

“I care more about this place, because I fought for it”: exploring the political ecology of fracking in an ethnographic field school

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Abstract This paper draws from data provided by the Indiana University of Pennsylvania 2012 Ethnographic Field School to accomplish two goals: to open questions about the impacts of hydraulic fracturing on people’s relationships to the environment in western PA and to explore the pedagogical possibilities and limitations of teaching through publically engaged projects rooted in political ecology. The history of local land use, whether coal mining and its consequences or the creation of conservation zones, captures the imagination of differing publics and influences their interpretation of energy extraction, particularly its acceptability and risks. At the same time, the encounter with Marcellus Shale has prompted people to explore, question, and redefine their relationships to place and to the legacy of coal in the community. This paper details the possibilities and pitfalls encountered in ethnographic projects by student researchers designed to explore and prompt public dialogue about people’s changing relationships to land and water. Despite theoretical and methodological challenges, this paper argues for the value of community-based ethnographic field schools and publically engaged political ecology research in creating a context for productive dialogue between stakeholders on a controversial issue.

Keywords Fracking · Natural gas · Coal · Marcellus Shale · Ethnographic field school · Political ecology · Pedagogy · Public anthropology

Introduction

Why does fracking¹ conjure up so much resistance in a place where people seem to accept the coal-fired power plants that line the horizon, where effluent, long in violation of environmental standards, contaminates the air and water each day? This question was posed to us by a representative of PennFuture’s Pittsburgh Office, one of the major state environmental organizations. This long-time environmental advocate described amazement at the tide of public outcry that resulted in a municipal ban on deep well hydraulic fracturing in Pittsburgh in 2010. In his calculus of environmental risk in western PA, coal far outstripped natural gas, even the more intensive process of hydraulic fracturing in the Marcellus Shale deposit, where each well demands up to 5 million gal of water and 12,000 gal of chemicals, including toxic biocides. However, fracking far outstripped coal with its ability to mobilize passionate public resistance.

Fifty miles into the countryside of western PA, in Indiana County, “fractivism” is less visible. While a grassroots organization has formed to protect conservation areas from fracking, a municipal ban has never been on the table. In fact, in Indiana County, surrounded by four major coal-fired power plants, the less vocal public outcry has led some to pose the question in reverse: Is Marcellus Shale development more accepted here, because of a sense that land and water has already been sacrificed? This broad-brush question formed a basis for a 6-week ethnographic Field School conducted by the authors in the Department of Anthropology at Indiana University of Pennsylvania in the summer of 2012. After hearing a variety of speakers, going on field trips, and being

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¹ There is some controversy over spelling in relation to this process. We use “fracking” in this article to reflect the entrance of this concept into public domains, where it has become the primary way that people outside of the industry refer to the process of hydraulic fracturing.

introduced to anthropological and historical perspectives on energy extraction, ten students developed ethnographic research projects related to fracking in Indiana County. While individually designed and executed, these projects all employed the framework of a publicly engaged political ecology and explored how ideas about fracking evolve in the context of a region's history of extractive practices. This article describes how this field school contributed to improving the authors' and students' understanding on the relationship between community members and natural resources, and how it allowed us to get a feel for the social topography of people's perceptions toward fracking in a place discursively constructed as the "heart" of the Marcellus Shale play (Indiana County Center for Economic Operations 2013).

This article also reflects critically on the pedagogical issues raised by this foray into "political ecology as ethical practice," where applied research projects can expose students to the ways in which "political ecology raises difficult and necessary questions about politics, ethics, and social justice in relation to human activity and environmental change" (Jarosz 2004, p. 921). We explore how the students' projects demonstrate the possibilities and limitations of using an ethnographic field school to teach and perform publicly engaged political ecology research. This article explores the theoretical and practical challenges posed by the collection of ethnographic data in disparate student projects—most notably, the challenge of working with data thinned of some of its potential ethnographic complexity and detail due to the necessarily abbreviated nature of a summer field school. We take ethnography to mean qualitative methods that afford interpretations of local phenomenon rooted in political economic and historical analysis. While ethnography typically involves long-term involvement with a particular group of people, this article draws from students' short-term, qualitative research that, like other ethnographic research, is necessarily partial.

We also explore the advantages of this model in engendering community conversations about connection to place in the face of impending social and environmental changes brought about by a new wave of industrialization in one of the USA's "energy colonies." We argue that the field school prompted a more inclusive conversation about the potential risks and rewards of reindustrialization.

Specifically, this goal of community outreach was meant to address what Walker (2006) argues is a missed opportunity for political ecology to impact policy makers, missed in part because while scholars have succeeded in critiquing hegemonic discourses, they have failed to offer robust counter-narratives that reflect the claims of different stakeholders and that "have the capacity to sustain and liberate both humans and nature" (p. 386).

