

Whose Water Is It?

By HILARY A. B. LAMBERT*

ABSTRACT. Legal protection of the USA's water resources was reduced during the Bush-Cheney Administration (2000–2008), facilitating coal, oil, and gas development at the expense of clean water. The “Halliburton Loophole” in the 2005 Energy Act exempted all oil and gas development activities, including fracking (hydraulic fracturing), from the Clean Water Act, Clean Drinking Water Act, and other federal statutes. Two U.S. Supreme Court rulings weakened the Clean Water Act's protections of headwaters, streams, wetlands, and other water bodies. In New York State, communities faced with the imminent prospect of fracking by energy companies organized. From 2008–2014, they prevented fracking in New York. Water protection played a major role in energizing community response. In 2015, a fragile, but resilient, ban was declared statewide. In Kentucky, 150 years of coal mining resulted in pollution of many waterways, with hundreds of stream miles buried beneath mountaintop removal debris. Kentuckians have been pushing back since the 1930s to protect communities, farms, and water quality. They remain hopeful in the face of great odds. Urban populations making daily use of cheap, clean water and fossil-fuel-powered energy sources have little knowledge of these struggles. In rural America, the fight to protect communities, lands, and waters from energy exploitation is lifelong.

Introduction: Loss of Water Protection

Water quality is a concern of both urban and rural residents. However, in most cases, the threats to water quality occur in rural watersheds, far

*Executive Director/Steward of the Cayuga Lake Watershed Network, a watershed protection and educational NGO in central New York State. AB, anthropology, Brown University; MA, PhD, geography, Clark University. Taught at Rutgers University, Miami of Ohio, University of Kentucky. Former editor of *FOCUS* (American Geographical Society of New York). Associate Director of the Kentucky Waterways Alliance. Community organizer on behalf of the environment for many years in Kentucky and New York State.

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from big cities. As a result, the burden falls on rural residents to fight the companies that drill, mine, and clear-cut the land surfaces and pump chemicals into the ground. Although the residents of cities reap the benefits of the work carried out by rural activists, the latter receive little support from the former.

This article focuses on threats by private interests to the quality and quantity of water in rural New York State and the Commonwealth of Kentucky, where the author has personal and working experience. The adjacent states of Pennsylvania, West Virginia, Ohio, and Michigan have been equally impacted by widespread seizure of natural resources for use by the energy industry and related interests. The American West has been dealing with energy development for decades, intensively since the “fracking revolution” commenced in 2000. This nationwide frenzy to develop oil and gas in U.S. territory at all costs was permitted by legal and regulatory actions of the Bush-Cheney Administration and a compliant Congress (2001–2008). Most U.S. states have numerous groups fighting to protect clean water and air, starkly relevant in an era of climate change and water shortages.

The question across rural America is not simply, “Whose water is it?” but also “Whose life is it?” When private companies appropriate clean water and leave behind water contaminated with chemicals, this poses a threat to the health of natural systems and to the people who rely on them.

In many places, the oil and gas energy industry has freely expropriated the “quiet enjoyment” of land, air, and water that rural Americans, including Native American tribes, have long relied on. The energy industry and its mega-developer cousins seem to operate on the basis of “act first, apologize later,” exploiting rural America as a free or low-cost natural resource fiefdom, with little fear of negative consequences. Land, water, air, minerals, ecosystems, and human communities are all cheap fodder for the energy machine. The single biggest form of destruction in recent years is hydraulic fracturing as a method of extracting natural gas in shale formations. This process is better known as “fracking.”

In Pennsylvania’s rural, once farm-dominated Susquehanna County, stalwart anti-fracking activist Vera Scroggins (2015) reports: “1300 gas wells, 45 Gas Compressor Stations, hundreds of miles of high-pressure

gas lines just in my county of 800 sq. miles ... and still counting ... over 1,000 DEP [Department of Environmental Protection] violations racked up in my county by the seven gas companies ... since 2008" (Scroggins 2015).

That is the experience of just one county. A 2013 review by the *Wall Street Journal* of data covering 700 counties in 11 gas-producing states found that at least 15.3 million Americans had a natural gas well within one mile of their home, drilled since 2000. By 2012, people living and working near fracked gas wells had filed over 1,000 complaints regarding tainted water, severe illnesses, livestock deaths, and fish kills (Guynup 2012; Valentine 2013; Center for Media and Democracy 2015).

Nonetheless, rural Americans have been able to organize and push back against overweening private interests, though often only after social and environmental damage has been done. The anti-fracking movement has come too late for many rural residents of Colorado, Wyoming, Texas, Ohio, and Pennsylvania (among other U.S. states and countries), whose land, air, water, and health have been permanently impacted by fracking, pipelines, and compressor stations. Hope for others has been signaled by success in New York State, with a July 2014 high court ruling that small towns have the right to ban fracking, followed by a December 2014 statewide ruling that prevents fracking in New York State for the time being (Hoff 2014; EarthJustice 2014).

