

## **Lost in The Jungle:**

### ***The missing Political Ecology approach in the history of the US beef industry***

“Meat is a singularly potent site for investigating the process whereby the separation of nature and society, production and consumption, food consumers and food-provisioning workers takes place in industrialized food systems” -Gouveia and Juska, 2002

Since Upton Sinclair’s *The Jungle* was published in 1906, no other sector of agriculture in the United States has been more publicly scrutinized than the beef industry. In the century following Sinclair’s original exposé, there have been countless investigations to monitor the safety, sanitation, corporate integrity, and working conditions throughout the industry, yet comparatively little attention has been paid to the colossal environmental impacts of the methods for raising and slaughtering beef cattle in the US, especially in a historical context. In what literature does exist concerning the environmental impacts of the beef industry, studies tend to miss broader connections between the environmentally degrading practices employed by industry giants, ranchers, and farmers and governmental legislations at both national and international scales that (whether inadvertently or purposefully) facilitated their actions. By incorporating into these investigations historical examinations of important legislation and increasingly globalized market conditions, one is given a more holistic view of the forces and power relations that originally facilitated the industry’s environmentally degrading actions, which have continued to this day. This type of political ecology perspective lays the foundation for analyzing the effectiveness of historical governmental policies concerning the beef industry.

To provide a thorough political ecology examination of the history of environmental impacts of the beef industry, this study addresses three questions:

- How did beef farming and the beef industry change during its takeoff in the late 19<sup>th</sup> Century?
- What were the forces and power relations responsible for these changes and who benefited from them?
- What were the effects of these industry changes on the environment of the regions in which they took place?

Each of these questions will be addressed for the period from the mid-1860s through 1918. While it appears to this researcher that political ecology themes still exist in the US beef industry of today, one could argue that they are more obvious in a historical examination of the industry, beginning in a time period immediately before the entire central US had been opened up to global capitalist markets to any significant degree. This is the rationalization for the time period chosen for this study; this period is by no means absolute or rigid, it merely represents the most conveniently uniform period in terms of constant economic growth and expansion in which the beef industry’s colossal political and economic power first became evident and began to grow, almost unchecked, at a frightening pace—a period beginning with the rise of railroad dominance, a process that significantly furthered the reaches of globalized, capitalistic market

conditions. This, in turn, allowed for an unprecedented level of decoupling of production and consumption, a process that, at best, has increased the public's tendency to overlook environmental degradation. The period of study continues through the end of WWI, at which time the modern beef industry saw its first real economic downturn in an agricultural market crash that foreshadowed the Great Depression. The constant process of globalization that occurred during this time is yet another reason that a political ecology perspective is so valuable to this study.

### **Why is political ecology important to the study of the US beef industry?**

Both historically and currently, the beef industry has been the subject of many scholarly studies and literary works. There have been peculiarly few political or geographic (and therefore few political ecology) perspectives on the subject, however, with the majority of beef industry literature written by economists, sociologists, historians, and various 'hard' scientists from medical or bio-chemistry fields, with only a few relatively recent studies on the environmental impacts of the industry (Skaggs 1986; Rifkin 1992; Nierenberg 2005; Gouveia & Juska 2002). While these studies have all continued to offer valuable insights into the workings of the beef industry, their single-discipline foci inhibit their ability to make broader connections between concurrent political-economic contexts and the beef industry's huge ecological footprint. In addition, as the environmentally-focused studies of the beef industry have been relatively recent, a historical environmental impact assessment is missing from literature on this subject. For these reasons, producing a more holistic political ecology study of historical environmental impacts of the beef industry is the goal of this study.

### **Why is the study of the US beef industry relevant to political ecology?**

There has recently been an increasing amount of attention paid to the relevance of first world subject matter to the study of political ecology (Schroeder 2005; McCarthy 2005). It is the opinion of this researcher that although the broad themes of political ecology may seem more immediately obvious in third world settings, the same themes are also present in areas of the first world—areas that are assumed to be “wholly subsumed under capitalist economic and social relations” simply by virtue of being considered the first world, when in fact, they exhibit economic and social relations that are typically associated with the third world (Schroeder 2005, 1046). That such areas exist within the first world illustrates why political ecology's historically strict adherence to a first world/third world binary is currently being called into question.

Broad themes of political ecology are clearly evident in the study of the history of the US beef industry. These include the problematic reorganization (vertical integration) of commodity chains that obscure the relations between production and consumption; the resultant spatial, temporal, and ideological decoupling of production and consumption; and the pattern of capitalist resource accumulation that draws capital up the commodity chain and enriches those at the top while leaving those at the bottom—the land and the people that work closest with it—in a constantly increasing state of marginalization. These themes all appear to be the primary factors explaining the first research question examined in this paper—the question of how the US beef industry changed during its takeoff in the late 19<sup>th</sup> century.

