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ESSAY: THE GREAT PLAINS “WILDERNESS” AS A HUMAN-SHAPED ENVIRONMENT

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ABSTRACT—This essay suggests that there is a discrepancy between historical accounts of the “natural” state of the Great Plains by European explorers and the likely strong influence of the North American Indians resident in the area. The preconceived notion of the “Great American Wilderness” appears to have obscured the explorers’ perceptions of the many ways in which the indigenous peoples had manipulated and influenced both the vegetation and the abundance of animal life in the Plains. Clearly, this challenge of the “total wilderness” paradigm has major implications for future restorations in the Great Plains.

Introduction

“For any landscape, the model natural ecosystem complex is the presettlement vegetation and associated biotic and abiotic elements” (Noss 1983: 703). These words, from Noss’s seminal article on conservation biology characterize one of the essential premises of American ecology for almost a century. Noss’s statement encapsulates so much of how we have thought of ourselves, other cultures, and the natural world that its key words bear repeating: “the model natural ecosystem” is the “presettlement” one.

Next, switch time and place, to the 1820s in a river valley in the Black Prairie of Central Texas. One of the prominent naturalists on the southern prairies during those years was Gideon Lincecum—botanist, collector, and eventually correspondent with Charles Darwin. Lincecum was exactly the kind of naturalist-explorer whose conception of American nature in its “presettlement” form ought to be valuable to ecological reconstruction. As he rode across Texas, Lincecum wrote that he encountered “a wilderness” of “wild maiden forests” with “no indications of its ever having been occupied by any people.” One spring day along the San Marcos River, he exulted in his journal that the country about him was literally “the beautiful face of paradise,” existing without a “sign” or “scar” to disturb its “perfectly natural condition” (Lincecum and Phillips 1994: 140-42).

Coming to terms with this previous human presence, the mounting evidence that quite literally millions of people were alive and influencing the world during the so-called presettlement period, has amounted to an intellectual paradigm shift for the descendants of colonizing Europeans across the world (Griffiths 1997; MacKenzie 1997). This includes Australians and New Zealanders, too, who have recently had to come to grips with the much greater ecological transformations by indigenous "presettlement" peoples than previously suspected, as a result of recent books like Eric Rolls's *They All Ran Wild* (1984) and Timothy Flannery's *The Future Eaters* (1995).

While scholars abroad are grappling with the implications of this knowledge, in the United States the issue, which as a debate about the nature of the Great Plains dates back at least to the geographer Carl Sauer (1980), is one of the recent important, and highly controversial ideas to emerge from modern environmental history. Historian William Cronon (1995a, 1995b), who holds the Frederick Jackson Turner Chair at the University of Wisconsin, recently attracted much attention and ire from environmental activists and some ecologists with his premise that the "Great American Wilderness" was mostly an intellectual construction. Also, Mark Spence (1996), writing about Yosemite, Yellowstone and Glacier National Parks, explained how American preconceptions about the wild resulted in the expulsion of Indians residing in these American parks in the 19th and 20th centuries. Similarly, Jane Carruthers, in her history of Kruger Park (1995) and her essay on parks abroad (1997), described how countries like South Africa have faced serious opposition to creating American-style, i.e., people-less, parks in areas where the longterm human presence is harder to ignore than it has been in the US.

Lincecum's glowing description of the San Marcos River Valley in the early 19th century (above) helps me make one of my main points. That point is that European cultural perspective, based on a deeply held belief in a great, unpopulated wilderness in North America, what the Spanish explorers called *los despoblados grandes*, was an extremely powerful force in early European descriptions of the Great Plains and American nature. As historians demonstrated with Lewis and Clark's ethnographical data, for example, powerful preconceptions can color what the eye sees and the mind registers in ways that miss reality. I think such is the case with the imagery of the "presettlement model ecology" of the Great Plains as a vast, empty wilderness embedded in the early historical descriptions of the Great Plains. Considerable recorded evidence suggests that explorers actually were seeing a region that was shaped extensively by the human presence. The mounting evidence suggests that literally millions of people were alive and influencing the environment during America's so-called presettlement period.

At stake in this discussion are some cherished American premises about nature, some of which are at the core of management thinking such as embodied in the Park Service Organic Act of 1916 and the Wilderness Act of 1964. The famous *Leopold Report* from the 1960s spelled out the thrust of this idea: American policy ought to be to return parks and wilderness *to the condition they were in at the moment of first European contact* (Leopold et al. 1963; Rothman 1997). Some, however, believe there is a genie-in-the-bottle effect. If one accepts *a priori* that human manipulation played a role in fashioning baseline ecologies, or if one accepts "presettlement" human manipulation as normal and natural, and then how can one argue (with logic intact) that recent manipulations by modern societies—which may differ in degree but not kind—are *not* equally normal and natural? The nature of human impacts, the scope and range of them, has become a crucial issue in restoration ecology.

