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What's good for the soil is good for the soul: scientific farming, environmental subjectivities, and the ethics of stewardship in southwestern Oklahoma

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Abstract Based on 10 months of mixed ethnographic and archival research, this study is concerned with ways in which contemporary agro-environmental subjectivities and practices in a southwestern Oklahoma farming community are rooted in the massive state-level interventions of the New Deal era and their successors. We are likewise concerned with how those interventions have become interdigitated with moral discourses and community ethics, as simultaneous expressions of both farmers' identities and the systems of power in which they practice farming. Through historic and ethnographic evidence, we demonstrate the ways in which the localization of American agricultural conservation and the attendant, edificatory role of resource bureaucracies have shaped contemporary practices and ideologies of natural resource stewardship among conventional farmers and ranchers.

Keywords Conservation · Agricultural modernism · Subjectivities · Great Plains

Introduction

The title for this study comes from a caption printed beneath a small pen-and-ink image included in a full-page, mixed-graphic advertisement in a 1962 issue of *The Fort Cobb News*, a newspaper from one of Caddo County, Oklahoma's many farming communities. The ad commemorates the annual observance of Soil Stewardship Week, a nationwide effort launched in 1955 by the National Association of Conservation Districts (NACD). The image itself features an overall-clad adult male, his arm over the shoulder of a young boy (presumably his son). The pair stands under a large tree perched on a hillside. They overlook grazing cattle in the middle frame, their gaze directed toward the modest frame church nestled in the near distance. The caption beneath the image reads, "What's Good for the Soil is Good for the Soul."

Though separated by two decades, the greater project this ad represents can be traced directly back to the New Deal era, when large scale mobilizations to control soil erosion and stabilize rural livelihoods forever altered the future of American agriculture and created a new moral discourse that shaped the way farmers of subsequent generations saw and understood their relationship to their most precious natural resources, soil and water. This study is concerned with ways in which contemporary understandings of conservation and agriculture in a southwestern Oklahoma farming community are rooted in the massive state-level interventions of the New Deal era and their successors.

Specifically, we take issue with the arguments put forward by some that suggest that contemporary farmers' views of conservation and stewardship are primarily a function of current systems of "domination" by a network of powerful actors—"Big Agriculture" actors like Monsanto, the producers of farming equipment, providers of credit, etc. Illustrative of this argument is Gray and Gibson's (2013) examination of farmers in western Kansas. Gray and Gibson argue that current farmers working at the scale of "industrial agriculture" in Kansas have lost much of their agency. They note that Farmers' lack of control has

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left them dominated by all other actors in the network, stating "although [their] fiercely independent informants would rather walk their own paths, and insist that they do, their involvement in the industrial agricultural network keeps them in well-defined orbits" (Gray and Gibson 2013, p. 96). The nature of contemporary industrial agriculture, in their view, so limits the agency of those Great Plains farmers in their study that most are incapable of acting in a manner that would lead to environmentally sustainable practices. In addition, though their study collected instances where farmers described a commitment to stewardship and sustainable conservation practices, Gray and Gibson interpret farmers' evocations of stewardship as a kind of false consciousness cultivated by "dominant actors" (97) in modern agribusiness networks. Most troubling, to them, is the fact that "farmers exist as part of larger, interdependent networks that work to sustain momentum in an unsustainable direction" (98). What such interpretations fail to account for, however, is the equally influential and historically rooted role of natural resource bureaucracies in instantiating a model of stewardship and conservation in which the bulldozer played a greater role than biodiversity.

What follows, then, is an assessment of these processes through evidence gathered in an ongoing mixed-method, multi-sited, multidisciplinary field study examining resilience, sustainability, and coupled human and natural systems in four watersheds and one urban system in Oklahoma. The goal of this broader research project is to establish long-term, socio-ecological observatories throughout Oklahoma that will permit longitudinal study of the impacts of and responses to climate change, climate variability, and severe weather. The results reported in this paper emerge from our long-term, in situ ethnographic efforts in a southwestern Oklahoma farming community.

The research for this paper has been designed to study both the historical and the contemporary in order to capture the particularities of local experiences. Specifically, this paper seeks to shed light on several intertwined research questions: Empirically, how do contemporary farmers involved in "big agriculture" in the Great Plains characterize their relationship to the land, sustainability, stewardship, and conservation? Analytically, how can we account for their views of these relationships? Specifically, we seek to understand the role of two different explanatory models in shaping how these relationships emerge. First, we ask whether farmers' views are solely a reflection of contemporary political economic structures that create a kind of "false consciousness" in these farmers? Second, we ask whether these farmers' views can be explained as emerging from continuity with historical cultural beliefs and worldviews originating in scientifically-informed, New Deal-era efforts to shape farmers' views of the relationship between "the land" and agriculture?

Another way of saying this is that our research questions ask how much *history* and *culture* matter in understanding how "big agriculture" farmers view the land, sustainability, stewardship, and conservation. Revolutions in agricultural technologies, biotechnologies, and the broader economics and political/policy context for Great Plains agriculture have led some scholars to treat "older" traditions—like those lessons learned in the shadows of the Dust Bowl, and passed down from generation to generation of farmer—as irrelevant or simply antediluvian cultural beliefs and curiosities that play little role in the day-to-day business of contemporary farming. Our findings suggest that, while changes in technologies and political economy play a significant role in shaping farmers' perceptions and practices, the role of history and shared cultural understandings remain critically important in this regard.