Roberts' Degradation and Marginalization thesis (Roberts 2004) is also clearly applicable to the historical US beef industry in terms of the second two research questions addressed here: why did the industry change as it did and what were the environmental impacts? In the historical context of what was (for all practical purposes) a generally pre-capitalist, globally isolated landscape, this thesis illustrates how "otherwise environmentally innocuous local production systems undergo transition to overexploitation of natural resources on which they depend as a response to state development intervention and increasing integration in regional and global markets." (Roberts 2004). In this case, as I will show, the 'state development intervention' took the shape of trans-continental railroads, which allowed for the central US's 'integration in regional and global markets' of the beef industry, which led to the 'overexploitation' and degradation of what are the central US's most fundamental and most valuable natural resources—soil, water, and productive ecosystems and their invaluable ecosystem services.

### **Methods**

To address the three research questions, I will first conduct a review of historical literature on the US beef industry in an attempt to combine the information from the different works into a more comprehensive history of the industry. It is from this more comprehensive history that I will illustrate how the political ecology themes mentioned above were at work in the industry, and how they help answer the three proposed research questions. To draw out these themes will shed light on the ultimate causes behind the colossal, yet often overlooked environmental impacts this industry. The following is a review of historical literature on the beef industry during the above-mentioned time period, the analytical gaps in which necessitate a historical political ecology analysis.

### **Literature Review: Sociological Perspectives**

#### **Upton Sinclair's *The Jungle* (1906)**

By far the most well-known work on the beef industry is Upton Sinclair's *The Jungle*, published in 1906 after his investigations into Chicago's Packingtown district. Although it was a wildly successful publication, both in terms of sales and political influence, the public did not interpret his message as he had originally intended. *The Jungle* was meant to be a Marxist critique of a capitalistic economy that allowed the beef industry's horrible treatment of its laborers in its blindly capitalistic pursuit of profits. It was originally published in a socialist publication called *Appeal to Reason* in 1905, where it inspired little interest. Sinclair had intended to "open the eyes of the American people to the conditions under which the toilers get their bread, and to blow the top off of the industrial-tea kettle" (Yaeger 1981, 198). Instead, the public—and the Roosevelt Administration—were more concerned about the unsanitary origins of the meat that ended up on its dinner plate. Although this provided the spark for Congress to pass the first Federal Meat Inspection Act, Sinclair wasn't satisfied. "I aimed at the public's heart, and by accident I hit it in the stomach" (Sinclair 1908). It has since been observed that "the industry has never lost sight of [the American public's] peculiar response and has labored especially hard to lengthen the material, physical, and symbolic distance between

meat production and meat consumption practices” (Gouveia & Juska 2002, 371). Sinclair’s work began to get at the economic and political underpinnings of the actions of the beef industry by critiquing capitalism and its commodification of humans’ labor, but remained silent on capitalism’s parallel commodification of nature and natural resources that allowed the beef industry to exploit the environment as well as the workers.

### **Donald Worster’s Dust Bowl (1979)**

In Dust Bowl, Worster contextualizes the settlement and development of agricultural systems in the Great Plains in terms of capitalism. His work is also a socialist or broadly structuralist critique, but his is a critique of American industrial agriculture with a focus on the high-input, highly mechanized crop farming techniques that were necessitated by the Great Plains’ integration into a capitalist economy. He presents an impassioned argument that the ultimate cause of the Dust Bowl, which has been called “one of the three worst ecological blunders in history,” was precisely this integration into a global capitalist economy (Worster 1979, 4). While he was writing before political ecology really became a buzzword (even in third world studies), these critiques are inherently political ecological in their focus on the ultimate causes as political-economic conditions rather than the proximate causes of individual farmers using inappropriate agricultural techniques. This critique, unfortunately for this study, is focused only on the specific time period immediately surrounding the years of the Dust Bowl, on the specific location of the southern plains, and the specific practices of crop farming. This leaves out room for an analysis of the livestock raising that predated, and likely even paved the way for crop farming on the plains.

## **Literature Review: Economic Perspectives**

### **Jimmy Skaggs’ Prime Cut (1986)**

Most of Skaggs’ extensive history on the meat packing industry is just that: an extensive history, a compilation of the historical facts that make the beef industry so interesting—scandals, government corruption, illegal activities and conspiracy theories. What analysis he does offer is decidedly, and exclusively, economic in nature. He calls the history of the beef industry “a case study in imperfect markets,” focusing on the economic inefficiencies it exhibited because of imperfect capitalism—that is, subsidies, price supports, import tariffs, and other protectionist measures historically (and currently) employed by the US government to keep the beef industry afloat (Skaggs 1986, 3). He begins to get at explanations of the beef industry’s role as the wider industrial sector’s pioneer in the vertical integration and complete control of commodity chains, exhibited by an industry-wide streamlining ‘disassembly line’ craze that predated, and possibly inspired, Fordist assembly lines:

From colonial times to the present a multitude of farmers and ranchers have produced a prodigious supply of slaughter animals for processing by a relative handful of generally large-scale meatpackers to feed an increasingly dependent albeit discerning urban population. The linkages in this meat-chain—in which millions of suppliers and millions of consumers have been connected by merely thousands and eventually only hundreds of processors—give the industry an hourglass configuration, the constriction

point tightly gripped by a few firms allegedly prone to price-fixing and product adulteration.