The evidence from Great Plains exploration shows us, I think, that these questions will not go away. This body of evidence reflects the long time span of human occupation on the plains and the large number of people involved (Denevan 1996; Sauer 1971; Mangelsdorf 1971). It emerged in the 1920s when Carl Sauer (1950) asserted that the Indians had significantly influenced the ecology of the Great Plains, but, this idea was routinely dismissed (Denevan 1996). As evidence of Folsom and Clovis cultures emerged through mid-century, the time intervals involved were significant. For example, Clovis is now dated at 11,300 to 10,900 BP, and Folsom is dated from 10,950 to 10,250 BP (Haynes et al. 1992). The Great Plains began to look like one of the most anciently inhabited parts of the United States (Haynes et al. 1992).

From the 1920s on, Carl Sauer and his students argued for such a view of the Great Plains (Sauer 1944, 1956, 1980). Using a carry-capacity model, Sauer argued for much larger numbers of Indians in America in pre-contact times than did other scholars of the time, maintaining "that when the Europeans arrived the natives were not only prosperous and well-balanced ecologically but also numerous" (Denevan 1996: 385). It was the respected Bureau of Ethnologist scholar James Mooney (Kroeber 1939) who led the countercharge against this view. When Alfred Kroeber (1939: Appendix 1) famously estimated the pre-contact human population of the entire Americas at only 8.4 million in 1939 (and only 900,000 for North America above Mexico!), he was following Mooney's lead.

Within a decade the figures were beginning to creep upward in preparation for a full-scale re-thinking of pre-Columbian population. Julian Steward (1949) increased the Americas-wide estimate to 15.6 million. Sauer,

however, continued to believe that the estimates and methodologies of Kroeber and Steward were too conservative (Sauer 1980). When the full impact of "Virgin Soil" epidemics, from diseases introduced by Europeans, on indigenous populations began to influence the field in American demographic study in the 1960s, Sauer adopted that argument as an explanation for the woefully low figures scholars had accepted for so long (Sauer 1980).

Thus, to a greatly-extended time estimate for human inhabitation in the Americas, we have gradually added new knowledge about the actual magnitude of the human population in the so-called "presettlement" continent. The case for many more people than previously suspected has become incontrovertible, even if there is no agreement yet on the actual numbers. In the past two decades scholars like Henry Dobyns (1966) and William Denevan (1992) have pushed the estimates for the pre-contact occupation higher than ever before. Dobyns (1966) estimated that the population north of Mexico was between 9.8 and 12.25 million; and, Denevan (1992) estimated it was at least 3.8 million. In other words, by "presettlement" times 350-400 generations of men and women had been living in and transforming America for more than 100 centuries. Thus, in the 500 years immediately prior to the European arrival, the baseline "presettlement" environment of the present US and Canada was absorbing the effects (depending on whose estimate is right) of between 55 to 180 million people (Jacobs 1996).

These new population estimates along with the steady accumulation of archeological data have helped us to understand explorers' commentaries that conflicted with Kroeber's interpretation of a paltry North American population (and what he thought an almost unpopulated Great Plains). Archeologists have now mapped a sequence of bison-hunting cultural occupations on the Northern Plains. For example, in the Folsom wake, Cody hunters were on the Northern Plains until about 6,500 BP. They were succeeded by the Mummy Cave hunters who lasted until 5,500 BP, followed by the Oxbow culture (to 4,700 BP), the McKean culture (to 4,500 BP), and the Pelican Lake people (to 3,500 BP) (See Bryan 1991). The Besant hunters, last to use *atl atls*, until about 700 AD, overlapped by the bow-wielding Avonlea peoples (until 800 AD), and the Old Women's culture, which some scholars believe became the Blackfeet of the historic documents (Bryan 1991; Schlesier 1994). This cultural sequence of plains buffalo hunters comprises the longest-sustained human lifestyle adaptation in all of North American history (Schlesier 1994).

This type of continuum is not as well represented on the southern plains. Yet, it is here that our best evidence exists for a large population on

the plains at the time of European contact. For example, consider the record of the first European to traverse the continent, Cabeza de Vaca's *Relacion*, with its account from the edges of the Southern Plains in the mid-1530s (Cabeza de Vaca 1984: 96-98). Expecting to find *los despoblados grandes*, Cabeza de Vaca, who has been praised by scholars for his conservative descriptions (Hodge 1984) encountered instead "so many sorts of people of such diverse languages, the memory fails to recall them" (Cabeza de Vaca 1984: 67). Cabeza de Vaca and his fellows were seen as shamans and healers and were trailed by a retinue of 3,000-4,000 people as they worked their way into northern Mexico. He noted, intriguingly, that it was only when they neared the "Christian lands" that the country began to appear vacant (Cabeza de Vaca 1984: 109).