The paper begins with outlining the broader historical patterns that shaped the experience of agricultural development in the southern Great Plains. Next, a brief site description maps these broad patterns onto the particular experiences of southwestern Oklahoma. Moving into primary data analysis, the paper examines, first, primary archival data from the region. Then, each of these historical frames is brought to bear on an examination of contemporary ethnographic data. This paper will demonstrate the continuity of subjectivities and sentiments—a continuity whose origins can be traced as much to the history of the region as to any contemporary forms of "domination" or "false consciousness"—and we will show how they, in turn, shape current practices and perceptions. Finally, the conclusion examines the implications of these findings and their role in broadening understandings of conservation among outside analysts.

Study design and limitations

Results from our study are based on ethnographic fieldwork conducted by the authors over 10 months (July 2015–May 2016) and draw on hundreds of hours of participant observation with farmers, ranchers, and other actors in local communities in the region, as well as fifty-nine semi-structured recorded interviews with sixty-five participants, and thousands of pages of archival documents. While recorded interviews ranged from 60 to 180 min, it was not unusual for the authors to spend several days with farmers, observing their practices, being shown how those farmers' narratives about conservation or stewardship directly translated into specific, observed practices on the land. The authors have also worked with other agricultural research colleagues and local extension agents to regularly fact-check and confirm that our interpretations of data and our selection of different "types" of research participants

reflect the diversity of farming practices and types of farms in the study region.

Regarding recruitment, the study began with the recruitment of key informants—agricultural extension agents, the membership of agricultural co-ops, key informants from the local Native American agriculturalist societies and initiatives, et al.—who we already knew would be able to help us make contact with and select appropriate additional research participants. Thus, interviewees were recruited into the study via purposive snowball sampling. Our primary goal was to capture the broad diversity of types of farmers and farms across the study region. We sought to ensure representation in our study across multiple environments (e.g., dryland farmers without access to groundwater as well as farmers with extensive irrigated land due to the location of agricultural lands over the Rush Springs aquifer), different agricultural portfolios (e.g., from ranchers who raised few crops to farmers who did not raise cattle), different sized farms (as small as a rancher with 10 head of cattle to as large as farmers with thousands of acres of irrigated cropland and hundreds of cattle), and we were even able to include the few organic farms in the study region as part of our interviewee pool (a minority, but, still important to round out the diversity of farming practices represented in the Great Plains). We believe that our study design and methodologies allowed us to gather representative narratives from across our study region.

That being said, our study design limits some of the claims that we are able to make regarding the generalizability of our findings beyond the Upper Washita region. Because this was an intensive study of a single county in Oklahoma, we cannot claim that our findings are representative of all farmers across the Great Plains. However, what we *will* insist is that the presence of the *kinds* of narratives regarding land, sustainability, stewardship, and conservation that we recorded have been observed throughout the Great Plains, while few of the scholars who have recorded these kinds of narratives have followed up with the kind of deep ethnography that we have conducted. As such, we believe that our findings regarding these beliefs—and, as we will detail below, the attendant farming practices that follow from those beliefs—are more common than what appears in the works of scholars who have dismissed farmers' talk about "conservation" and "stewardship" as empty rhetoric or "false consciousness."

Providence and progress

As environmental historians have ably demonstrated (Worster 1979; Koppes 1987), the activities of primary land users prior to the pivotal moment of New Deal interventions were driven by patterns of extensive exploitative use underwritten by a pioneer psychology heavily invested in a belief in the inexhaustibility of North America's natural resources. On the Great Plains this often meant softening the hard edges of singularly unforgiving and overwhelming ecologies and climatic conditions. This approach closely attended the settlement of agricultural frontiers in marginal climatic zones of the west, but ultimately proved disastrous, culminating in perhaps the most quintessential of modern environmental disasters—the Dust Bowl. The old ethic of extensive use was thus necessarily displaced by a new ethic of conservation, but one that nonetheless reproduced much of the structure of feeling of this older sentiment. This emergent ethic meshed with a nascent industrial order that imposed the values of utility and efficiency on agricultural landscapes, even as, noted in *The Future of the Great Plains* (1936), the farmers of the Great Plains were warned that they "cannot 'conquer Nature'—[they] must live with her on her own terms, making use of and conserving resources which can no longer be considered inexhaustible" (6). Indeed, as Brian Balogh perceptively comments in his examination of the social milieu that shaped Gifford Pinchot and the Progressive era conservation movement, "utility fused religious and economic strains in American thought" (2002, p. 202). Civilizational progress and the values embodied in the "the gospel of efficiency" (c.f. Pinchot 1910) were passed on to New Deal era successors and the simultaneously emergent technocratic order of "scientific agriculture"—even as the explicit language of the religious was excised or minimized and circumscribed in later New Deal era conservation efforts. The conservation programs initiated in response to the paired economic and environmental convulsions of the 1930s thus represent an unprecedented mobilization of centralized state intervention (see Worster 1985). Though firmly rooted in progressive era antecedents, the scale of New Deal conservation efforts mark the origins of the agricultural and natural resource bureaucracies that remain embedded in the local communities to this day.

The progressive era, of course, produced multiple, competing discourses about and visions of conservation beyond the techno-scientific narrative thread that we follow in this paper. These alternative discourses included traditions associated with "working landscapes" (e.g., Leopold 1949), Pinchot's (1910) binding of the political economic to the moral obligations to conserve for future generations, and those, like Bailey's *The Holy Earth* (1915), that sought to bind spiritual beliefs to the obligation to respect and conserve nature through the tools provided by science. Others, like Smythe's valorization of American industry over the unforgiving conditions in the West in *The Conquest of Arid America* (1900), saw the West as "waste

land" that simply awaited the rational application of "wise laws," "surplus populations" from immigration, co-operation between people [rather than "unrestricted private control of large industrial affairs" (1900, p. 303)], and engineering to maximize the productivity of the lands. While we acknowledge that these traditions have also shaped agricultural practices and contemporary understandings of conservation, our goal in this paper is to make sense of the particular practices of the farmers in southwest Oklahoma. As such, our study is, first and foremost, an anthropological study that draws on and emphasizes, not the whole scope of historical trajectories that are *possible*, but, rather, those historical trajectories that seem to have become embodied within the lives of people in a specific ethnographic context.