In the following passages, however, he reverts to his analysis of the beef industry as a problem of imperfect capitalism, advocating for deregulation and freer markets while giving no attention to the industry's role in environmental degradation—that is, unless it happened to interfere with the industry's productive capacities. He also pays very little attention to historical political contexts, unless they blatantly interfere with the industry (as in the Federal Meat Inspection Acts and Federal Meat Grading Acts). In sum, this literature, although informative in terms of historical economic facts, is problematically isolated from political and environmental factors.

### **Mary Yaeger's *Competition and Regulation: The Development of Oligopoly in the Meat Packing Industry* (1981)**

Yaeger's work focuses on the same time period of this study, with an emphasis on the collusive practices of the industry giants that developed in the latter half of the 19<sup>th</sup> Century. Her incorporation of the relevant political contexts of the development of beef industry oligopolies is extensively researched, and she recognizes both the politicization of the beef corporations and the capitalist context and corporatization of policy making during this time period. Referring to the government inspection laws inspired by Sinclair's work, she writes, "capitalism corrupted the state. Government was a tool of the packers, and the government inspection service, a farce" (Yaeger 1981, 198). Although the political and economic structures that were operating at the time were addressed by Yaeger, she did not include any sort of environmental analysis into her work.

### **Literature Review: Environmental History Perspectives**

#### **Ted Steinberg's *Down to Earth* (2002)**

Of all the disciplines examined in this literature review, environmental history seems promising in terms of offering historical political ecology perspectives. Ted Steinberg writes that nature is not merely a backdrop for history, as it is so often treated, but an active shaping force in how historical political, economic, and social decisions have been made. While his book *Down to Earth* does challenge dominant *historical* discourses in this way, it seems to simply apply dominant *environmental* discourses of today into his historical narratives. For example, in his discussion on the beginnings of environmental degradation due to cattle ranching in the American west, he simplistically applies Tragedy of the Commons explanations to the actions of the ranchers: "In the end, the ranchers fell victim not simply to nature, but to their inability to control their greedy impulses, to the persistent funneling of more stock onto the range" (Steinberg 2002, 133). He goes on to argue that the ranchers simply suffered from a "lack of self-discipline," comparing their exploitative practices to the "benign" practices of the Native Americans who had lived there for centuries. Environmental history (when written from this perspective), in its attempt provide an alternate to dominant historical discourses, ironically applies another equally problematic dominant discourse in its stead—today's dominant environmental discourse of the Tragedy of the Commons.

#### **William Cronon's *Changes in the Land* (1983), *Nature's Metropolis* (1991), *Under the Sky* (1993)**

Cronon's many works are very helpful in uncovering political ecology themes of American environmental history, as he produces very coherent and cohesive historical analyses that incorporate political, economic, and environmental considerations. Unfortunately, he has not produced any work specifically on the beef industry in the US, but many of his other histories contain limited, but insightful bits of information on the subject.

### **How did the Industry Change?**

There were three broad, sweeping changes in the beef industry beginning in the mid-1860s railroad dominance era that are emblematic of political ecology themes: the spatial, temporal, and ideological decoupling of beef producers and beef consumers made possible by the railroads that finally reached across the continent; a commodity chain reorganization that created one of the most vertically integrated industries in the world; and a capitalist-inspired shift in the perceived purpose of land and natural resource use that swept across the central US. This paradigm shift changed the land's purpose from being a way of living to a way of accumulating wealth (or at least a markedly increased tendency to do so to a great degree), a transformation that necessitated property rights.

The perfection and patent of the refrigerated rail car in the 1878 was what really jumpstarted the beef industry in the US and made possible the first large step toward the decoupling of production and consumption in the beef industry. Because pigs, which had previously dominated the American's palate for meat, were nearly impossible to herd over the long distances to the newly refrigerated rail lines, the largely government-owned land in the American west was opened up to cattle ranchers (Steinberg 2002). With the new refrigerated rail cars, cattle ranchers were given an efficient way to utilize the resources of the previously isolated central plains area by connecting the resources to reach their urban customer base in the eastern US. Much of the urban eastern US's meat supply had still been raised somewhat locally until this point, with nearly every town, no matter the size, employing a butcher who was supplied by local producers. Animals for slaughter were often even raised right in town, especially pigs that could effectively scavenge garbage from the city streets. The animals were raised locally—fed by local food supplies (whether from local fields or local garbage supplies) and butchered by local butchers, while their refuse was used to fertilize local fields (Steinberg 2002).