We hoped to meet this "unfulfilled promise" of political ecology by incorporating publicly engaged research into our teaching, yet there are few models that serve as guidelines for working through the pedagogical challenges involved with this project. One interesting approach is detailed by Jarosz

(2004) who extols the benefits of service learning that prompts students to challenge stereotypes and interrogate positionality and ways of knowing. Drawing from her experience, teaching a class on hunger through community-based research projects, Jarosz argues that "public scholarship manifests political ecology's ontological project and epistemological process more concretely and directly for students while fostering critically informed inquiry, analysis, and interpretation within community-based research venues for both students and teachers" (p. 919). However, Jarosz does not elaborate on the community impacts of these projects and, instead, focuses on the logistical concerns related to course content and time management. This paper offers an entry point for others who may wish to anticipate some of the potential pitfalls of theory, method, and project execution that may befall students and instructors when working in a time-constrained community project on a controversial issue. In the next section, we describe the context in which the field school took place and some pertinent events that informed student projects.

Indiana County and Marcellus Shale development

Drilling in the Marcellus made a slower entrance into Indiana County than the other parts of the state, and it entered into a socio-environmental context that has been deeply shaped by successive waves of resource extraction—notably timber and coal.² The negative externalities of the coal industry were borne by the miners, their families, and the environment. Although coal mining has been in decline, people live with the legacy of family lost to chronic illnesses or accidents, and 2,500 miles of Pennsylvania streams that do not support life because of mine drainage (Pennsylvania Department of Environmental Protection 1999). Mine subsidence, sink holes, abandoned and unmapped mines, and flammable slag heaps continue to pose hazards. In Franklin,³ one of the communities profiled in student research, there is also an economic legacy of internal colonization in the wake of timber and coal, with 14 % unemployment, and per capita income around \$16,222, 18.3 % of families recorded income below the poverty level in the year preceding the 2010 census (US Census Bureau 2010).⁴

While county administrators describe the measured pace of gas development with reference to local knowledge gleaned

² For excellent local histories of resource extraction in this region, see Beik (1996), Dougherty (1987), and Kuzemchak (2006) on coal and Jensen (1945) on lumber.

³ Franklin is a pseudonym as are the names of interviewees.

⁴ Comparatively, 10.1 % of families are living in poverty averaged across the entire county, where Indiana University of Pennsylvania (IUP), a robust medical center, and small-scale industries centered in the town of Indiana contribute substantially to the economy. Other former coal mining towns have higher rates of poverty, including Heilwood, where 25.8 % of all families report earning an income below the poverty level, and per capita income is \$16,724 (US Census Bureau 2010).

from a history of energy production (including coal and the thousands of shallow gas wells drilled in the county since the late 19th century), the Marcellus Shale boom has been slower in this area in large part due to the lower profitability of dry gas found here. As of publication, there have been 43 wells drilled in Indiana County, with 76 permitted on 48 sites (compared to 729 wells drilled in Washington County with 1,120 wells permitted on 326 sites) (MarcellusGas.org 2012). Most of these wells, while they may have been the subject of private discussion about the potential health and safety effects of fracking, did not prompt public protest. However, in February 2011, a vertical Marcellus well drilled in the conservation zone around Yellow Creek State Park, 500 ft uphill from major feeder streams into the park's lake, decisively thrust fracking into the local political arena.

MDS Energy began drilling without the special exemption permit required of all industrial activities in the county conservation zones, including the 5,000-ft zone surrounding the nearly 3,000-acre park. Conservation zones here are unique and were established by the county in 1973 with the intent “to provide protection against the development of detrimental land usages within close proximity of the parks, particularly within and immediately beyond the identified drainage basins serving the parks” (Indiana County Planning Commission 1994). While other extractive activities have been permitted in these zones with exemption permits, notably shallow gas wells, the ordinance was written long before the more intensive process of deep well gas extraction. The drilling met with protest by some living in the conservation zone and from others concerned with the potential impact of drilling on the park or the lake itself, which is the water source for 4,200 nearby residents. Interestingly, the Indiana County Water Authority was also critical of drilling in proximity to the lake, as it provides a clean source of water to the coal-fired Homer City Power Plant.

At a hearing in March 2011, about 30 people turned up to voice their perspectives on the drilling. A group of concerned citizens subsequently began to organize, forming Coalition for a Healthy County (CHC). The CHC submitted 500 pages of evidence to the County Planning Committee responsible for granting or denying the permit and turned out over 100 citizens at a meeting of the County Commissioners in April.⁵ People at that meeting were polite but impassioned, drawing from ideologies that ranged from the sanctity of private property to the integrity of natural spaces. In the weeks that followed, the

⁵ CHC is currently the main grassroots group in Indiana County advocating for a comprehensive plan on Marcellus Shale development. CHC represents about 300 members and 7 partner organizations including local, campus, state, and national environmental and civic groups. Their stated goal is for a plan “ensuring the county maximizes economic benefit and reduces industry risk from Marcellus shale drilling. This comprehensive plan includes best practices for natural gas extraction for *all* drilling in the county and a prohibition on drilling in sensitive areas, such as the conservation zone surrounding the Yellow Creek State Park” (Coalition for a Health County 2012).