The New Deal conservation paradigm that we trace into the present lives of farmers in southwest Oklahoma conforms to what Pretty and Shah (1997) describe as a "framework of modernization," or what James Scott (1998) calls a "high-modernist ideology." In Pretty and Shah's estimation, the implementation of soil conservation measures, grounded as they were in the positivist tradition then coalescing around "scientific agriculture," proceeded by a predictable internal logic. They write, "Scientists and planners identify the problem that needs solving, such as too much degradation. Rational solutions are proposed, and technologies known to work in a research station or other controlled environments are passed to rural people and farmers. The concern is thus to intervene so as to encourage rural people to change their practices" (1997, p. 40). It was a mode of conservation that was predetermined by the perceived need to control nature to the end of maximizing productivity.

New Deal agrarian conservation, however, like its progressive era predecessor, relied on a kind of double register to cultivate its faithful. On the one hand, its validity to speak authoritatively for new techniques and technologies that would revolutionize agricultural practices was grounded in the moral neutrality of science, and more specifically of "scientific agriculture." On the other hand, the complimentary hearts-and-minds campaign relied on a deeply moral, even mystical, symbolism for its dissemination. This paired technical-moral discourse of New Deal agrarian conservation is perhaps best embodied in the person of Walter C. Lowdermilk, first assistant director of the Soil Conservation Service. In concluding his landmark report on land stewardship based on a tour of Old World sites in the Middle East, Africa, China, and Europe, he commented on a radio broadcast on soil conservation he delivered in Jerusalem in 1939. On this occasion he recited for the first time what he called the "Eleventh Commandment," which reads as follows:

> Thou shalt inherit the holy earth as a faithful steward, conserving its resources and productivity from generation to generation. Thy shall safeguard thy fields from soil erosion, thy living waters from drying up, thy forests from desolation, and protect thy hills from overgrazing by thy herds, that thy descendants may have abundance forever. If any shall fail in this stewardship of the land thy fruitful fields shall become sterile stony ground and wasting gullies, and thy descendants shall decrease and live in poverty or perish from off the face of the earth (1953, np).

In the Upper Washita River watershed, precisely such twinned interventionist measures took the form of public works and demonstration projects as well as concerted campaigns to transform the daily practices of primary resource users.

Pastures and pivots: the upper Washita watershed

This paper is based on current and ongoing research organized around the Upper Washita River watershed, but further concentrated largely within the boundary of Caddo County, one of Oklahoma's most historically productive agricultural counties. The Washita River flows from west to east through the county, bisecting it along its long axis into northern and southern sections. This division also corresponds to the historic reservation boundaries (and contemporary tribal jurisdictions) of the combined Kiowa-Comanche-Apache (KCA) and Wichita-Caddo-Delaware (WCD) tribes. Situated mostly within the state's Cross Timbers Transition ecoregion (Woods et al. 2005), Caddo County's landscape encompasses a mosaic of rolling-to-level cropland (39% of the land base as of the 2012 agricultural census) and native prairie and "improved" rangelands (52.1% of the land base) in its north, northwest, west-central, and southern sections. Located mainly within the Western Sandstone Hills subregion represented by Red Rock Canyon State Park and the formations known as the Caddo County Buttes, the county includes portions of the Red Bed Plains and Limestone Hills geological regions as well. The county's soil types mirror this geologic variability, though highly erodible upland sandy loam predominates. The majority of the county is also underlain by the Rush Springs aquifer, one of the state's major bedrock aquifers. The county averages 32 inches of annual rainfall, but precipitation can be highly variable from year to year.

Euro-American settlement in the area after 1901 brought commercial agriculture centering on cotton, wheat, peanuts, hay, and cattle that dominates Caddo County's economy to this day. Prehistoric agricultural activity in the area, however, dates back to the settlements known to

archaeologists as the southern Plains Village complex (AD 1000–1500). Thought to be the direct ancestors of the Wichita peoples, these sedentary villages cultivated corn, beans, and a few other domesticates in alluvial bottomlands, supplementing crops with wild plant foods, fish, and seasonal bison hunts (Drass 2008). This culture complex was displaced with the arrival of horse-mounted, nomadic plains tribes (the Kiowa, Comanche, and Plains Apache) in the eighteenth century. These plains tribes dominated the southern plains until the Medicine Lodge Treaty of 1867 and the subsequent forced settlement of the KCA tribes (particularly after the Red River War of 1874–75) on shared reservation lands south of the Washita River. The original inhabitants of the area, the Wichitas, found themselves, along with the Caddo and Delaware tribes, relocated a second time to a reservation north of the Washita River in 1869. Indeed, the first tentative modern agricultural efforts in what would become Caddo County were initiated on the lands of these two combined reservations shortly after their designation as such, but suffered from irregular staffing, recurrent drought, and chronic underfunding (Stahl 1978).