A longer, wearier road to effective pushback is being traveled by residents of the central Appalachian Mountains of West Virginia and Kentucky. Their land and water rights were pulled out from under them in the years 1875–1910 by charming, unscrupulous landmen, who obtained signatures on broad form deeds that allowed complete destruction of overlying land, water, homes, towns, and cemeteries in order to extract the coal, oil, and gas beneath (Caudill [1963] 2001). By the time federal environmental protection laws were passed in the early 1970s and a measure of control was regained over the broad form deed in 1988, Appalachia's coal companies had over 50 years of doing whatever they wanted: the horse was long gone from the barn; and the chickens were being guarded by foxes in Kentucky county offices, the statehouse, and regulatory agencies (Brosi and Hardt 2005; Kentuckians For The Commonwealth 2005).

Owing to the evisceration of our environmental protection laws, resource extraction companies have little to fear from state or federal authorities. From 1970 until the Bush-Cheney Administration (2001–2008) disemboweled many of our federal environmental laws, the public had recourse to the environmental impacts review process via NEPA (National Environmental Policy Act of 1970) to slow or stop many environmentally harmful projects and to begin the cleanup of legacy problems from past centuries. Many of these tools were removed via Cheney’s notorious “Halliburton Loophole” in the 2005 federal Energy Bill, which excludes gas and oil activities from environmental review (Earthworks 2015).

Also during the Bush-Cheney years, a narrow judicial interpretation of the Clean Water Act excluded headwaters, streams, wetlands, and other “non-navigable” waterways from protection, allowing easier, consequence-free exploitation and degradation of water resources by energy and other development interests (Clean Water Action 2012).

Whose “Greater Good” Is It?

This assault on rural areas to extract resources to fuel industrial civilization could not take place were it not condoned by the majority of the urban population. Why does it go on? Utilitarian principles say it is acceptable to harm a few million people in rural watersheds if tens of millions of people in cities will benefit. This is the sort of reasoning that has sustained destructive practices in rural “sacrifice areas” for many decades.

In recent years, an even more pernicious idea has developed. According to the “law and economics” school of thought, which comes out the University of Chicago, the government should not be allowed to regulate corporate practices that cause environmental harm if common law methods are available that would allow individuals to negotiate outcomes with corporations or if consumer buying habits reveal a preference for cheap energy rather than environmental protection. The main idea is to restrict government regulation to the smallest sphere possible, enabling market prices of coal or timber to dictate what happens to the environment. Kochan (2015: 81–88) specifically proposes restrictions on government regulation of environmental harm that

would require agency rulemaking to put a “thumb on the scale in favor of a market solution.” In effect, Kochan and others would treat the bottom line of corporations as synonymous with the public interest. Since the U.S. Congress and many state regulatory agencies already give undue weight to the economic interests of energy companies, further restrictions on government’s ability to protect the public would represent a complete capitulation to market fundamentalism.

These abstract discussions of who should gain and who should lose operate in a completely different world from the experiences of the people actually affected by the invasive practices of extractive industries. Kentucky author Wendell Berry (2005a) reminds us that the water, lands, and communities of rural eastern Kentucky have been sacrificed to coal mining, so that city dwellers may live in ease. Similarly with the fracking fights fiercely waged across the United States from 2000 to present, the peace and prosperity of rural communities are being ripped apart so that gas can flow uninterrupted to towns and cities, and be exported abroad. Profits go to outside interests; costs are borne solely by the rural communities (Christopherson and Rightor 2011; Pennsylvania Alliance for Clean Water and Air 2016).

In the fracked-over gas plays of Wyoming, Pennsylvania, and Colorado from 2004 to 2008, rural residents were reassured by an unholy alliance of environmentalists and gas companies that natural gas was a “bridge fuel” to a utopian future in which the USA would “transition” to renewable energy sources. New Yorkers heard the same message: they must “sacrifice” their land and water to fracking for the “greater good” of our country, with a rosy glow of futuristic windmills and solar panels somewhere down the road—after all the natural gas had been extracted through fracking. As this scenario went on, citizens were told that there would be some temporary damage to the environment, but never to groundwater or surface water (Steingraber 2012a; Collart, 2009).