county commissioners convened a large task force of over 70 citizens, scholars, and stakeholders to investigate natural gas development. CHC orchestrated petitions and call drives to elected officials and expanded its membership base. The planning commission denied the permit to MDS energy; however, on reapplication, the permit was approved, and drilling was restarted, yet it did so with a number of requested “best practice” conditions. Ultimately, the well hit an unanticipated fault line and was forced to cease operations without producing gas. Although at least one other company, EQT Productions, had expressed interest in drilling in the conservation zone around Yellow Creek, with the dip in natural gas prices in the spring of 2012, new drilling in the county had effectively ceased. By the time of the field school, students encountered a failed well site that was in the process of being reclaimed, social relations between neighbors that had been strained, and an overall uncertainty about the future of these protected spaces.

The IUP 2012 Ethnographic Field School

Held for the first time at Indiana University of Pennsylvania, we designed the 2012 Ethnographic Field School to examine local experiences with Marcellus Shale development, while developing engaged social science in our community that fostered dialogue about quality of life, connections to place, and concerns and aspirations for the future during a period of reindustrialization.⁶ In addition to teaching methodology to students, goals of the field school included community outreach cultivating collaborative work to document and interpret cultural practices and ideas in order to inform larger discussions on culture and identity, planning, and development and producing a community exhibition and archive for use by scholars and local residents.

Ethnography and community-based research not only have the potential to create a more inclusive conversation around planning initiatives on controversial issues (Cumming and Norwood 2012; Schensul 2010) but also provide a means of exploring the varying discourses at play in determining the risks and rewards related to land-use decisions and confronting varying conventions around decision making that may privilege certain kinds of knowledge and rhetoric (Tauxe 1995).⁷ Consequently, the field school was structured so as to expose students to a range of stakeholders on a frequently polarized

⁶ Although we use the term “reindustrialization” in relation to Marcellus Shale development, we acknowledge that there are important differences between the technical, political, economic, and social processes of industrialization accompanying varied forms of resource extraction, a point that begs further exploration (Mitchell 2011).

⁷ See Perry (2012) for an important ethnographic exploration of new community conversations about quality of life in response to fracking in northeastern Pennsylvania.

issue. The first 2 weeks of the summer school were spent hearing from speakers, including state representatives who discussed energy policy, specifically Act 13—the relatively new law in Pennsylvania that overrides local zoning laws and stipulates impact fee assessment and distribution. Students also heard from the following: a county commissioner and county planner who each discussed the effect of fracking and Act 13 on the county, industry representatives including two water treatment operators and an executive from an energy corporation, an environmental lawyer who addressed problems he sees in Act 13, a public health scholar who talked about the public health implications of fracking and the reasons the PA Department of Public Health had been excluded from Act 13, an environmental reporter for the region, an anthropologist who has researched fracking in northeastern Pennsylvania, and three different environmental activists from county- and state-level organizations. Students also took guided tours of drill sites, water treatment facilities, Yellow Creek State Park, an abandoned mine drainage reclamation project, and the 2012 Indiana County Natural Gas Expo hosted at the campus convention center. These varying perspectives on fracking were folded into conversations around readings from environmental and medical anthropology, political ecology, visual anthropology, and local oral history research. From this rich body of resources, we encouraged students to develop their own questions that could be explored in qualitative ethnographic research projects. We drew on our own community connections to help students make initial contacts and also from people who attended a public meeting in which we solicited community input and participation.

We touch on three of the students' projects here that speak most closely to our concern with people's shifting relationship from a place and to a history of resource extraction.

The film of Schenk (2012), "Waterways of awareness," highlights the motivation for volunteers' involvement with the Pennsylvania Senior Environmental Corps (PASEC) and the Evergreen Conservancy in water-monitoring activities. A group of mostly retired volunteers collect data on the presence of sulfuric acid and iron oxide in Indiana County watersheds, and they pass this on to academics and environmental organizations. The volunteers' work comes from an abiding concern about the effects coal mining has had on waterways in the region. As Schenk mentioned in conversations about this project, she became aware during a PASEC meeting that people had formed intimate relationships with the creeks, tributaries, and rivers where they went each week to test water quality. They also had been witnessed to the slow successes in reclamation from carefully maintained ponds where heavy metals were filtered out of water discharged from abandoned coal mines. When one volunteer found a spike in total dissolved solids that they believed to be caused by illegal discharge from a coal mining site, they were proactive in logging their data and informing the county conservation district. In the anticipation of the potential impacts to waterways by fracking, they gained a

grant to enhance their water-monitoring project with data loggers, strategically placed downstream from industrial activities, including fracking sites.