After the passage of the Dawes Act in 1887, the process of allotting tribal lands to individual owners in 160 acre quarter sections was motivated by a faith in the power of private property to convert these recently nomadic buffalo hunters and semi-sedentary villagers into independent yeoman farmers. In the KCA/WCD area, however, the process of allotment proceeded in fits and starts, partly the result of a legal challenge by the Kiowa Tribe (*Lone Wolf vs. Hitchcock*) and partly the result of the vested interests of powerful north Texas cattlemen who leased much of the reservation, rich in stands of native grasses, as prime grazing land. The process of allotment proceeded nonetheless. The completion of the allotment process was accompanied by a land lottery for the newly opened "surplus" reservation lands in 1901.

Conservation as/and conquest

In a region prone to erosion at the hand of processes both atmospheric (wind) and hydrologic (water), as well as the depositional forces of flood events, the alphabet soup of federal agencies that attended the Washita region were focused largely on issues of agricultural stabilization through the mediation of these processes. The combined federal response to the region is perhaps best encapsulated in the 1943 USDA report entitled *Watershed of the Washita River (Oklahoma and Texas)*, which served to establish the Washita Basin as one of eleven such watershed improvement projects authorized by congress through the amended Act of 1944 (Helms 1988). At the heart of the program were the so-called land treatments applied on both croplands and rangelands. These consisted primarily of crop rotation, strip cropping, terracing, and contour cultivation in the former instance. Other treatment strategies included "vegetative control measures" on retired lands, principally through reseeding native grasses or sprigging introduced Bermuda grass; the planting of shelterbelts (windbreaks composed of fast growing tree species); the observance of appropriate stocking rates and rotational grazing systems on pasture lands; and the installation of small (and later, large) flood control structures (most of the latter were carried out in the late 1950s).

Practical land treatment strategies executed on privately owned farmlands through formalized "cooperative agreements" were supplemented by more publicly visible demonstration projects intended both to edify and recruit. Mirroring other such projects around the nation, the Washita report notes that an important function of local demonstration projects was "to acquaint participating farmers with *proper* soil and water saving practices" (1943, p. 9). Through demonstrating the effectiveness of these new conservation measures, these projects also served as recruitment mechanisms. As Neil Maher's analyses of Kansas's Limestone Creek (2000) and Wisconsin's Coon Valley (2008) demonstration projects exhibit, this recruitment function was highly effective, having a discernible ripple effect. The Washita report's authors estimated an average participation rate of 55.7% among farmers in the greater watershed and as high as 68% in portions of Caddo and Grady County subregions.

Besides these on-the-ground efforts, the New Deal conservation apparatus coordinated a national-level media campaign intent on inculcating a new post-pioneer rural subjectivity. This took the form of government publications and films. Local enthusiasm for the New Deal's combined campaign becomes evident in county newspapers by the late 1930s. A 1938 article in *The Anadarko Tribune*, for example, carried the headline, "Soil Building Leads in '38," informing readers that "Helping Caddo County farmers conserve and build up their soils was one of the biggest jobs performed by the county agent … in 1938." The article continues, "The agent pointed out that the main reason so much time was spent on this phase of agriculture was that the living of the farm families of the county is largely dependent on the fertility of the soil and its moisture holding capacity."

The maturation of a post-pioneer conservation ethic among Caddo County's farmers is perhaps best captured in a 1940 article, again carried in *The Anadarko Tribune*, poignantly titled "Human Erosion." Quoted at length, the author asserts

> Oklahoma is now growing up, having passed her fiftieth birthday. Following the ways of all young, we

> have been living, growing, and enjoying our youthful enthusiasm at the expense of Mother Nature, hardly stopping to think from whence our food, clothing, gasoline, and other necessities of life have come, but depending on the stored up fertility of the earth to provide our daily needs from her bountiful natural resources placed here by the Creator of all things for the benefit of the children of men …
>
> But what now? We find ourselves grown up, many our natural resources developed; we hesitate to say "exploited" as it would be embarrassing to admit that we have overlooked the fact that there must be an end to all things, especially our natural resources such as oil, coal, minerals, timber, and most important of all, the fertility of our soil and the tillers thereof from which come the very necessities of life–food, shelter, clothing.

Programs leading to the materialization of such sentiments continued apace into the 1950s, especially through that decade's Small Watershed and Soil Bank Programs (the latter the predecessor of today's Conservation Reserve Program).

By 1956, the Washita report's suggestions for flood control structures were finally coming to fruition. Activities in Caddo County included two large dams constructed by the Bureau of Reclamation, as well as smaller dams on tributary systems overseen by the USDA. The latter included the Sugar Creek Watershed, the most highly engineered tributary watershed in the County. The Sugar Creek Watershed Improvement Association's plan for the historically troublesome waterway included the following dedication on the title page of their report: "Dedicated to the preparation that future generations will not suffer for our being here and that we may enjoy the beauties and bountiful harvest that nature intended." A research participant who served for 30 years on the local conservation district board said of the Sugar Creek project, begun in the 1960s and infused with nearly $20 million following extensive flood damage in 2008: "They said it couldn't be done … It's the most erosive stream in the United States, and by golly we got it under control."

In the agricultural census of 1959, 65% of the county's farmers and ranchers reported the installation and maintenance of terrace systems, and another 43% reported farming cropland on the contour (USDA 1959). By the early 1960s this enthusiasm was bolstered by newspaper coverage of conservation issues including regular full-page advertisements by the South Caddo Soil Conservation District, whose content ranged from profiles on land treatment measures, to poetry and appeals to faith. The former category includes posters with headlines such as, "Save the Soil with Waterways and Terraces," and "South Caddo Soil and Water Conservation District has as its goal: Every Acre Protected and in its Proper Use." Entries of the latter sort are exemplified by the mixed-graphic ad described in the opening paragraph of this paper, which carried the title, "Man is God's Gardener." These regular ads were further supplemented by frequent profiles of the conservation practices and successes of area farmers, thus personalizing and perpetuating the agrarian conservation ethic introduced 25–30 years earlier.