The very same cold comfort has been offered by coal politicians to Kentuckians, according to Berry (2005b: 198):

I recently heard one of our prominent politicians defend the destructive practices of the coal companies on the ground that we need the coal to “tide us over” to better sources of energy. He thus was offering the people and the region, which he represented and was entrusted to protect,

as a sacrifice to what I assume he was thinking of as “the greater good” of the United States. But this idea, which he apparently believed to be new, was exactly our century-old policy for the mountain coalfields: the land and the people would be sacrificed for the greater good of the United States—and only incidentally, of course, for the greater good of the coal corporations.

Focusing on water resources protection, this article provides a brief and partial history of how rural New York State stood up to the bogus demand to sacrifice rural resources for the so-called greater good of urban wealth; and how eastern Kentuckians are stepping forward to build a new, post-fossil fuel future that embraces what Berry (2005a: 159) has called “the economic value of good stewardship and good work.”

The “Fracking Revolution”

The USA was swept up in a nationwide gas development boom during the Bush-Cheney Administration (2001–2008). It continues to grow today. While rock fracturing to increase production of water, gas, or oil has been carried out in a variety of primitive ways for over a century, the technical pieces fell into place for the present-day fracking revolution around 2000, based on the “unconventional development of gas using high volume, slickwater hydraulic fracturing from long laterals with multi-well pads and clustered drilling” (Ingraffea 2012). High-volume hydraulic fracturing (HVHC) combines vertical and horizontal drilling with the injection of massive amounts of water (up to 5 million gallons per frack) mixed with chemicals, using microseismic frack mapping, on “tight” or unfractured shale rock (Shellenberger 2011; Ingraffea 2012).

Once solvents and proppants (sand and other materials that keep the fractures open) are added to the injected water, the natural gas flows up to the surface over several days, bringing with it much of the now-polluted water, and additional contaminants from natural sources found at depth. Gas and water are separated: natural gas goes into pipelines to market, and the water becomes a disposal and public health problem (Ingraffea 2012; Steinzor et al. 2012).

To free the so-called fracking revolution from the shackles of environmental laws and regulations, U.S. Vice President Dick Cheney, lobbyists, and members of Congress inserted the “Halliburton Loophole” into the 2005 Energy Policy Act, augmenting an earlier exemption for oil and gas activities from stormwater runoff mitigation: “Oil and gas exploration, production, process, or treatment operations and transmission facilities” were made exempt from the Clean Air Act, Clean Water Act, Safe Drinking Water Act, the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act, and Superfund (the Comprehensive Environmental Response, Compensation, and Liability Act) (Earthsworks 2015; Hauter 2015). These exemptions remain in effect in 2016.

Thus the U.S. Environmental Protection Agency, other federal environmental regulatory agencies, and state-level environmental protection agencies were sidelined into silent submission as gas fracking fields spread across Wyoming, Texas, Colorado, Pennsylvania, and other states. Rural community organizers and environmental organizations were shut out, prevented from using the environmental review process to slow or stop socially unwanted, environmentally destructive energy and development projects. Water and air were fouled, roads choked with trucks; small towns and farmlands were ruined by the boom economy that follows energy development wherever it spreads. Yes, there were high-paying, temporary, mining-boom jobs, and some folks made money in royalties from producing wells. But the longer-term story has not been positive for communities, land, air, and water (Christopherson and Rightor 2011; Negro 2012; Slonecker et al. 2013).

Health, Air, and Water Quality Concerns

By 2005, some residents of fracked areas in Texas, Colorado, and Pennsylvania began to ask questions about air and water pollution, traffic congestion, and emerging health problems in people and farm animals. Although long accustomed to the boom-and-bust of mining and extraction activity, rural residents were overwhelmed by the closely-spaced frack pads and compressor stations engulfing quiet ranchlands, suburban neighborhoods, and lands adjacent to or above valuable water supplies.

However, because they were free from government oversight via the Halliburton Loophole and other exemptions, while promising jobs and easy money, the fracking industry was able to stay ahead of the calls for background air and water quality studies, which could have signaled emerging pollution problems sooner (Fox 2010).

From around 2000 to present, rural residents in the fracking fields have been daily witnesses to the erosion and loss of their legally mandated “quiet enjoyment” of homes and property. Gas fracking wells, compressor stations, pipelines, and incessant truck traffic destroy the fabric of rural communities, rendering them unstable, prey to illness and crime. Many residents of fracked America (including, but not limited to, Pennsylvania, Texas, and Wyoming) are unable to sit outdoors without being barraged by noise, lights, and pollution from the gas well operations taking place nearby. Families and farm animals living near frack wells deal with respiratory, skin, and intestinal problems, along with sleeplessness from continuous noise, lights, and incessant traffic. They breathe contaminated air and drink polluted domestic well water that previously had been pure or at least potable. Energy companies chanted their ugly mantra, “there are no studies showing water pollution from this activity” until EPA’s Wyoming study finally proved that fracking can contaminate groundwater (Bamberger and Oswald 2014; Colborn et al. 2014; DiGiulio et al. 2012; Steinzor et al. 2012; Subra 2012; Tillman 2010; US EPA 2011–present).¹