As the central plains were made accessible by railroad, it immediately became economically viable to raise cattle there. Lands that had previously been ignored by the government, settlers, and corporations alike were now 'up for grabs,' ignoring the fact that there were actually people already living on the central plains—indigenous Americans. The tribes that lived on the plains were already starting to experience a marked decline by this point in history. Their primary food supply, the American bison, had been decimated—ironically, because of the railroads that now allowed hunters to meet the rising east coast demand for fur. The railroad thus delivered a dual blow to the native tribes of the plains, first by allowing for the decimation of the bison herds, and next by bringing in the cattle ranchers, on behalf of whom (along with other primary extractive industries) the government all but completely banished the native tribes (Cronon 1993).

This marked the start of a new way of supplying beef to the American public. Economic opportunists from many backgrounds quickly recognized that if one could find

a way to convert the wealth of natural resources across the central US into something that was marketable to an eastern urban customer base, they would quickly become wealthy. After the bison population was completely decimated, and aside from simple extractive industries that were less successful on the plains, it was singularly beef cattle that became the dominant method for turning the natural resources of the central US into a commodity that could be sold. As there were vast tracts of land left completely open, those who could produce the most cattle the quickest at the largest scale stood to make the most money. There was a flurry of activity on the plains in the competition to establish territory raising cattle, and for much of the central plains that had only recently become states, land was given on a first come, first serve basis, aided by the provisions of the 1862 Homestead Act (Yaeger 1981). A beef supply was quickly established much further away from the American urban demand centers, and simple economies of scale explain why the huge new cattle ranches in the west quickly began out-competing the local, more diversified agricultural suppliers. There was a precipitated shift away from diversified, local agricultural production and towards more distant, specialized production.

By vertically integrating the supply chain, entrepreneurial minds who had already been working within the American beef industry sought to capitalize on the newly 'settled' plains. What had been small slaughterhouse companies rose to new economic heights during this time period—some smaller companies became quickly wealthy and invested their profits into other sectors of the same beef supply chain. As the number of cattle being raised in the western parts of US burgeoned, the beef industry devised a new system for slaughtering, packing, and transporting beef during this era. From local supplies running through local butchers, the system dramatically transformed as new segments were added to this supply chain that could now connect spatially and temporally distant producers to consumer demand. This created a huge demand for facilities large enough to handle the enormous volumes of beef being raised in the west and eaten in the east, and until such facilities were constructed, the industry was hindered by this "bottleneck" formation in connecting the beef supply to its consumers.

Addressing the bottleneck problem involved the establishment of feedlots—a place for ranchers to bring their cattle to sell before slaughter where they could be fattened up to suit the tastes of urban consumers—of slaughterhouses—that devised the original streamlined disassembly line mode of operation—of packinghouses—that took the slaughtered meat and boxed it into conveniently shaped packages that could be shipped more efficiently by refrigerated rail cars than could oddly-shaped sides of beef (or worse yet, live cows, as in the days before the refrigerated rail car). On top of controlling these parts of the supply chains, beef companies began investing heavily in the rail companies that serviced them, along with certain meat distributors and retailers (Yaeger 1981). Some companies even began investing in some of the larger cattle ranches as a method of ensuring they could control prices they paid to smaller cattle producers using a method called captive supply. Using this method, they could flood the market with their 'captive supply' to lower market prices of live cattle if at any point prices were higher than they preferred to pay (Yaeger 1981). After this system of vertical integration was mastered by the 1890s, the industry still exhibited the bottleneck formation, but this no longer hindered production speeds with the new amazingly efficient facilities the industry giants draconically controlled. Under the supervision of this solitary company, every link in the chain worked like any other well oiled machine in

the Industrial Revolution, distributing more beef, more quickly, at a greater profit (Skaggs 1986).

Because those who controlled the industry could now ship pre-slaughtered beef rather than live herds, shipping costs were greatly reduced and profit margins increased for everyone in the industry, although much more for the middlemen (which was actually now a single corporate entity) than those who raised beef. Smaller farmers in the eastern regions of the US now found themselves in competition with much larger western operations, and many eastern farms gradually ceased to be productive and self-sustaining and eventually became economically illogical. It was around this time—just before the turn of the century—that the countryside around what is today the ‘megapolis’ began to be swallowed by the growing urban areas (Skaggs 1986).