One volunteer made the point that bottled water is more expensive than gasoline, and it is becoming even more of a commodity with fracking. In essence, he asks why we do not value water more. His analysis emphasized that commodification fails to evaluate things appropriately, an analysis that pushes these senior citizens into doing the hands-on work of collecting and evaluating water samples.⁸ In the statements of these PASEC members, this focus on revaluing water, reaffirming their resolve to be active for streams and wildlife.

In many ways, the risks associated with fracking are read in light of a history of unregulated extractive industries that did not mitigate against an irreparable damage to waterways. Fracking reaffirms the commitment of PASEC members to rehabilitate, monitor, and value water. As the next student's research reveals, residents who have not been active in reclamation efforts also evaluate fracking via historically formed and place-based relationships to land, water, and neighbors.

Lehigh (2012) interviewed residents of Franklin, a small timber-turned coal-mining town that sits on a tributary creek of the Conemaugh River. Since 2008, Franklin is also the site of a producing well pad from unconventional natural gas drilling in the Marcellus Shale deposit. This drill site is perched 1,000 ft up the hill from residents' homes and the creek that flows through the village.

Gabby used ethnographic interviews and informal free listing to explore the connections three residents make between extraction of coal and the extraction of natural gas through fracking. One of the main insights that came from these interviews involved the ways in which people described their relationships to these industries through their changing relationships and concerns with water. One woman, Jan, described a long, intimate relationship with the creek. She remembered playing in the orange water as a child, when it would make her hair thick and sticky from the abandoned mine drainage. In the years since, the creek has improved—"The creek is clear and the fish are back. I don't want to see it go bad again." Jan lives close to the well pad, so she had to "sign papers" before drilling began. Although her well water was tested before drilling began, she lost water for a month after the drilling started and said that the water level in the creek lowered during that time. She thought the drilling had affected the water flow, though the company denied responsibility. Jan was concerned that the subsurface shifting of mines as a result of fracking would cause sulfur to leak into the creek again, renewing the damage from coal mining. She also expressed concerns that illegal dumping was likely and could contaminate the creek. Her sister had

⁸ See Kinchy and Perry (2012) for an insightful ethnographic survey of the activities of volunteer watershed groups in Pennsylvania in the context of neoliberalism.

witnessed a truck dumping water in the creek and assumed it was frack water, which she perceived as dangerous, “They line the pits with all those things—[so] you know it has to be bad.” She was also concerned with the increased truck traffic and feared that trucks hauling flow-back water during icy conditions could overturn. Jan described the extremely noisy drilling process and how the traffic disrupted her sleep at night.

Much of Jan’s relationship with water was shaped by coal mining, as was her family history. Jan’s father was a miner, and she recalled how he always came home covered in coal dust. After retirement, he developed black lung and was on oxygen for the last 2 years of his life. He fought for black lung benefits, finally getting them in his late 60s; now, Jan’s mother is the beneficiary. When free listing about coal, Jan said, “dirty.” She also remembered her “dad,” and then mentioned, “black lung” and “safety.” When asked to free list about fracking, the deep connections to family were absent. Jan replied “water” and “noise.”

Another Franklin resident, Carl, similarly expressed concern for the impact of fracking on water, and a value for water shaped in the legacy of coal mining. Carl was well versed with natural gas, as his family farm has 17 shallow wells. His wife also works for Halliburton, the company that prepared the Franklin fracking site. Carl said that his biggest concern with fracking involved the impacts on water. He explained that he did not want horizontal drilling and felt it was not a good idea—emphasizing that the history of coal should teach us about the disastrous results energy extraction can have. Like Jan, Carl was concerned about companies drawing water from the creek and that regulations may not be adequate during times of low rainfall. Even with regulations, he was concerned that careless workers may not follow the guidelines. He also linked the drying up of residents’ wells that season with the withdrawal of water from the creek by the drillers and, like Jan, was concerned with the wildlife that relied on the creek.

When free listing about coal, Carl’s words were “friends” and “grandfather.” He related the story of his grandfather’s death during a controlled mine explosion. He’d returned to the mine for a flashlight, and workers, unaware of his presence, detonated the explosives, crushing him beneath the loosened coal. Carl continued his free listing with the words “dangerous, heavy work, black lung, machines, putting in harm’s way, mine carts, dying at the age of 55 now instead of 25 but still dying young, labor unions, black lung (sic),” and “hazardous.” When free listing about fracking, Carl mentioned only four words: “expensive, big, new,” and “gas.”

In contrast to the perspectives of Carl and Jan, another Franklin resident, Tom, said that he was not concerned that fracking may be harming the environment, “I’m not too concerned about the effects. There are other things being done that probably affect the environment more than they are, because they are being watched so closely.” Yet, later in the interview, he commented that he was not well informed enough

to have an opinion on the industry. “I need to be better informed what can happen or may happen. I don’t know enough about it to form an educated decision. I am hoping it’s being watched close enough.” He said his community got a better road as a result of the well pad, though that had actually caused more traffic, and now, 15–20 cars pass by in an hour.