Plentiful, Cheap Water Essential for Fracking

The fracking industry has good reasons to downplay and deny links between its activities and water pollution because the main limiting factor for successful, sustained fracking operations is access to plentiful, free or cheap water. A gas well can be fracked several times over its lifespan. Each frack requires 3 to 5 million gallons of water, pumped thousands of feet underground to force open cracks in gas-bearing rock layers. Much of this water returns to the surface with the natural gas, now polluted by a small, toxic, and secret percentage of chemicals that aid the fracking process. This flowback water also may contain naturally occurring radioactive materials (NORM) and chemicals picked up from deep rock layers (Mantius 2010).

Once separated from the gas, flowback water cannot be cleaned, and must be disposed of permanently. It is removed forever from Earth's hydrologic cycle. In the arid and semi-arid West, frackers compete for scarce water resources with agribusiness, ranches, and booming urban areas, even during the recent droughts. In these dry lands, contaminated water is disposed of in open pits adjacent to the frack well pad to evaporate, leaving behind a permanent toxic residue. In the moister eastern United States, the holding ponds have become toxic waste retention basins. During extreme weather events these overflow, and their wider impacts to wildlife, private wells, groundwater, and waterways go undocumented (Colborn et al. 2014; Subra 2012).

Some of the wastewater associated with fracking operations is delivered to special waste processing plants that claim to clean the fracking chemicals prior to releasing it downstream into "receiving waters" (regulatory term for a creek, stream, or lake that receives treated water). Municipal wastewater processing plants have signed lucrative contracts to process fracking wastes, only to learn that fracking chemicals will harm the biological balance carefully maintained by the plant to process regular wastewater. Briny fracking water is also sold to highway departments as a de-icer, in some states (Hasemyer 2015).

Fracking in New York State

Introduction: Sign on the Dotted Line for Big Money

Fracking in New York State began as a result of exploration for gas in the Marcellus and Union Shale Play, an area of shale rock that underlies the central and northern Appalachian region from eastern Kentucky north and east through West Virginia, Pennsylvania, and New York State (Souder and Kappel 2009). In 2008 energy companies, such as Chesapeake and Chevron, began promoting the limitless profits to be gained from fracking in the region. Landsmen were on the move, going door to door, getting leases signed for drilling and fracking access. Seismic thumpers moved up and down the roads, checking for signs of gas below, signaling easy money to eager landowners. Farmers were told that a gas lease was a great way to bring in extra money, and thousands attended state-sponsored workshops hosted by gas companies with landmen there to help them sign on the dotted line. Landowner

coalitions were formed to ensure that farmers got the best lease and royalty deals. Investment publications and cable television shows touted a “Saudi Arabia” of natural gas lying under the feet of rural New Yorkers. Watershed protection groups, such as the one headed by the author, were told that their job was to help prepare residents and municipalities for the imminent arrival of fracking pads, trucks, compressor stations, pipelines, and so on (EarthJustice 2014).

The gas industry playbook, developed over the previous 15 years across the West and into Pennsylvania, did not work in New York State, where the fracking revolution ground to a halt during 2011. Small towns began passing bans and moratoria on gas drilling and related activities, with a statewide one being discussed. Each of the hundreds of community groups across NY State has its own timeline and history of participation in the massive, unprecedented pushback against fracking that began in NY State in 2008–2009 and led to a statewide ban in 2014. No unified history has yet been attempted because the situation continues to unfold. Based on the author’s experience, the following narrative focuses on the Town of Dryden in Tompkins County, situated at the foot of Cayuga Lake in central NY State’s Finger Lakes region.

2008–2010: A Bright Line Emerges in the Fight to Frack NY State

Beginning around 2005 or 2006, landsmen circulated in rural communities across the Marcellus Shale region of central/southern New York State, offering cash bonuses for lease sign-ups, with promises of big royalties to come, once a gas well began producing; with verbal guarantees that there would be no negative impacts. Marketed as “just like your granddad’s gas wells”—small-scale straight-drilled wells into pockets of natural gas—the actual process of fracking was not described. Thrilled at the prospect of free money, thousands of people signed away their land, air, and water rights without understanding what they were signing. Most committed without contacting an attorney, under pressure from a landsman to sign quickly; many signed away their land at bargain prices.