At the same time, the larger western operations found themselves in intense competition with each other. Owing to this competition, many of the ranchers began to put up fences to mark their territory on plains that had previously been vast unobstructed tracts of land. Disallowing the cattle from roaming the plains in the patterns to which they had formerly been accustomed had severe consequences not only for the cattle and the land (to be discussed in later sections), but for the ranchers themselves. As the plains became increasingly settled by other ranchers or farmers with their Homestead Claims in hand and private property rights were brought to the central plains, it became more of an imperative to make a profit on a finite plot of land (rather than off of the entire shared area of the plains), which tended to encourage adding more stocks of beef to already overstocked lands. This change in the perception of the purpose of land use set the stage for both the economic ruin of many farmers and ranchers and severe degradation of the plains environment (Steinberg 2002).

### **What was behind these changes?**

The many changes and booming growth in the beef industry during this period have roots in the actions of the US government, which in turn, was heavily influenced by the expansionist economic themes of the Industrial Revolution and the increasingly globalized capitalist markets it created. The first change discussed for the beef industry, the decoupling of beef production and consumption, was first and primarily made possible by the transcontinental railroad, a project of the federal government. As Bryant and Bailey point out in the context of third world political ecology, “the role of the state as the provider of public goods is vital” in the capitalist development of non-capitalist regions (1997). In the case of the beef industry, the state first provided the railroad to access the ‘public goods’ of the central plains, and later provisioned for private property rights and the right to use private land for private profit. This railroad building craze in the latter half of the nineteenth century had many different political and economic motivations. It is, however, notable that a significant amount of financial support for many of the railroad projects in the central plains from the 1860s onward was, if indirectly, provided by companies in the beef industry who already had strong corporate allegiances with railroad companies and their investors (Yaeger 1981).

Whatever the exact political motivations behind the transcontinental railroad were, the beef industry swiftly took advantage of whatever common economic expansionist goals it shared with the government, and made favorable conditions for itself in every instance that they did not already exist, whether by lobbying or direct



payments to their most sympathetic Supreme Court or Congress members (Yaeger 1981). The vertical integration of the beef industry was therefore influenced heavily by government action, or more appropriately, government inaction. As the following account of collusive practices will show, the beef industry's congressional and Supreme Court allies during this time period proved very helpful to the success of the industry. Even at these earliest stages in its history, the beef industry displayed oligopolistic tendencies. By the 1880s, the top "Big-Four" companies in the industry (Armour, Swift, Morris, and Hammond) provided 85% of the nation's beef supply, and had already made at least three (unsuccessful) attempts to "pool" the industry (Skaggs 1986). When the new Cudahy Company firm successfully entered the industry in the early 1880s, the competition proved too much for the other four companies to handle. The Big-Four invited Cudahy to join their ranks, and learning from their past failed attempts at collusion, the new "Big-Five" created an entirely separate business enterprise to manage the newly formed cartel. The cartel headquarters was located in Chicago, and each firm was required to send certain price and supply statistics to the cartel manager and his fifteen employees once a week. Executives from each company would also meet with the manager weekly, when price fixing levels and shipping allotments for each company were decided for the following week (Yaeger 1981).

As the Sherman Anti-Trust Act was passed by Congress in 1890 to target the uncompetitive activities in the steel industry, the beef industry transformed its collusion strategy from cartels to mergers with many smaller companies to evade suspicion. It performed the mergers on the correct assumption that the Sherman act would be largely ineffectual (for the steel or any industry) with the current conservative, pro-business Supreme Court (Yaeger 1981). Though the "Big-Five" were eventually tried under the Sherman Act in 1903 during the Roosevelt Administration, and were found to be practicing anti-competitive behaviors, the language used in their sentencing was so broad and generalized that no substantial reformations were required of the industry. This may well have stemmed from Supreme Court Justice Oliver Wendell Holmes' admitted "sympathies" with the American Cattle Growers Association (a branch of ANSLA) and his "qualifying addendum" to the sentencing statement that effectively allowed any newly merged conglomerate company impunity from further trials or sentencing under the Sherman Act (under the reasoning that a newly merged company was not technically the same as any of the companies that were originally tried and sentenced under this particular hearing). The industry was not only allowed, once again, to keep up with business as usual—this sentence now all but actively promoted mergers among the already giant beef packing companies (Skaggs 1986). As these actions were all hidden in legal jargon and fine print, however, the companies had essentially 'passed the test' of the anti-trust hearings in the public's eye. Thus, industry pools continued well into the 20<sup>th</sup> century, with their member companies constantly shifting and repeatedly rewriting what were technically no longer illegal contracts to accommodate for mergers and further consolidations (Yaeger 1981).