Tom’s father worked as a miner and a mechanic outside the mine. His uncle, grandfather, and friends worked in the coal industry. He attributed his father’s death to black lung, heart problems, emphysema, and cancer. Tom said, “People thought the coal mine just caused health issues, but it also caused pretty much anyone that was in the mine was a heavy drinker. It just came with the territory.”

When asked to free list about “coal mine,” Tom said, “It’s just like anything else; it’s a part of life. Just like saying ‘grocery store.’”

The ethnographic film of Hogan (2012), “Community relations with a transforming natural and social environment,” compares the relationships to land between four stakeholders in the controversy around drilling in the Yellow Creek Conservation Zone: a leasing agent, a farmer who leased his land for drilling, neighbors next to the drill site, and a small business owner whose spa and residence are near the drill site. Hogan explores how their social and environmental relationships were affected by a drilling site that ultimately failed to produce gas but did produce new social fissions and relationships to place.

Hogan’s film reveals that stakeholders have different ways of connecting to and valuing place, which in part, legitimated and reinforced by competing property regimes and understandings of resource development. The Yellow Creek Conservation Zone attracted some residents seeking a bucolic setting. Hogan (2013) notes that residents not in favor of the “well’s presence spoke about the aesthetic and recreational benefits of the environment.” These sentiments combined with certain expectations of community relationships in a place zoned for “conservation.” One small business owner, Sam, observed, “The word conservation means to conserve; this is a conservation zone. In order for me to have this business, I had to get a waiver from the planning commission back in 1999 telling them that this was not going to be disturbing to the land or the neighbors. The gas company apparently is different. It is disturbing to the land and the neighbors.”

As the conservation zone produced certain expectations about the nature and value of connections to an environment safeguarded against intensive industrial development, for those that lived there before this zone was created, fracking may be more in line with earlier connections to the land as a site of production and extraction. Richard, the landowner who leased property behind his home to the energy company, has family connections to the land that spans generations. Richard explained, “Nobody wants to destroy the environment. Why would a farmer want his land to wash away?” He said that he

found the process of drilling interesting and tracked its progress throughout the entire procedure.

The leasing agent, Jordan, also spoke of his concern with and connection to the environment in a utilitarian way. Positioning himself as speaking on behalf of the energy company that he worked for, Jordan noted, “We’re very cognizant of the environment.” He continued, “The majority of people are environmentalists. I define “environmentalist” as someone who cares about the environment. Hunters, fishermen, and any kind of outdoorsman are the true conservationist who are living their lives out there in the environment. We do find a way to peacefully coexist with them and respect them.” He drew from a model of nature as common, a source of income and livelihood, and connected himself as a land agent to the activities of his father as a hunter and river guide. In this way, Jordan participated in the virtualism surrounding this state park, a process in which landscapes come to resemble social values and understandings (West and Brockington 2006). In Jordan’s case, however, this process was less about reshaping landscapes through socially constructed understandings of nature and more about drawing from nature to promote the categorization of fracking as an environmentally benign activity, in concert with the utilitarian use of natural resources.

Finally, Margaret lived with her husband next to the farmer who leased his land, and her back porch overlooked the cornfield-turned drill site. Margaret had no say in her neighbor’s decision to lease his property; however, she did become active in pushing for legislation that would prohibit drilling in the conservation zones around the county’s parks, joining the CHC and the Indiana County Natural Gas Task Force. Hogan’s film captures her at her computer, pulling up a satellite image of the drilling that began after the special exemption permit application was approved in its second attempt to pass the county planning committee. She gestured to the image of the drill site and remembered: “It feels like now that spring semester, I became an advocate against drilling gas wells in residential and state park areas.” When asked about her connection to the land, Margaret said, “It is more valuable too, much more valuable now. Maybe I took it for granted—Oh it’s a great view, let’s buy a house here. It’ll be great. Everything will be fine. Now it’s like, you know, you have to work to keep it fine. You have to work to keep the environment. You have to value it enough to put some effort in it. It just doesn’t happen by itself. I think I realize that more now.”

Applying political ecology

“Perhaps, it is the intimacy of those drill sites in your backyard that makes people care so much more about fracking,” speculated one class speaker, a woman from a watershed group that had been mobilizing to create a network of volunteers to monitor surface water around drill sites across the states. As a

holistic lens, political ecology has the potential to piece together socio-ecological relations formed through material practices, cultural values, and political economic networks—in this case, landscapes and waterways shaped by the communities’ engagement with waves of resource extraction. This observation was drawn from Robbins and Bishop (2008) who argue that political ecology remains a powerful framework to analyze complex socio-environmental issues “by making the problem local, ecological, and intimate and by revealing the sites of decision making while simultaneously progressively contextualizing local landscapes and players” (p. 752). While political ecology has much to offer a detailed ethnographic case study of emerging processes surrounding hydraulic fracturing, there are fewer ready resources available to guide us in using political ecology as a pedagogical tool in a collaborative public anthropology project. In fact, some of the nuanced investigation prompted by this framework, the “intimacy” of the matter, does not translate readily into the structure of a 6-week field school. In this section, we detail the promise of using political ecology to promote publicly engaged research at home, weaving this analysis into our examination of the three student projects. We do this through focusing on the role of history in political ecology, and the applied potential of historical analysis to engage stakeholders in the process of deconstructing dominant narratives about resource use, planning, and decision making while documenting alternative relationships to water and land. We then discuss the possibilities and challenges of “studying up” in the context of performing political ecology in the USA.