The considerable success of local conservation measures through the 1960s, however, was also underwritten by two additional interlinked factors. The first of these was the presence of a substantial pool of American Indian labor mobilized especially through the physical work performed by Civilian Conservation Corps-Indian Division (CCC-ID) camps. There were three such camps in the area—one at Riverside School in Anadarko, one at Rainy Mountain School near Mountain View, and a third soil conservation camp at Fort Cobb. The second and closely related factor was a significant local land base of allotted Indian trust land, much of which was targeted for the implementation of land treatment measures, particularly those more extensive measures requiring the removal of substantial acreages from production (see, for example, Monahan 1938).

A similar utilization of Indian lands attended the construction of the county's flood control infrastructure in the 1950s and 1960s. This included both the small watershed structures built by the USDA and the basin of the Bureau of Reclamation's Fort Cobb Lake project. In the former category is the example of Sugar Creek, a project whose more than 40 flood control structures required the acquisition of easements to clear the way for dam building and inundation. A 1959 article in *The Anadarko Tribune* reported that sixty-eight percent of the easements required for the "clearance" of the Sugar Creek project were on Indian lands. These developments, especially the flood control infrastructure, were largely to the benefit of non-Indian agricultural producers who then, as now, made up over ninety percent of the county's commercial farming population. As David Stradling notes of this general pattern, "Regardless of the efficacy of conservation policies in protecting the environment, they generally did not sufficiently protect the rights of residents in the west, particularly Native Americans, who could rightly see conservation legislation as simply another aspect of ongoing imperialist invasion" (2004, p. 12). Indeed, the conservationist paradigm of control and subjugation perceived colonized peoples as simply another element restricting the advancement of progress (this topic is important enough to warrant its own investigation, forthcoming by the authors).

Three major changes introduced in Caddo County in the 1970s and 1980s would shift the ground of local

conservation practice yet again, though the precedent set by the New Deal technocratic apparatus determined continuity in both delivery and reception. The first major shift was the largely mechanical innovation of center pivot irrigation technology, here made particularly viable by the presence of the Rush Springs aquifer. The heaviest groundwater flows happened to be coterminous with the County's sandiest soils. This confluence resulted in more intensive production regimes on precisely those lands previously categorized as highly erodible. While wind erosion became a less immediate concern on these lands, irrigation brought water resources to the forefront of the conservation consciousness of both local farmers and resource managers. The second change, also technological, was the spread of minimum and no-till practices made possible by chemical herbicide applications. While conservation tillage measures were introduced in the New Deal era (and bolstered by the publication of Edward Faulkner's *Plowman's Folly* in 1943), the chemical-dependent no-till movement facilitated the industrialization of these methods. The third change was in the arena of policy. The 1985 Farm Bill introduced the conservation incentive programs that guide U.S. farmland conservation efforts to the present day.

Ethnographic evidence for continuity and divergence from traditions of conservation

Among the strategies most heavily promoted through post-1985 incentive programs such as Conservation Stewardship Program (CSP) is no-till farming, which, while dependent on heavy herbicide applications, is understood by farmers and resource managers alike as a revolutionary conservation technique. As one farmer in Caddo County's irrigation district put it in an interview with the one of the authors (VanWinkle), "Everybody's pretty much shifted to that. And most everything is done pretty much in a no-till or a minimum-till deal. There's not much conventional farming going on, other than now and then to clean up fields … but most everything is planted in a no-till or strip-till, you know, conservation deal." Another participant, in recalling the role of such practices in moderating the severity of the 2010–2012 drought that impacted much of the Southern Plains, said, "It's been devastating. I mean, it's just been terrible. I mean if it hadn't been for all the conservation tillage and everything, we'd have seen another Dust Bowl."

This precise sentiment was repeated many times by people we talked with, and it provides a bridge that links this technical management regime to its complementary moral discourse. A young, college-educated irrigation farmer expressed both a complicated understanding of the agro-ecological benefits of minimum tillage combined with cover cropping while also articulating the moral imperative that attends the adoption of such practices:

> When I was in college at OSU, I was an agronomy major and I learned about the importance of organic matter…There's so many benefits to organic matter that that's one of our goals. So the less tillage you do, the less you're going to oxidize organic matter. The more plant material you grow, you're going to increase your organic matter. So…and then you get a lot more earthworm activity, biological activity, it's just…it's healthier soil … So I believe you ought to keep something…if you could, possibly keep something growing on your land all the time would be the best. So the benefits of it is, of course, wind erosion. We have sandy soils here, so to protect your land from the wind erosion. Water erosion. It also helps as a mulch after you get a crop established, to shade the ground, less evaporation. Weed suppression … On land that has quite a bit of slope to it, it seems like the more organic matter we have…the rye cover crop or whatever it is, residue, we have…we keep our irrigation water in place.
>
> I don't know. Maybe I'm…I want to leave this land better than I found it … I'm a believer…It's a mindset about conservation tillage. About no-till. About cover crops. I want to do this regardless. I'm committed to this. You know, that's my situation.

On a visit to the NRCS and South Caddo Conservation District offices housed in the local USDA service center, the district conservationist informed us that Caddo County has recently led the state in the number of CSP contracts (and Oklahoma in turn has led the nation in this same statistical category) (USDA 2014). This can be taken as yet another indicator of the local continuity of a conservationist paradigm.