Some landsmen did not themselves understand the implications of fracking. In 2009 a family friend of mine, hearing my remark that landsmen were a pox upon the New York landscape, said, “I have been a landsman. What’s wrong with that?” Many landsmen were convincing

salesmen, pressuring landowners with repeated visits and phone calls, using pressure sales techniques: “All your neighbors have signed; we can take the gas from under your land even if you don’t sign, so why not sign right here and get some good money out of it” (Fleasid 2016).

For example, a couple had just purchased a beautiful 33-acre property in the Tompkins County town of Dryden, NY. They planned to build their dream house and live free of environmental toxins. Down their gravel driveway walked a man who, as he rushed forward to shake their hands, said: “This is your lucky day.” He told them he was going to pay off their new land-payment loan if they would just sign on the dotted line of a harmless little gas lease contract. The couple said no. They had to continue to refuse, as the man returned repeatedly, demanding their compliance, falsely stating that their neighbors had all signed up, and that fracking would go on under their property whether or not they signed. This particular example, one of thousands, is treasured by the author as the local flashpoint for pushback via community organizing and coordinated action (Cipolla-Dennis 2009).

Across Dryden, landowners were approached; some signed, some refused. In the spring of 2009, a group of Dryden residents met, compared notes, agreed to keep meeting, and to coordinate information gathering and sharing with other groups across the region. The group’s name was DRAC—Dryden Resource Awareness Coalition. I was an early member, as both a local unleased landowner concerned about potential impacts to water quality, and representing an organization tasked with protecting the area’s creeks and Cayuga Lake, one of central New York’s Finger Lakes (DRAC 2016).

In the summer and fall of 2009, local groups organized quickly across Tompkins County, loosely affiliated with one another via the umbrella group Shaleshock, which has since grown into a major information and media hub for fractivists (Shaleshock.org, Shaleshockmedia.org); social media has been the lifeline for these groups and for fast communication across wide areas. In 2009 the tools were listservs and websites; in 2016, Twitter and Facebook are the norm.

The fractivist movement in Tompkins County—accompanied by a renaissance in small-town participatory politics—was sparked by several events. In December 2008, the Tompkins County legislature submitted concerned, critical, and informed comments to New York’s

Department of Environmental Protection on its draft proposal to issue regulations and allow fracking (Robertson and Proto 2008). Informational workshops and meetings were held in Ithaca, coordinated by Shaleshock. Each surrounding town's concerned citizens group met often, attended town board meetings to inform their elected representatives, and drove long distances to meet with groups in surrounding counties. Experts on fracking, climate change, greenhouse gas emissions, health (veterinary and human), water quality, and other central issues were recruited or volunteered. Many were filmed by Shaleshock, their information placed online, globally available (Shaleshock and Shaleshockmedia.org 2016).

Shaleshock's founding filmmaker, Cris McConkey, died at the end of December 2015. Four hundred people met to commemorate the life and to rue the early death of this Ithaca videographer, who worked nonstop from 2009 to 2015 to compile a comprehensive filmed public record of the fight to keep fracking out of New York. Cris worked tirelessly with others to record the stories of those affected in the nearby Pennsylvania fracking fields; established an online scientific storehouse of interviews with Anthony Ingraffea, Bob Howarth, and other Cornell University and community experts. Cris also documented the continuing resistance to pipelines and fracking infrastructure in Dryden and on the west shore of Seneca Lake and captured the growing renewable energy movement, now sweeping the region and state of New York (McCloskey 2016).

Could Fracking be Stopped in NY State Before it Got Started?

By 2010, legal debate raged among experts and the "downstate" major environmental groups over whether or not anything could be done to prevent fracking from getting started in New York. While the general consensus among the big environmental organizations was that nothing could stop it, Ithaca attorney Helen Slottje began attending community meetings and strategizing with attorney Jason Leifer, Dryden Town Board member, Elizabeth Thomas, Ulysses Town Board, and other attorneys and leaders to see if there was a way to keep fracking out of New York. The Park Foundation, long a national philanthropic leader in supporting scientific and activist work to protect water quality, is headquartered in Ithaca. It provided funding to support Helen and

David Slottje in researching the legal basis for saying “No” to fracking. The Park Foundation was a leading light among more hesitant funders, who stayed with the “surely fracking can be done safely” fence-sitting position much longer. The Park Foundation has also funded the work of the author’s organization, the Cayuga Lake Watershed Network, Inc., and many other water-protection projects (Park Foundation 2016).