Robbins (2004, 2011a) illustrates how historical research is a critical component of political ecology, and indispensable to political ecology’s value as both a “seed” and a “hatchet.” In these terms, political ecology is a seed as it documents and promotes alternative and, potentially, more emancipatory socio-environmental relationships and understandings. As a hatchet, it reveals the cultural and historical construction of dominant narratives and their variegated impacts on people and the environment. Consequently, revealing the history of shifting ideas about the environment also reveals the constructedness of these ideas. This critique is valuable, as “the politics that govern the fate of natural systems are secured without resistance to the degree that this constructedness is hidden from view. Political ecologists suggest, therefore, that because this stuff (processes, concepts, ideas, or entities) is not inevitable and has history, it can be unmasked for what it is, reinvented, and changed for a better and more sustainable future.” (Robbins 2004, p. 109). Much of this important historical work in political ecology has involved tracing the genesis and solidification of ideas about the environment during European colonization, as ideas of nature were “produced” in the colonial encounter through the conceptual erasure of indigenous knowledge and lifeways (Braun 2002; Neumann 2003). Fairhead and Leach (1996), for instance, in

their pioneering study of landscape change in western Africa, detail the colonial origins of the “received wisdom” of environmental degradation, revealing the ways in which regimes of knowledge production solidified a racially charged narrative of the African mismanagement of the environment. The perpetuation of this narrative justified continued interventions by the postcolonial state and transnational development organizations into the lives of rural farmers and their resources. These networks of power and knowledge cast certain interventions as both necessary and thinkable because they elided the agency of rural people and failed to appreciate the ways in which these marginalized groups have sustainably managed resources. Consequently, this kind of work reveals how certain environmental truths may not be as inevitable as they seem and how this received wisdom may work to the advantage of certain groups in society. This historical approach also calls into question simplified notions of environmental change as a unidirectional path of decline, instead allowing for a more nuanced view of shifting social environmental relationships that include periods of recovery. Finally, the historical vantage point can promote more inclusive perspectives through “a symmetry of inquiry” (Robbins 2004, p. 126) into elite and local categories of knowledge and understandings, recognizing the lifeways, knowledge systems, and agency of marginalized groups.

Political ecology, originally created in these third world agrarian contexts, can be a powerful tool to expose processes at work in the first world settings, adapting this historical perspective to understand various phases of capitalist expansion and disconnection. McCarthy’s early application of political ecology to understanding the wise use movement in the USA details the common processes of uneven development and marginalization experienced in various regions in the third world and first world and calls into question the idea that western relations to nature are distinguished by modernist and individualistic rationality. McCarthy argues that political ecology in the first world is a lens through which we can:

...explore the *ongoing* nature of capitalist development, emphasizing that new rounds of investment, revolution of means and relations of production, and other associated dynamics are guaranteed to continue to disrupt temporary coherences in social relations, the built environment, and human–environment relations, and so far, from being a one-time transition, the confrontation between capitalist rationalization of nature–society relations and what Thompson called the “tissue of customs and usages” is a never-ending story. McCarthy 2002, p. 1298

Since then, scholars have similarly drawn from political ecology to detail the ways in which uneven development associated with global capitalism produces peripheries within advanced capitalist nations, challenging an easy dualism between the third world and first world (Che 2006; Schroeder et al. 2006).

In western Pennsylvania, situated in the internally colonized zone of northern Appalachia (Chiang 2004), a political ecology analysis prompts us to explore the sociopolitical and ecological impacts of the development of industries like timber, coal, and gas in this region as they shaped people’s relationship to places and resources.⁹ The political economy of coal-mining towns (Lockard 2010), coupled with property regimes established during the eras of timber and coal that cemented high levels of absentee land ownership and privileged privatized subsurface mineral rights above commons resources, have shaped the relationship between people and place at the same time that they have fostered a long-term regional dependence on the extraction of natural resources (Whitson et al. 2006).¹⁰

Political ecology also prompts us to look in a nuanced way at the social processes involved with deindustrialization—the unraveling of these industries and the particular kinds of communities that they sustained (High and Lewis 2007; Tauxe 1993; Vaccaro 2010). In boom/bust areas of resource extraction, “the territory and its communities are administratively and economically reorganized to serve the purpose of mass production. Deindustrialization forces the reconceptualization of this model” (Vaccaro 2010, p. 27). Writing from the context of copper mining in Zambia, for example, Ferguson (1999) argues that the “bust” end of an industrial boom also promotes new ways of thinking about time, history, and the politics and promise of resource development: “Prolonged economic decline...concentrates the critical mind; it makes visible, and forces into crisis, key elements of the modernist myths by which life in the ‘development world’ is normally understood” (p. 257).