Even though the public's fears of cartels had been somewhat calmed, the industry was not yet out of troubled waters. Three years after the cartel hearings, following the public outcry sparked by The Jungle, Congress promptly passed the first Federal Meat Inspection Act in 1906. Almost immediately afterwards, a series of mergers among a variety of livestock growers' organizations culminated in the formation of the American

National Live Stock Association (ANLSA) in 1906, which included advocates from pork and sheep industries as well as cattlemen and ranchers. As it was conducted almost immediately after The Jungle came out, the merger was seen as a politically strategic move on the part of the beef industry, who was finding few other political allies at the time (Sinclair 1906; NCBA 2006). At the time, the newly formed American National Livestock Association (ANLSA) and the beef industry publicly supported this legislation as part of a much needed image makeover; they wanted the public to believe they were sincere in their reformation efforts. Neither the ANLSA nor the beef industry leaders, however, provided any funding for the inspections that were to take place in their plants (NCBA 2006). Even so, the new inspection legislation that was now in place was enough to quiet the public's fears, and business in the industry carried on in effectively the same manner it always had, by using its tremendous political influence to ensure that the inspections would always be both pre-scheduled and very superficial (Skaggs 1986).

Another factor that contributed to the beef industry's economic success and resultant political power during this time was a growing demand for beef. A growing American population that was increasingly affluent and increasingly urban created a constantly burgeoning food demand in general in the US throughout this entire period; specifically, the US demand for beef outstripped the domestic supply sometime around the turn of the twentieth century, and by the time WWI began, beef imports well exceeded exports in the US (Yaeger 1981). But where did this demand for beef come from? Despite the rising beef demand, Americans had preferred pork (or at least they still ate more of it) well past the turn of the century. It appears that the beef industry may have had to 'create' a market demand for beef before there was even a significant existing demand among the American public. Much literature exists as to concurrent crop producers' advertisements creating a market demand for California grown fruits and vegetables, but relatively little literature has been dedicated to the beef industry's marketing strategies during this time period. It is clear, however, that the boxed beef phenomenon that almost immediately followed the refrigerated rail car was as much an effort at reducing transportation costs as it was an effort to make buying beef cheaper and more convenient for urban consumers. Now, a meat that had been more expensive than and equally as bulky as butchered pork came to grocers in increasingly cheap, convenient boxes. This seems to have contributed greatly to beef's rising popularity during this era. At the same time, a clean cities movement (organized among affluent housewives in major cities across the US) that had been advocating since the early 19<sup>th</sup> century to rid the city streets of pigs finally had an opportunity to do so definitively, as the meat demands of most urban consumers (or at least the wealthier ones) could be met by store-bought rather than garbage-grown meat (Steinberg 2002).

### **How did the changes effect the environment?**

The beef industry's spread into the central plains negatively affected both the environment there and in American cities. As was mentioned above, prior to the 1880s, pork enjoyed the number one slot for meat consumed by Americans. Pigs could easily be raised in almost any setting, urban or rural, because they tended to be much less discriminating in terms of diet preferences. They actually served as some of the main actors in public sanitation in 19<sup>th</sup> Century cities, cleaning the city streets of garbage and refuse and converting the waste matter into animal protein for poorer households—three

times more efficiently than cattle could. They provided ample fertilizer for peri-urban gardens and agriculture that supplied the cities' food, and the leftovers of which were cycled back into the diets of the urban pigs. Pigs were also much faster reproducers than cattle, and before refrigeration was an option, pork took to smoking and salting much better than beef (Steinberg 2002).

Although the city clean-up movement, which was eventually made possible by the possibility of replacing pork with beef, did improve the sanitation of cities, it set the stage for some of the most environmentally nonsensical waste-disposal systems imaginable. During this movement, excrement of humans, as well as pigs, was demonized as the filth of humanity, as were the poorer urban residents who collected it to sell as fertilizer to nearby farmers and gardeners. Modern waste disposal and city sanitation movements were begun in earnest in the late 19<sup>th</sup> century under the guise of "municipal housekeeping." By the turn of the century, most of the urban refuse that had been so valuable to poorer city residents and nearby farmers was ordered to be dumped into nearby water supplies, buried, or burned—"in short, wasted," writes Steinberg of this process he deems "the death of the organic city" (172). This was just after the time when boxed beef became available as a replacement for locally supplied pork. This example illustrates Robbin's degradation and marginalization thesis in an unexpected setting—urban America, which had been considered to be under the scope of capitalist economic and social relations—yet the idea that the more environmentally innocuous practices of this system of nutrient cycling among the urban poor was replaced by government mandated standards that compromised their livelihoods seems highly relevant to themes studied by political ecologists.

This period was also one of sweeping changes for the central American landscape, which again, was for the first time significantly connected to global markets by the railroads. It was rail lines made indirectly possible by beef-industry growth and financial support that inadvertently dealt a fatal blow to the bison population in the plains, an event that had severe environmental consequences. As far back as 1830, there was a significant demand for buffalo hides among east coast Americans and Europeans, but as there was no real efficient method for transporting the hides to the distant market, the buffalo population was relatively stable—that is, until the arrival of the beef and railroad conglomerates' rail cars (Steinberg 2002).

