animal science, virtually all ranchers who could afford to switched to exotic species, leading to a widespread reduction in natural pasture. With time ranchers diversified into other species as well, including “improved” *brachiaria*. This “rationalization” of ranching employing the most up-to-date scientific knowledge was duplicated in other regions like Mexico, Central America, and Colombia, leading to a relentless transformation of pastures and varieties of grasses throughout. All told, and given its spatial extent, ranching has been one of the major drivers of ecological change in Latin America from the mid-nineteenth century. Since the mid-twentieth century, this impact has only intensified.

An additional source of environmental change associated with ranching involves the genetic make-up of cattle themselves. In 1850, the cattle of Latin America were essentially locally adapted Iberian breeds. Today many of those breeds are endangered, having been replaced by European (in temperate areas) or Indian (in tropical low-

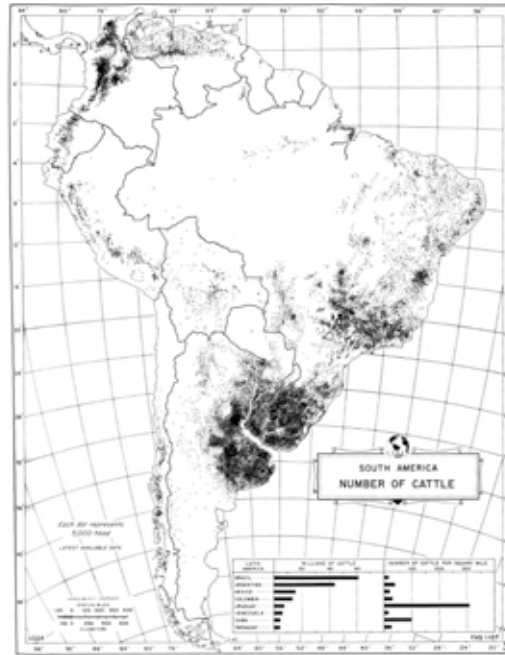


Figure 2: Estimated distribution of cattle in South America in the mid-1950s. Source: U.S. Foreign Agricultural Service, 1958. *Agricultural Geography of Latin America*. Washington, DC: US Foreign Agricultural Service, 67.

lands) cattle. While this transition is significant in and of itself, it has also been critical to the environmental transformation of many regions, particularly since the scientific breeding of animals was supported by arguments for “rational” ranching, opening up opportunities to pasture more head and to expand the business into new lands.

In response to these environmental impacts, there has been an argument, partly colored by the experiences of Amazonia and Central America, that cattle ranching makes no sense economically: pastures cleared out of the humid forests degrade too quickly to recoup initial investment. What drove the expansion of ranching, therefore, was not just the production of beef but government subsidies, land speculation, and territorial control. While such elements have been important at different times and places, we argue that more attention needs to be placed on the *production* of beef and other by-products. Economic demand plays an important part in the story, and for some regions (at particular times), this demand was driven by international markets. But contrary to repeated emphasis in the economic historiography of Latin America on the export trade, much growth in demand came from expanding domestic markets. Such demand itself was driven by the export sector, but it was also tied to growing populations who sought meat as an essential part of their diet. This “food revolution,” which has been investigated globally in recent years, had a significant impact on the raising of cattle in Latin America during the period in question. While it is not within our scope to address this issue in detail here, it is important to recognize that increased demand for beef worldwide contributed to the conditions for further expansion of pastures and bovine populations across the Americas.

Markets alone, however, did not drive ranching in Latin America. To understand its expansion, we also need to pay attention to the environmental advantages of cattle and grass that provided a huge incentive to engage in ranching rather than farming. Vast extents of natural grasslands and (usually) abundant sources of water played important roles in attracting cattle and ranching in the first place, while walking to market (before the spread of rail and roads), the existence of an organic machine to harvest the grass crop, the perennial nature of pastures, and lowered levels of investment risk through relatively rapid liquidity of one’s investment, etc. assured ranchers a reasonable income with comparatively little capital investment. At the same time livestock, especially cattle, have always played a significant role in the lives of smallholders and *vaqueros*, especially as draft animals and providers of milk and meat, besides serving as reserve capital.

Ultimately, an environmental history of ranching is not simply about ecological impacts, but also must address the attraction of specific ecosystems to ranching in the first place, as well as the perceptions of ranchers, cowboys, and peasants regarding their environments. In this manner we come to understand more deeply how the underlying material and ecological basis of the beef cattle industry explains its spectacular historical trajectory.

Selected Sources

Edelman, Marc. 1992. *The Logic of the Latifundio: The Large Estates of Northwestern Costa Rica Since the Late Nineteenth Century*. Stanford, Calif: Stanford University Press.

Kaimowitz, David. 1996. *Livestock and Deforestation. Central America in the 1980s and 1990s: A Policy Perspective*. Jakarta: Center for International Forestry Research.

Melville, Elinor K. 1994. *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Cambridge: Cambridge University Press.

Parsons, James J. 1989. "Forest to Pasture: Development or Destruction?" In *Hispanic Lands and Peoples: Selected Writings of James J. Parsons*, edited by William Denevan. Boulder: Westview Press, 275–95.

Sábato, Hilda. 1990. *Agrarian Capitalism and the World Market: Buenos Aires in the Pastoral Age, 1840–1890*. Albuquerque: University of New Mexico Press.