Arguably, the critical lens prompted by deindustrialization also extends to the environment, because deindustrialization not only entails a decline in population and economic stability but also involves ecological changes. For example, Schenk’s film reveals how citizen actors emerged from the damage left by a declining coal industry, its legacy of split property rights (where subsurface mineral rights superseded surface rights), and the ways in which the costs of water reclamation were displaced from the industry to the public. In this case, a network of long-term residents and retired volunteers formed, whose relationship to one another was fostered out of the common desire to restore and preserve the health of degraded aquatic systems. These PASEC members challenge commoditized perspectives of water use promoted by neoliberal ideologies that seem to fuel the fracking boom (Malin 2013) and by teleological narratives of environmental degradation that describe the

⁹ Similarly, the establishment of Yellow Creek State Park, along with its surrounding conservation zone, has the effect of dividing the land into spaces of production and spaces of consumption via recreation (Cronin 1995; Igoe 2004), which shapes the controversy over drilling in this area.

¹⁰ See Che (2006) for an analysis of successive waves of resource extraction and capital investment in the Appalachian forest region of western Pennsylvania.

environment in northern Appalachia as already having been sacrificed. In this way, PASEC members may themselves be “underground political ecologists” who critique dominant ideologies that accompany the deeper penetration of capitalism through new forms of subsoil resource extraction and commodification (Bebbington 2012).¹¹ This observation intersects with the argument of Robbins (2006) argument that “political ecology is something that people *do*, a research effort to expose the forces at work in ecological struggle and document livelihood alternatives in the face of change” (p. 13). Arguably, the work of PASEC members can be seen as both a hatchet and a seed—questioning market-driven perspectives on the rational use of resources and asserting the value of noncommodified relationships to water.

Gabby’s research also reveals how experiences with boom-bust phases of resource extraction may entail a re-evaluation of commodified relationships to resources and to the politics of their development. Indiana County is on the boom end of fracking, yet it has lived through the wax and wane of timber, oil, and coal extraction, and the landscape and built environment show the scars. From the participants in Gabby’s study in the timber–coal-turned gas town, we hear three voices of those who connect closely to the labor and legacy of coal removal and to the ravaged bodies left behind. From Jan’s and Tom’s fathers who suffered from black lung, to Carl’s grandfather who was crushed in the mines, to Tom’s linkage between the coal mine and alcoholism, these signifiers speak to the relationship people in Franklin have with the fading prominence of coal mining. However, Tom’s characterization of the coal mine as “just like anything else...like saying grocery store” seems to reveal a hegemonic acceptance of these historically informed power relationships.¹² What we see with even this cursory probe of people’s shifting perspectives on water is that these relationships are dynamic and that they prompt people to question the normalization of contamination. The limitations of the field school in this particular case is that Gabby did not have the time to explore these relationships in depth to pursue a fine-grained understanding of participants’ perspectives of resources and the more recent exploitation of the land and water through fracking. She can show that something profound has taken and is taking place, but she cannot yet articulate it, and she can show that there is a diversity of perspectives and concerns about fracking’s impact

on common resources, but she cannot describe the source of these diverging opinions.

When political ecology is applied to first world settings, new tensions and insights emerge regarding the need to study up, shifting our preoccupation with local resistance toward centers of power. Robbins (2011b) argues that careful ethnographic work in the first world political ecology:

...reveal[s] the partiality of all accounts of nature, including and especially amongst the most authoritative agents of power. The simple and sometimes romantic stories of “good” and “bad” players here give way to accounts of process, structure, and history that tell far more forceful tales.... By exploring the partiality of official accounts, they forge spaces for other voices to be heard (p. 1511).

This observation, however, is more of a challenge than a simple call to action.

Interrogating official accounts may not be enough to release the floodgates for other voices to emerge. In Hogan’s film, the viewpoints of the four parties are heard, and Hogan makes it a point not to cast any of the actors as good or bad. However, in the rush to complete this film for the field school and the culminating event in which students presented their research results to community members, the filmic representation is raw. The *image acts* (Bakewell 1998) performed by the film equalize all players, even while the overall structure of the film is designed to interrogate official accounts. Hogan puts these four approaches to the environment on the same plane: the utilitarian perspective of the farmer, the aesthetic perspective of the neighbor, the spa owner’s concern with mood, and the leasing agent’s focus on sport and self-characterization as an environmentalist. In doing so, the film renders the leasing agent and leasing farmer a little more humane and the protestors a little more petty. He posits their actions only in terms of their own personal desires and roles, yet is not able to capture the varying degrees of power and access to power each party has. Hogan (2013) says his wish is that the corporation could be more transparent, without considering that corporations do not function that way, especially not publicly traded corporations. Consequently, the problems in this attempt to use publicly engaged political ecology to pry open a space for alternative representations derive from the time frame of the field school, the short shrift given to theories of representation crucial to visual methodology, and the partial ability of instructors to affect student sensibilities about equal speech in the context of unequal power relationships.