Ethnographic evidence further demonstrates that among resident farmers and ranchers of the Upper Washita/Caddo County region, they remain adherents to a particular kind of conservation discourse and practices introduced in the New Deal era, perpetuated in the Post-war era, and bolstered and supplemented again by the ascendency of so-called no-till practices. Aligned with David Stradling's view on "conservation as a political process" (2004, p. xi) the following ethnographic vignettes demonstrate both the technical and moral discourses that continue to reproduce ideal agro-environmental subjects.

The local conservationist paradigm was illustrated on a particularly fruitful day that began with a meeting between one of the authors (VanWinkle) and the manager of the Farmer's Cooperative Cotton Gin in Carnegie, a small

town on the Washita River at the west-central edge of Caddo County. The manager generously offered to drive us to the northern parts of the county and introduce the author to some of the cotton growers with whom she works and has fostered close personal relationships. After leaving the Gin offices, we made a stop at the Cobb Creek Café near the community of Eakly, in the heart of the county's north-central irrigation district. After a cup of coffee and something of a debriefing, we drove a short distance to the home and farm of a young and newly married local cotton producer. The couple had just moved a double wide onto their property and the two were in the process of moving in from a much smaller and older frame house located about twenty yards away. The home and yard, located on a slightly elevated brow overlooking a cotton field in the bottomland of Cobb Creek, were in an understandable state of disarray. After introductions and general conversation the author had a chance to tell him about our research. He was very interested and our conversation quickly turned to the Rush Springs Aquifer, which he knew by name (this has not universally been the case). Amid this conversation our host produced the latest newsletter of the Oklahoma Water Resources Board from a nearby end table in his still sparsely furnished new home. He pointed out the newsletter's profile of 10 year mean water level changes for bedrock aquifers throughout the state and was particularly optimistic about the relatively low decline of 5.1 feet (1.5 meters) for Rush Springs between 2005 and 2015.[1] Indeed, compared to declines of 16–20 feet (4.9–6 m) from the Ogallala in Texas County (in the state's panhandle) and the Blaine and Arbuckle-Simpson Aquifers, Rush Springs appears to be doing relatively well.

After this fairly brief visit, we headed north to the Hydro vicinity, with our host pointing out local farms and landmarks along our route on Highway 58, which traverses the county's western edge along its long north–south axis. On the ride our host explained the inversion of the north–south divide in Caddo County. Prior to the development of irrigation infrastructure north of the Washita River, she explained, the County's most coveted land was located south of the river. Land south of the Washita was highly desirable for its commonly recognized blackland prairie soils, whereas land north of the river was considered inferior due to the sandy nature of soils there. Operations north of the river were referred to with the mildly derisive phrase, "blowsand farms." This common descriptor is interesting on a number of levels, but it perhaps speaks most directly to the development of a local language that evolved in tandem with the internalization of local environmental history. Indeed, "blowsand" immediately brings to mind imagery of the Dust Bowl, and the gamble that comes with farming soils that are ill-suited to conventional plow cultivation. It is such conditioned local knowledge that led another research participant, a relative newcomer to the area, to comment, "These people here are very conscientious of erosion, cause if you didn't handle this right it would blow here, cause its sand. Very little blowing goes on and I think most people here are very sensitive to that."

Apropos of this discussion, we noticed a great of deal of clean tillage underway the farther north we traveled in the county. In more than one of these tilled fields we witnessed "blowsand" as billowy columns of red dust ascended and blew across the highway in the wake of tractors. The author asked why this might be occurring, especially considering all that we had heard thus far about the revolutionary importance of no-till practices as a key soil (and moisture) conservation mechanism. My host's answers, corroborated in our subsequent visit with another farmer, revealed several interesting contingencies that may be redefining such practices. One explanation is related to the emergence and increasing virulence of herbicide resistant weeds, the most problematic from a production standpoint being varieties in the *amaranthus* genus. Thus, as weed control has grown ineffective under herbicide regimes some farmers have found it necessary to revert to clean tillage periodically as a weed control measure, "rolling that [weed] seed down to the bottom" as one participant put it. A second explanation for all the tillage is related more directly to the rainfall events of the spring of 2015, which, by most estimates, broke a severe multiple-year regional drought. My host explained that, due to the higher level of moisture in the soil this year, many farmers recognize this condition of relative soil stability as an opportunity to maintain terraces, which are themselves first-line soil conservation features.

In the midst of this discussion we approached our second destination of the day, a large farm just north of the Caddo County line in Blaine County. This area, straddling the county line, was historically settled by a large number of Mennonite farmers, the descendants of whom remain today as third or fourth generation farmers who proudly display their centennial farm plaques. The farmer we were visiting was one such person. Upon arriving at the farm's newly built and immaculate barn/office facility, we passed the early twentieth century farmhouse that he and his family still inhabit. We asked our farmer-host about the clean tillage we witnessed on the way to his place. He

[1] It is notable that, as of the publication of this paper, the Oklahoma Water Resources Board—the statewide office tasked with monitoring and managing water resources across Oklahoma—had not completed its assessment of the Rush Springs Aquifer. Without the formal approval of OWRB's study of Rush Springs—which takes into account geology, hydrology, recharge rates, and human use of groundwater in order to set an annual draw rate limit for water users—it remains a common belief in the region that the current usage patterns of the Rush Springs Aquifer is sustainable. This could change when these scientific finds are released and approved.

answered that, in many cases, they were indeed under tillage for the purposes of maintaining terraces. He also confirmed that a secondary benefit is weed control, and that this may be the primary motivation for some, though he suspects those currently engaged in tillage are "true stewards," as such efforts ensure more stable farm fields after the fact. After some initial conversation the farmer asked if we would like to hop in his truck and tour some area farms, including his own of course.