Five years later the Coronado expedition echoed Cabeza de Vaca by noting that the High Plains of present New Mexico and Texas were densely populated by numbers that rivaled the Pueblo towns along the Rio Grande (Schambach and Rackerby 1982; Gutierrez 1991; Anderson 1999). Both documents and archeological evidence help reconstruct how many would that have been. We now think, that there were as many as 50,000 people in South Texas when Cabeza de Vaca was shipwrecked there (Anderson 1999). Another 10,000 lived in the towns called La Junta near Big Bend, and another 30,000 resided up the Rio Grande toward present El Paso. And, the 70 or so Pueblo towns along the Upper Rio Grande had about 80,000 in the 1500s (Gutierrez 1991). According to our archeological evidence, the Wichita towns that Coronado saw in southern Kansas numbered as high as 100,000 people (Schambach and Rackerby 1982). Add, conservatively, another 20,000 to account for the numerous Apache buffalo hunters on the High Plains and the Siouan villagers (like the Osages) farther east. In addition the Caddo Confederacy along the Black Prairie had at least 30,000 people in the 16th century (Anderson 1999). Together these numbers suggest that roughly a third of a million people were living in or near the southern prairies prior to "pre-settlement" times (Schambach and Rackerby 1982; Gutierrez 1991; Anderson 1999).

So there were probably several hundreds-of-thousands of people on the Great Plains before Europeans arrived, and they had been here for at least ten thousand years. What impact might they have had? Few scholars will argue that non-Western, pre-capitalist hunters and horticultural peoples had no impact. Predation and crop-raising by humans are economic activities that shape the world, particularly when practiced by hundreds of thousands of people over centuries of occupation.

While early Euro-American explorers rarely recognized or analyzed human effects on the environment, they often noted them indirectly. Floristic patterns on and along the borders of the Great Plains were altered, particularly around Indian villages (Flores 1984). The introduction from Mexico of exotic cultivars, such as maize, gourd squashes, pumpkins and exotic legumes, was one of the obvious transformations on the plains. But there were others. Dr. Peter Custis, who was the first American-trained botanist to explore the West and who became Thomas Jefferson's Meriwether Lewis counterpart in the Southwest, left a lengthy ecological catalogue (Flores 1984). His records from 1806 document extensive ecological alteration in the vicinity of Indian villages along the Red River (Flores 1984). Such data make it abundantly clear that the West as a pristine world, shaped solely by non-human processes, is one of the grand fantasies of American history. For example, Custis's botanical lists document a phenomenon that 20th century ecologists have also observed: the prior human transfer of wild plants across the continent out of their native ranges into the vicinity of both occupied and long abandoned Indian sites (Flores 1984). Near the Caddo villages visited by the exploring party, Custis found an unusual abundance of species such as the jimson weed (*Datura stramonium* L.), and the great blue lobelia (*Lobelia siphilitica* L.) used in medicine and ceremony. He describes, as well, a successional pattern of plants taking over abandoned Indian fields that was far different from that in nearby prairies, further evidence that Indian agricultural practices extensively modified the landscape along the Great Plains (Flores 1984).

Another explorer, Jose Mares, traversed the plains between Spanish settlements in Louisiana and New Mexico in 1787-88. He described another probable ecological effect of Indian inhabitations when he noted that mesquite increased significantly as one approached Indian villages on the plains (Mares 1967). Since Mares's journeys were in the period after horses were introduced he may have been describing an overgrazing effect. Or possibly, mesquite thickets springing up around villages may have represented a localized form of fire suppression similar to the kind that led to the enormous increase in mesquite and juniper on the Southern Plains since Indian fire management ended (Laycock 1991).

Widespread stories of Indian fire ecology initially led Carl Sauer (1950) to argue that the grasslands of the Great Plains owed much of their existence to the Indian presence. Since then supporting evidence has increased. Cabeza de Vaca was the first European observer of this practice. He wrote that the Indians of the interior so habitually used fire that it constituted a fundamental part of their technology (Cabeza de Vaca 1984). He observed

the use of fire to encircle deer, drive lizards out of hiding, lure buffalo to nearby pastures, and reduce mosquitos; mosquitos would otherwise be so dense that the Indians "appeared to have the affliction of holy Lazarus" (Cabeza de Vaca 1984: 67). Individual citations for Plains Indian use of fire in the historical documents form a tediously lengthy list. However, later observers added some interesting reasons for fire, such as burning the rattlesnakes as they emerged from their dens, encouraging berry patches in particular places, and depriving enemy raiders and war parties of game (Lewis 1985; Phillips 1985; Arno 1985; Gruell 1985; Vogel 1974). Peter Custis noted some of the floristic results, among them that fire-colonizing *Cassia* species tended to "overspread the entire country" up the Red River (Flores 1984).