European hunters saw the entrepreneurial opportunity in buffalo hunting once the rail lines were present to connect them to distant markets, and the bison population plummeted. There is little consensus as to the bison population before the rail lines were built, but railroad shipping reports show multiple incidences of single rail lines in the central plains shipping over one million buffalo hides a year throughout the 1870s; by the early 1880s, fewer than 5,000 bison were reported to be living wild in all of the northern plains states (Steinberg 2002). The decimation of the bison population made possible the northward spread of rogue Texas cattle herds left to roam during the Civil War, which had reproduced very successfully on their own in the wild. Cattle ranchers, who had formerly been confined primarily to Texas until the advent of railroads, gradually expanded their range northward as the plains were opened up to new eastern markets by the rail lines (Steinberg 2002). The indigenous Americans who had co-inhabited the plains with the bison for many years and made the animal their main source of food were obviously completely devastated by the bison's decline, and were eventually forcefully

moved out of the plains area. This represents another clear example of Robbins' degradation and marginalization theory, as the plains tribes' way of life, which had sustained the population of this well-adapted prairie bison species for hundreds of years, was replaced by the new and much more environmentally deleterious practice of cattle ranching in this dry and climatically unstable area.

This spelled environmental problems for many reasons. First of all, because bison were natives to the grasslands, they were by far the most efficient at converting the dominant short grass perennial species into animal protein; they have adapted to be able to obtain their daily water supply from snow during the winter; their hooves were cloven and very delicate for an animal their size, perfectly suited for loosening up and aerating the prairie sod, preparing it to absorb the ample amount of natural fertilizer the herd provides. Cattle, on the other hand, have long been the most energy inefficient type of livestock raised in the US and most of the world (Schlosser 2001). They require a much greater amount of plant mass for every pound of meat produced; their hooves are broad and compact the soil, making it difficult for native perennial grasses to survive and thus making the soil more susceptible to runoff and erosion; they are unable to obtain their daily water intake requirements through the plants they consume or derive drinking water from snow. This necessitates daily access to a stream, whose banks are then much more prone to erosion than if they were visited occasionally by bison herds, whose water supply will dwindle as cattle populations increase, and which will inevitably be further polluted by the high-nitrogen cow manure (Steinberg 2002).

If cattle are less-fitted to the open plains environment than bison, they are especially unfit for a fenced-in plains environment. The necessitation of private property that the ranchers and farmers brought with them to the great plains seems to represent a sort of reverse Tragedy of the Commons scenario: the land was commonly held and sustainably used for a long period of time by the plains tribes, yet it was the privatization of this formerly commonly held property that began the real processes of environmental degradation and exploitation of the land. Because each rancher was eventually forced to fence up his land and his cattle that were ill-adapted to prairie life, the cattle were confined to smaller areas where the effect of their weight and hooves on the soil was no small matter. In the winter of 1886, there was a terrible blizzard across both the southern and northern plains that killed thousands upon thousands of cattle because the cattle were so ill-adapted to the cold weather, and the fences that blocked what would have been their passage southward to warmer pastures that still provided grass for them. It was remarked at the time that if one followed the right-of-way fence that, ironically, the Union Pacific Railroad had erected, "one could walk 400 miles from Ellsworth, Kansas, to Denver, stepping only on cattle carcasses" (Steinberg 2002, 132).

With the beef industry's success during this time period rose another trend across all American agricultural areas—the need for feed crops to feed the increasing number of beef being raised in the country's borders. Before the railroad boom, small stockyards had trafficked grass-fed cattle that were usually at least five years old. With the new mega-stockyards that were controlled by the industry giants, there was a capacity for much more cattle to come through, and if any link in the supply chain was not working to its full capacity, it was losing money for those at the top of the chain. A new trend developed: cattle were to be brought through the yards at the age of two, and eventually a little more than one year of age. This sped up the realization of profits for the beef

industry, but it also meant that the younger cattle had to meet the size standards of cows that had been given much more time to grow. This necessitated grain-feeding cattle, one of the most environmentally and energy inefficient ways of produce calories of any thus far developed anywhere else in the world. Even when cows only live for one or two years as they do in this process, it is estimated to take 5000 pounds of water to produce one pound of beef (including the production of grain crops for fodder), and water is a scarce and precious resource on the American plains, especially anywhere west of the 100<sup>th</sup> meridian (Steinberg 2002). Even when ranchers themselves weren't growing crops, many who did not have access to a naturally running water source did need to drill wells deep into the Ogallala Aquifer to supply the copious amounts of water needed for their cattle to survive. The effects of the depletion of the Ogallala were not felt during this period, but they are presenting serious problems for farmers today (Andreas 1994).