Pointing out neighbors' farms along the way, we zig-zagged along county roads (some paved, some graveled, others dirt) laid out in perfect 1-mile grids to one of the many fields we visited that day. After pulling in at the edge of the field, we got out of the truck and walked through the knee-high cotton to inspect the crop. The farmer talked about how the rains of this spring had delayed his planting schedule for his summer crop. My co-hosts engaged in banter concerning the crop's health. His plants in this plot looked great, they both agreed—they were large, especially considering the late planting; they looked healthy and were beginning to bud. They both noted some foliar damage on the lower leaves of some plants, but both were uncertain as to whether this was caused by insects or chemicals. The farmer then proceeded to proclaim his beliefs as a "God-fearing man," explaining that those who were diligent in their work would be helped by God and Mother Nature. So, though he planted late, Mother Nature gave him a helping hand recognizing that he had done all he could do under the circumstances, and that delays were a result of an "act of God," anyway, and thus beyond his control.

Later, during our interview, the farmer expressed an earnest adherence to the moral principles now commonly known as, "Creation Care." When asked about his farmland conservation practices, he responded:

> We do terrace maintenance, you know, drainage maintenance. I mean, we do all types of conservation maintenance programs as needed… I mean, I'm probably guilty of spending too much money on rented land. But my grandpa built all the terraces on this farm himself. And he was a, you know, he was a big conservationist and he didn't like… he didn't want to see land washing away, you know, anywhere. So I grew up in that schooling and I'm trying to pass that on to my kids.
>
> It's beneficial to production, but it's also, you know, it's also part of stewardship. You know, I mean, we are entrusted by the Lord as caretakers, to take care of… whatever piece of property that he puts in our operation, whether we own it or whether we rent it. You know, we're responsible to be stewards of that land, and I don't take that responsibility lightly.
>
> "Man is God's gardener" indeed

One aspect of the above participant's statement that is frequently repeated by research participants concerns the inter-generational perpetuation of a soil conservation ethic among farmers of all ages. A young farmer in his mid-thirties said of his father, who still farms himself, "My dad, he doesn't like blowing dirt at all." Another farmer in his early 70s said, "My grandfather—my mother's father in particular—and my father were both quite conscious of erosion and put quite a bit of land back into grasses that had earlier been broken out for farmland." But such family-level continuity can also be understood as an internalized projection of New Deal environmental subjectivities, as comments from a now-retired octogenarian cattleman demonstrate. Speaking of his father's farming practices, he stated,

> Almost everything that he farmed were terraces … He got involved in really trying to take care of the land … probably'44, somewhere along there. And one year … the Indian department awarded him a plaque for being the Indian land conservationist of the year in Caddo County because he had put so much conservation measures into practice. He had a lot of ponds built. Of course, back then the government would help you on building ponds. Which, that was a great thing. I mean that was a great thing that they did.

Despite this common narrative of the continuity of conservation practices, participants often made oblique references to farmers of another sort, those who abuse the land. For instance, while the center pivot infrastructure of irrigated row cropping is a conspicuous presence in the county, a far greater number of the county's producers are engaged in non-irrigated livestock operations centered on dryland forage crops, managed pastures, and cattle. Fairly typical of such operations is that of a research participant whose combined farm and haying equipment dealership is located on the south side of the Washita River. This area is in the Tonkawa Creek watershed, which, like Sugar Creek, was subject to the small watershed flood control infrastructure common to the county's midsize tributary streams in the 1950s and 1960s. While this rancher's parents farmed in the Fort Cobb area, he was raised across the street from his current business headquarters complex. His family ended up here, he explained, after foreclosing on their farm in Fort Cobb amid one of the many hard times visited upon the people of this area at the hand of extreme climate conditions.

In addition to his ranching and business interests, the present rancher is also one of several members of the South Caddo Conservation District (SCCD) Board of Directors.

Even before getting into discussions about his experiences with SCCD, he started talking about the many conservation measures he has instituted on his land. Agricultural conservation is something he is clearly very passionate about. He talked about several of his farms and measures he has taken to control and halt erosion. He spoke about a quarter section he purchased 2 years ago and that he has recently gone to great lengths to repair and stabilize. On the day of our visit he offered to drive me around to look at some of his farms and the conservation work he has executed on them, including this recently acquired quarter section—our first stop.

As the farm hand who accompanied us hopped out to open the gate, our host-driver offered a brief history of this piece of land. It had been "farmed hard," he said—too hard. The previous owner, he explained, had taken more than the land could afford while giving nothing back. It was planted in winter wheat and was badly eroded when he bought it. Like most land in the county, it has been in dryland cotton in years past as well. Since his acquisition of the farm he has sprigged the land entirely in Bermuda grass to stabilize the soil and halt erosion (and also to graze his cattle on). As he explained, converting cropland to grassland is one of his principal strategies for land recovery (and indeed a strategy that reaches back to New Deal "land treatment" measures that are still encouraged by incentive programs such as the CSP). By all appearances from this particular piece of land, his efforts have been highly successful.

There was a bulldozer parked on the land this day as well. While maybe not associated with conservation in the minds of many, bulldozers are among the key tools in the farmland conservation arsenal, a key mechanism by which land has been shaped and re-shaped since the mid-twentieth century. This particular dozer was used to execute two major conservation tasks in recent weeks—the removal of cedars[2] and the construction of a small earthen dam. Several large brush piles of uprooted cedars were evident on portions of the farm. Like most land in this section of the county, the parcel is rolling, composed of highly erodible soils on sloping land—perfect conditions for erosion problems. Indeed, when asked about the dried-up pond in the parcel's lowest point, he pointed out that we were in fact looking at two ponds (evidenced by dams). He said that the first pond had filled in with silt many years ago and that the second, built with assistance from NRCS, had likewise silted in, though more recently of course.