A map of all Tompkins County properties in fracking leases was developed and shared, and burst like a thunderclap in the community. During 2009–2010, a team of volunteers spent hundreds of hours documenting the leases signed in Tompkins County with gas companies. They created an interactive, online map of leased properties in the county’s eight municipalities. This map, online at www.TCGasMap.org, swiftly impacted the county’s consciousness. Utopians who lived “off the grid” (without commercially produced electricity), five-acre horse farm owners, farmers, and suburbanites alike realized they were surrounded by leased acreage. The map revealed, shockingly, that nearly 40 percent of the county’s privately held lands had been leased for fracking via landmen. The rural town of Groton topped the county with 65 percent of its private property in gas leases. Reaction to this map became seismic in intensity. Several other counties developed similar maps, but Tompkins County’s was the epicenter of reaction and local organizing (Podulka and Podulka 2010).

Many Tompkins County landowners were retired, living in quiet homes alongside the clean, abundant creeks and waterfalls and lakes that dominate the rural New York landscape. Many had signed leases, beguiled by good salesmen, the landmen who quietly dangled money for retirement via leasing and royalties, promising that fracking is “just like your grandfather’s gas well.” These small, conventional gas wells dot the landscape of central NY State, consisting of a small pump at the end of a short gravel road, or a capped well with a white plastic container as the only visible sign. At a public meeting held in Ithaca in early 2009, this was among the first lessons to be learned: fracking gas wells are *not* like “your grandfather’s” gas well. (Subsequently, research has suggested that thousands of abandoned older gas wells may pose their own problems.) A secondary fight was launched to prevent old gas wells from becoming “injection wells” for wastewater from fracked gas wells (Podulka and Podulka 2010; Fleasid 2016).

Fleasid: The Harnessed Fury of One Person Can Make a Big Difference

Ellen Harrison is someone who signed a lease, realized she had been lied to, and set about organizing her community to respond. Retired from Cornell University, Harrison discovered that the easy money from environmentally-safe fracking wells was a lie, and dangerous for water quality, around which her career had focused. She attended information meetings, organized her own, and supported her town community group, ROUSE (Residents Opposed to Unsafe Shale-gas Extraction). Caroline is a rural township south of Ithaca and completely dependent on well water for household and farm uses. The now-ubiquitous “No Fracking” yard sign, red and black, is Harrison’s design. She paid for the first several hundred yard signs. Bumperstickers followed.

In 2010, Harrison and others organized Fleasid. The following information about this organization’s mission and goals is from their Facebook page:

Many landholders signed leases with gas companies before shale gas exploitation was anticipated in New York State. Why did we sign? Partly because natural gas was portrayed as a relatively “clean green” fuel, so obtaining it locally seemed reasonable. Partly because the way it was presented to us made it sound not only benign, but inevitable.

Previous gas drilling was far less dangerous than the slickwater high volume hydraulic fracturing used for shale gas exploitation and the older technology is what most of us thought we signed up for. Our expectations were based on conventional gas drilling. None of us knew that toxic chemicals would be injected into the land under our homes, woods, farms and wells. Changes in the law since many people signed now allow for denser well spacing, further increasing impacts.

Had we known about the pollution potential and the possible transformation of peaceful residential and agricultural areas into industrial zones, we would never have signed.

Fleasid (2016) is collecting accounts of how the landmen who visited us operated—specifically what information and misinformation they gave us about the process and impacts, what promises and assurances were made and what pressures they put on us to sign. Fleasid is also examining the content and import of specific provisions of our leases. We are making our presence and concerns known to the political “powers”

locally, in Albany and nationally, and we are considering possible legal actions. Join us if you have been Fleased.

Working with community and state groups, Fleased demanded that landowners should be released from their leases, if they wished. It also called into question the viability of mortgages and insurance policies in properties where gas leases had been signed. By 2012, energy companies across New York State quietly began to release landowners from their leases. Realtors, bankers, and insurers began to speak openly of problems with policies covering leased properties (Urbina 2011). A 2013 article in *American Banker* spelled out the problems:

The uniform New York state mortgage agreement, used by Fannie Mae and Freddie Mac, states that “you cannot cause or permit any hazardous materials to be on your property and it specifically references oil and gas,” says Greg May, vice president of residential mortgage lending at Tompkins [Financial, TMP, in Ithaca NY]. “That alone would make it a problem.” . . .

The \$4.9 billion-asset Tompkins has not changed its policy on mortgage loans, but is “just following the policy that’s always been there,” which says that an oil or gas lease is in “direct conflict” with the terms of a uniform mortgage loan, May says. “I’m not pro- or con-drilling,” May says. “My charge at Tompkins is to control the risk to the best of my ability.” (Peters 2013).

Water Protection Groups Organize to Oppose Fracking

In September 2010, Josh Fox’s first *Gasland* movie was released, literally and figuratively lighting the water on fire with vivid footage of harmed people, landscapes, farm animals, and flaming water faucets, in Pennsylvania and across the western United States. His uncompromising stance against fracking, just as scientific research was beginning to quantify harms, galvanized the fractivist movement across his home state of New York and nationwide. *Gasland* was a 2010 Oscar Awards nominee (Fox 2010).