Alternatively, publicly engaged political ecology offers the possibility for collaboration that addresses the ethical issues involved with speaking on behalf of the other (Robbins 2006). For instance, the field school offered the chance to identify underground political ecologists—community members who actively apply a critical historical analysis of changes in people’s relationship to land and water in the context of

¹¹ Although political ecologists, notably from geography and anthropology, have overall been slow to research subsoil resources, intensified extraction of these same mineral and gas resources in places like Latin America, North America, and Australasia has spawned a network of activist political ecologists, whose work may not be published in refereed journals but can be understood as part of the larger corpus of applied political ecology research and critique (Bebbington 2012).

¹² See Bell and Richard (2010) for an illustration of the ways in which coal companies in West Virginia seek to recreate cultural hegemony to suppress possible political protest over the industry’s declining jobs and increased environmental devastation.

capitalism's boom and bust cycles. In this case, the community forum and Schenk's ethnographic film presented an opportunity to validate and document these alternative perspectives.

Responding to the argument of Walker (2006) that political ecologists have missed important opportunities to impact policy makers, we feel that this field school may not have caused seismic shifts in the public opinion of fracking, but it did have some modest success in stimulating dialogue among diverse stakeholders who, otherwise, would not have been brought to the table. The concluding community meeting brought people together (including Margaret, Jordan, and Richard) for an evening of thoughtful dialogue where students presented their work to participants and other community members, and the floor was opened for an exchange of views. This event provided a place to sit with and observe tense relationships, to hear each others' comments, and to think through the different paradigms that people draw from when they discuss their thoughts on drilling.

Important comments expressed by students and audience members at this meeting reflected on and interrogated the nature of government, the regulation of extractive industries, and the distribution of risks and rewards associated with fracking. This conversation was enriched by the socio-environmental histories of the area detailed in the student's presentations. Audience members considered among themselves why there was a lack of overt resistance among many residents when it came to fracking, with the conversation revolving around theories of internal colonization and Marx's concept of false consciousness. The conversation also turned to the role that anthropological research plays in drawing forth a conversation on this tense issue. One audience member commented that anthropology is not the social science most people would associate with fracking and asked what this perspective has to offer policy and the community. The students recognized the reality that fracking is here to stay and pointed to the necessity to involve the broader community in a long-term planning process. Students commented that anthropology's holistic viewpoint can illuminate where gaps exist in communication, knowledge, and concerns across varying publics. Fieldwork grounded in political ecology can also provide a macroscopic view of fracking and its environmental destruction and social fragmentation; in the words of another student—"This is a symptom of a much larger problem of using too much energy. The Iraq war was a symptom, fracking is a symptom... It's the fault of all of us." Ultimately, the field school prompted an opportunity to reflect on and acknowledge various positionalities in relation to the profound uncertainties posed by Marcellus Shale development.

The field school also produced ripple effects within the university, shifting the discourse about fracking and the production of knowledge. The department of anthropology was put on equal footing, for the time being, with other disciplines that are directly linked to the industry of fracking, such as safety science and geosciences. Consequently, anthropology has gained a seat at the table in a group convened to advise the

IUP President on the university's relationship to fracking. This is a striking difference from 3 years prior, when university administration under a previous president revoked financial and symbolic support for a cross-disciplinary symposium on hydraulic fracturing convened by the anthropology department.

Conclusion

This paper reveals the limitations and possibilities the authors and students confronted during the Ethnographic Field School at Indiana University of Pennsylvania and provides a road map for others who seek to lead students in conducting publically engaged political ecology research on historically layered, socially thick subjects. Methodological and theoretical limitations we found include insufficient contact between students and research participants, clarity among students about the nuances of the politics of representation, and the difficulty of inculcating a critical perspective.

Possibilities that enthused us were the contributions social sciences can make to produce knowledge about fracking and the possibilities revealed in the concluding event of the field school of opening up conversations among different stakeholders who sometimes maintain oppositional relationships. During that event, a community conversation informed by the questions raised in student research and guided by rich historical analyses pointed to the ways in which diverse stakeholders were members of a broader community, grappling with varying visions for the future but willing to listen to these competing visions with mutual respect. Appreciating the nuanced perspectives of multiple stakeholders was an important shift in what has largely been a polarized discourse across the state. The 2012 IUP Ethnographic Field School pushed the discourse in this direction through student ethnographic research that was sensitive to the historically influenced relationships residents of Indiana County have with their environment.

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