After viewing these old ponds we were briefly detoured by an errant calf on the wrong side of a cross-fenced pasture—evidence of the rotational grazing strategy that is another common conservation measure with New Deal roots. After reuniting the calf with the herd, we drove on through the pastures, where he pointed out his watering system, which consists of a single wellhead and a network of pipes delivering water to each of several cross-fenced, divided paddocks. As with most wells in the southern part of the county, this is a low flow well (50 or fewer gallons/minute) that is nonetheless adequate for stock watering. These wells are in the Rush Springs aquifer reservoir zone as indicated by OWRB assessments, but all have extremely limited flow rates compared to those north of the Washita River. This farmer's watering strategy includes the placement of recycled tractor tire watering troughs on concrete slabs in every paddock, and all of which are fed from the central well.

After viewing the water system, we visited another of the bulldozer's recent earthmoving efforts. This includes filling a large and deep gully formed over the course of many years from natural topographic flow from an adjacent farm field and across the paved county road between the two parcels. In addition to filling the gully, the dozer also constructed a small earthen check dam that will slow and contain the run off that has led to the gullying. He was very proud of his efforts here, using this opportunity to illustrate what a caring steward can do in just a short amount of time.

As practices such as those above have become intimately intertwined with federal incentive and support programs, they have been further internalized by area farmers. As one participant explained the current situation:

> Myself—and I think nearly every farmer in the area—has to have a conservation plan on file. It doesn't mean we have to adhere to it, but we have to have a plan on file with the NRCS. A lot of the incentives that used to be here for cost-share on terraces, and cost-share on dams, and cost-share on planting grasses—a lot of those are gone. But they've been replaced with other incentives, such as, if you don't maintain that conservation plan then you're not eligible for any kind of reduced crop insurance rates, or direct payments … And there were very few people who don't do those … [but] agriculture is still big business here, and people don't want to go to town, or go home, and have people talk about them letting their land wash and blow. If you go to the coffee shop after a storm and somebody's land blew, that's frowned on pretty hard, even if it's legal. So most farmers that are still out here and still farming

[2] Encroachment of eastern red cedar (*Juniperus virginiana*), resulting from decades of fire suppression and changing land use patterns (Fuhlendorf 1999; Fuhlendorf et al. 2008), has created on-going and expensive land management challenges for farmers in Oklahoma, Kansas, and Texas. Longer term ecological and climate impacts of woody encroachment are also projected to be significant (Engle et al. 2008; Ge and Zou 2013).

> have a pride that they want to leave it better than they got it. And I think most will.

Continuing to talk about how things have changed, he offers an illustrative link between the past and present of the county's agriculture:

> I grew up, spent many hours on what we called a moldboard plow, and all my neighbors did the same thing. It was almost a pride thing to see who could get the land tilled first, and then we spent the rest of the summer trying to keep it from blowing away! But today we don't do that—we leave residue on top of the ground … Also, when I was growing up we clean tilled cotton ground and then spent the summer cultivating the rows to where we wanted no grass and no weeds out there. Today, cotton's a completely different crop. I don't know any farmers that don't plant a cover crop prior to the cotton crop and then they strip till the cotton in that and leave the residue between the rows to stop washing as well as blowing. And so, erosion [control], for many years was the legacy of the Dust Bowl but today I think it's more what they call best management practices.

Conclusions

Many of the same structural features were at play in southwest Oklahoma that Gray and Gibson (2013) saw in their work with farmers in Kansas—the power and influence of Big Agriculture (especially in the domain of seeds and technologies), banking/credit practices, and federal incentive programs that, combined, predisposed farmers to pursue practices that were unsustainable. However, rather than simply seeing these farmers as victims of a "false consciousness" arising from what Gray and Gibson see as structural "domination," our work stresses the cultural continuity of a certain approach to the land—and to conservation—that is grounded as much in a shared vision emerging from history as from contemporary structural relations. Historic and contemporary ethnographic evidence from Caddo County, Oklahoma illustrates a continuity of an ethic of stewardship grounded in New Deal era interventions. Such interventions were themselves an extension of progressive era conservation paradigms that valued land on the basis of its utility and productive potential.

Conservation means different things to different people. For many Great Plains farmers navigating the complicated world of modern production agriculture, conservation is linked to both natural resources—largely soil and water—and federal incentive programs. The latter includes the many programs administered by the decentralized service centers of the U.S. Department of Agriculture (USDA) in close cooperation with local soil and water conservation districts. The structure of the locally elected conservation district organization and its tight coupling with the Natural Resource Conservation Service (NRCS) and the Farm Service Agency (FSA) dates back to the New Deal. Such programs were integrated seamlessly into local community ethics and rapidly internalized by progressive farmers as good, necessary, and even pious. This was a model of conservation, however, whose point of departure was grounded in a utilitarian view of land. Conservation within such a worldview was first and foremost a mode of control and a means of maximizing of productivity.

In looking at the context of Great Plains agriculture we cannot, as Agrawal (2005) asserts, "demand a purists version of the environment as necessarily separate from and independent of concerns about material interests, livelihoods, and everyday practices of use and consumption" (p. 162). For, while Gray and Gibson consider the discourse of stewardship and the utilitarian view of land as a resource as inherently contradictory, and thus suspect (2013, p. 94), such an interpretation fails to account for the long history of American agricultural conservation and the attendant role of resource bureaucracies in shaping contemporary environmental subjectivities, as this paper has attempted to demonstrate.

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