The land-use rights that were established during this time period to cater to the beef industry also continue to play a vital role in American politics. In the American west, land is bought and sold using what has been called the “bundle of sticks” model. This model was advocated by the original extractive and ranching industries to settle on the American plains, and it allows different resources of the same parcel of land to be separated and bought and sold by different interests. For example, water-use rights, the right to mine, and the right to log a single piece of land could all be sold separately to different entities (Skaggs 1986). The most contentious of these (which is still a huge problem today) is the issue of water use rights. The system of water use in the American west often follows the rule of “prior appropriation,” meaning that whoever established themselves first in a certain area had priority rights over water use there, rights that could be sold, but also inherited by the next generation. Because ranchers were the first settlers in many areas of the American west, they still today hold prior appropriation rights over the water in the west. These rights are usually non-negotiable, which means that if a prior appropriator rancher decided he needed the water allotment for an entire river basin, he would legally have the right to take it—the unfortunate part is that this is not an uncommon occurrence. The legacy that the beef industry left behind in the settlement of the American west is still one of the root causes of environmental conflicts such as these today (Andreas 1994).

It would be impossible to assess the complete extent of environmental damage inflicted by the beef industry. These represent merely a few of thousands of possible implications for the beef industry having inspired similar environmentally degrading actions in many other sectors of the economy, agricultural or otherwise. It remains to be seen what the effects of the beef industry's legacy will be on the environment in the future, as the problems listed here seem only to have been exacerbated since this time period of study.

## **Conclusions**

During the time of its rise to dominance in the latter half of the 19<sup>th</sup> Century, the beef industry embodied the arrival of globalized capitalist market conditions into previously economically isolated areas. The political ecology theme of the decoupling of the production and consumption of beef was first made possible by the economic expansionist federal government's railroad schemes, which were in turn partially funded by the expansionist economic motives of the beef industry. The commodity chain was

lengthened and vertically integrated, obscuring the origins of beef products from the eyes of urban consumers who could not see the environmental impacts of their consumption. Land in the central plains was introduced to private property rights, an acquaintance that proved to be deleterious to the environment. The political and economic context of these changes was of crucial importance in shaping the outcomes for the beef industry, as many of the exploitative practices begun by the beef industry in this period have carried on to the present day. While Robbins' theory of degradation and marginalization was clearly applicable to the historical study of the beef industry, it would be very informative to further inquire whether and how the same phenomena might still occur in less obvious ways in today's beef farming sector.

## Bibliography

- Andreas, Carol. *Meatpackers and Beef Barons: Company Town in a Global Economy*. Niwot: University Press of Colorado, 1994.
- Davidson, Osha Gray. *Broken Heartland: The Rise of America's Rural Ghetto*. Iowa City: University of Iowa Press, 1996.
- Dimitri, Carolyn, Anne Effland, and Neilson Conklin. "The 20th Century Transformation of U.S. Agriculture and Farm Policy." *Economic Information Bulletin* No. (EIB3) 17 pp, June 2005. Retrieved from <http://www.ers.usda.gov/publications/eib3/>; 20 Oct 2006.
- Eisnitz, Gail A. *Slaughterhouse: The Shocking Story of Greed, Neglect, and Inhumane Treatment Inside the U.S. Meat Industry*. Amherst, NY: Prometheus Books, 1997.
- Gouveia L. ; Juska A. "Taming nature, taming workers: Constructing the separation between meat consumption and meat production in the US." *Sociologia Ruralis* 42, no.4 (2002) p. 370-390.
- National Cattlemen's Beef Association (NCBA). "Cattle Industry History: Timeline." 2006. Accessed 15 Nov 2006 at <http://www.beefusa.org/thetimeline.aspx>.
- Nierenberg, Danielle. "Happier Meals: Rethinking the Global Meat Industry." World Watch Paper 171, September 2005. World Watch Institute.
- Schlosser, Eric. *Fast Food Nation*. New York: HarperCollins Publishers, 2002.
- Skaggs, Jimmy M. *Prime Cut: Livestock Raising and Meatpacking in the United States, 1607-1983*. College Station: Texas A&M University Press, 1986.
- Steinberg, Ted. *Down to Earth: Nature's Role in American History*. New York: Oxford University Press, 2002.
- Ufkes F.M. "Trade liberalization, agro-food politics and the globalization of agriculture." *Political Geography* 12, no.3 (1993) p. 215-231.
- Worster, Donald. *Dust Bowl: The Southern Plains in the 1930s*. New York: Oxford University Press, 1972.
- Yeager, Mary. *Competition and Regulation: The Development of Oligopoly in the Meat Packing Industry*. Greenwich, Conn.: Jai Press, 1981.