An even earlier public voice to oppose on the basis of water protection concerns was the Haudenosaunee Environmental Task Force, representing the Mohawk, Oneida, Onondaga, Cayuga, Seneca, and

Tuscarora Nations in environmental matters. These Nations once controlled the Finger Lakes and Great Lakes regions as the Iroquois Confederacy, and regard water as sacred. Their Statement on Hydrofracking was issued March 9, 2009. Here are a few excerpts:

Haudenosaunee know that every part of the natural world is important and interrelated; when humans tinker more and more with the natural balance, we do so at the peril of our grandchildren. In few cases is this more apparent than the proposed method of natural gas drilling known as hydraulic fracturing or “hydrofracking”. . . .

The Onondaga Nation knows first-hand the impacts of messing with the deep bedrock of Mother Earth. Over 100 years ago, a company began solution mining in the Tully Valley upstream of the Nation, pumping water down wells to dissolve the brine deposits found deep below. The necessary time has passed to feel the impacts; our once clear Onondaga Creek is now contaminated with sediments from the mudboils; the Tully Valley has subsided 15 feet; and sinkholes and hundreds of deep fissures have opened up where the wells once were. . . .

The Haudenosaunee will not allow hydrofracking on or near their aboriginal territory, and calls on the Government of New York State to similarly ban hydrofracking and other unconventional gas drilling methods within New York State. If NYS Government allows this to happen, and hydrofracking impacts our environment, then DEC will be held accountable. We do so for the future of all our relations. (Haudenosaunee Environmental Task Force 1999, 2009).

In 2010, leaders of nine Finger Lakes watershed groups met at the Finger Lakes Institute in Geneva, New York, to organize the Finger Lakes Regional Watershed Alliance (FLRWA). Its first goal was, and remains, to oppose fracking across the region, to protect the lakes, their creeks and wetlands, and communities. Centered in the Marcellus and Union Shales Play across central New York state, the Finger Lakes comprise an 11-lake tourism powerhouse focused around wineries, dairying, boating, hiking, and birding, all of which require clean, healthy water in abundance.

The FLRWA represents 10,000 organizational members of the nine original organizations along with several partners, including the City of Rochester, which controls the use of two small Finger Lakes for its water supply (Finger Lakes Regional Watershed Alliance 2016). Several

member organizations issued anti-fracking statements. Water experts also worried that, if passed, state-level fracking regulations would allow gas companies to make massive water withdrawals from local creeks and the Finger Lakes for fracking operations (Lambert 2010).

In 2012, the Cayuga Lake group's board developed, approved, and published a position statement on fracking in the Cayuga Lake watershed. Sourcing peer-reviewed scientific studies, the position statement explained the organization's concern about the impact of fracking activities on water quality:

In hydraulic fracturing we have identified a key threat to the Cayuga Lake Watershed. A growing body of science indicates that shale gas extraction would contaminate our fresh waters, pollute our air, negatively impact sustainable livelihoods and our local economy, and aggravate climate change. Development of shale gas would also forestall the growth of the renewable energy sector that offers to bolster our economic vitality and curtail greenhouse gas emissions. We oppose the continuation of hydraulic fracturing and urge immediate emphasis on an energy policy that promotes conservation and renewable energy sources. (Cayuga Lake Watershed Network 2012; Lambert 2012)

As these groups spoke out, nature lovers and recreationists joined local community groups to oppose fracking, working to get bans passed in their local towns and counties, and to get elected to town boards and committees. Hundreds of groups, and tens of thousands of individuals repeatedly submitted exhaustive comments to the NY State Department of Conservation in the numerous rounds of reviews and updates to proposed fracking rules and regulations, took part in rallies, and spoke out at public hearings (Steingraber 2012b).

While many farmers wanted fracking to augment marginal incomes, they also understood the threat that frack pads, pipelines, compressor stations, and truck-clogged roads would bring to farms and communities that have always taken for granted abundant, free, high-quality water (Stelick 2011).

A Ban on Fracking Takes Hold, One New York Town at a Time

In November 2010, the New York State Assembly voted to place a moratorium or freeze on hydraulic fracturing to give the state more time to

undertake safety and environmental concerns. However, fear grew among grassroots groups that a pro-fracking decision was imminent from state authorities. By mid-2011 the Slottjes had developed a model ordinance for municipalities to use in banning fracking as an unwanted land use, in compliance with a municipal zoning ordinance or general plan.