Because of their different timing, these anthropogenic fires had different effects than lightning-caused fires, such as the creation of many kinds of plains vegetation complexes, including berry patches, scruboak savannahs, and foothill parklands. During the modern Interglacial, climate actually seems to favor half-shrubs and the push of xeric species northward from the Chihuahuan Desert (Schmidt 1989). Thus, the very existence of the Southern Great Plains as a grassland complex populated by big grazing animals almost certainly depended on Indian management. Ecologists have now come around to accepting Sauer's (1950) contention that the eastern borders of the Great Plains were extended eastward by Indian fire practices, a strategy that also helped extend the bison's range (Anderson 1990; Pyne 1982). As repeat photography shows (Klett et al. 1984; Meagher and Houston 1998), the same phenomenon has occurred in recent times in the foothill grasslands where the plains abut the Rocky Mountains. Western planners of the last century like John Wesley Powell (Flores 1978), who hoped to protect forests by removing fire-happy Indians, failed to realize the effect Indian removal and fire suppression might have on the western edges of the grasslands (Barrett and Arno 1982; Barrett 1981).

Finally the Indian presence influenced animal populations of the Great Plains. The evidence now suggests that the global market had an impact on the Indian harvest of animals (Flores 1991). Tantalizing linkages exist between Indian population sizes, which fluctuated as a result of disease epidemics, and wildlife population size (Rostland 1970). The evidence clearly shows I think, that the presence or absence of Indian peoples made a very palpable difference in how Euro-American explorers reported wildlife (Rostlund 1970). The abundance and diversity of Great Plains wildlife that Lewis and Clark found was the result of eons of evolution and geology and climate, but also of thousands of years of the Indian hand. In fact, the

enormous bison population reported was a legacy of over-simplification. North America lost three-quarters of its large fauna in the Pleistocene extinctions 100 centuries before European arrival (Martin 1968). The native peoples may have helped cause or shape this massive simplification (Martin 1968). The animal ecology of the Great Plains 500 years before European settlement rested on the results of that extinction. Even scholars of bison evolution and taxonomy argue that the rhythms and pressures of human hunting shaped the modern animal (McDonald 1981: 243-63). Indians also influenced plains ecology to a degree by observing cultural taboos for some animals such as beaver, for example, whose ponds could be drought insurance on the plains (Smith 1983; Hames 1987; Morgan 1991). In other cases, no distinctions were drawn between humans and certain human-like animals, like bears or wolves (Williams and Huan 1982). Therefore, big predators like these were not pursued or eradicated.

Great Plains animal ecology as the European explorers saw it also depended upon the behavior and interactions of Indian inhabitants, that were noted but only vaguely understood. Lewis and Clark, for example, initially could not explain the extraordinary difference they found in wildlife populations between the Missouri River and Columbia River slopes of the Rocky Mountains (Clark 1993). Yet, on the return trip, Clark finally confided to his journal, "I have observed that in the country between the nations which are at war with each other the greatest numbers of wild animals are to be found" (Clark 1993: 38). Paul Martin and Christine Szuter (1999) recently concluded that it was a buffer or war zone imposed by the Blackfeet on the Upper Missouri River that accounted for the huge number of animals Lewis and Clark reported from that region. The large and peaceful Indian population along the waters of the Columbia River was likely responsible for the game "sink" that the explorers found there (Martin and Szuter 1999). Also, Indian hunting was consistent with the optimal foraging efficiency principle (Smith 1983; Hames 1987). So, dozens of travelers, including trader Anthony Glass working the Southern Plains in 1808, recorded a lack of wildlife near Indian villages (Glass 1985). Since buffer zones between warring 18th and 19th century tribes have been recognized, their presence seems to account for a high wildlife abundance found in explorers' accounts of the Great Plains (Martin and Szuter 1999; Flores in press).

Conclusion

All of which should put into better context the experience of the 19th century naturalist, Gideon Linsecum, writing about the untrammelled wilder-

ness he found in the Black Prairie along the San Marcos River in Texas in the 1820s. It has taken history almost two centuries to discover what Lincecum failed to see, the ecological alteration of the region imposed by its Indian inhabitants. A smallpox epidemic had run through the tribes in the Great Plains in 1817, so perhaps the Texas prairie seemed wilder and more unpeopled when Lincecum entered than it was a few years later. We perhaps could overlook Lincecum's failings if there weren't one additional complication. It is also a very revealing, even emblematic, complication. It turns out that the "perfectly natural" countryside Lincecum found in the San Marcos Valley had actually been the site of a bustling Spanish mission only a century before (Lincecum and Phillips 1994). Hampered by his own version of our long-enduring fantasy about the continent, Gideon Lincecum looked at the reality of a human-influenced Great Plains natural world, but instead saw the "presettlement" wilderness his culture had prepared him to see.

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