By September 2011, several towns in Tompkins County had adopted bans on fracking within their borders. Among the first was Dryden, which hammered out a ban based on the Slottje model, with input from Jason Leifer, Dryden Town Attorney Mahlon Perkins, members of DRAC, and from across Tompkins County. Within months, many towns across southern and central New York State were passing bans or moratoria on fracking (Lambert 2011). The Slottjes, backed by their nonprofit Community Environmental Defense Council, launched a tireless town-by-town campaign to advise and guide town boards in passing anti-fracking ordinances. Cartographer Karen Edelstein tracked the steady spread of municipal actions across the state. The January 2016 municipal total is 89 bans, 98 moratoria (mostly current, although some may have expired), and at least 89 movements for prohibitions (bans or moratoria) (Community Environmental Defense Council 2016; Fracker Alliance 2016).

Six weeks after passing its ban, the town of Dryden was sued by Anschutz Exploration Corporation, which challenged the legal right of Dryden, and all towns in New York State, to pass a ban on gas drilling activities. A three-year legal saga ensued. Dryden attorney Perkins argued the first round in local court, which ruled in favor of the town. As the case rose through New York's court system, DRAC and others obtained for Dryden the *pro bono* services of EarthJustice attorney Deborah Goldberg. The national and rising global anti-fracking movement watched, hoping that Dryden and New York State could hold off the fracking juggernaut. Twenty thousand people signed a letter of support for Dryden.

In May 2013, a panel of judges in a mid-level appeals court unanimously sided again with Dryden's argument that their right to make local land use decisions, enshrined in the home rule provision of the New York State Constitution, applies to oil and gas development. On Earth Day in April 2014, Helen Slottje was awarded the Goldman Environmental Prize for North America. In June 2014, New York's highest

court ruled definitively that Dryden, and all of New York's municipal governments, have the right to prohibit fracking as an undesirable and unwanted land use. In December 2014, the New York State Department of Environmental Conservation (DEC) and Department of Health announced that fracking was prohibited statewide because of human health and safety concerns; and in June 2015, the state DEC concluded a seven-year review, stating that "no feasible or prudent alternatives" reduce the risks of fracking to an acceptable level (Community Environmental Defense Council 2016; EarthJustice 2014; *New York Times* Editorial Board 2014).

The NY State ban, frail though it may be, has energized groups in the USA concerned about the negative impacts of rampant energy infrastructure development, and has been a shot in the arm to the First Nations and allies in Canada, and for anti-fracking groups in the United Kingdom, Ireland, Europe, South Africa, and Australia.

Coal and Water in Kentucky

Introduction: Coal Mining and Water Pollution

More than a century before hydraulic fracturing took off in 2000, a large-scale land grab for mineral exploitation got underway across the Appalachian Plateau, a landscape of hills and low mountains, deep valleys, rushing rivers, and once-prosperous, self-sufficient subsistence farmers. The coal-rich regions of western West Virginia, eastern Kentucky, and parts of Tennessee and Virginia have since witnessed devastating impacts to land, water, ecosystems, and human communities as a result of deep mining, strip mining, and mountaintop mining, which is sometimes referred to as mountaintop removal (MTR). The following overview of water resource degradation by the coal industry, and the grassroots community response, focuses on the Cumberland Plateau of eastern Kentucky, fully comprising 19 counties and parts of several more.

Harry M. Caudill's classic *Night Comes to the Cumberland* details what was taken by landmen via signatures or marks, from landowners across the Kentucky highlands, in return for a few dollars:

The broad form deed passed to the coal companies title to all coal, oil and gas and all “mineral and metallic substances and all combinations of the same . . . [t]heir wordy covenants passed to the coal men the right to utilize as mining props the timber growing on the land, to divert and pollute the water and to cover the surface with toxic mining refuse. The landowner’s estate was made perpetually “servient” to the superior or “dominant” rights of the owner of the minerals. And, for good measure a final clause absolved the mining company from all liability to the landowner for such damages as might be caused “directly or indirectly” by mining operations on his land. (Caudill [1963] 2001: 74)

By 1910, Caudill ([1963] 2001: 74) reports, more than half of the land was owned by nonresidents; three-fourths of remaining saleable timber was in the hands of absentee investors; and at least 85 percent of the minerals were in the hands of outsiders, who cared little for the lands and waters of this deeply rural region, and who needed the coal (and soon, oil and gas) to build and power America’s cities and booming industries.

Surely, between then and now, these wrongs have been rectified? No, they have not. The coal industry made its own rules for decades, and has strongly resisted being harnessed by the state-level environmental regulations and federal laws that have dominated the nation’s environmental cleanups and enhanced protection since the early 1970s. In 2005, a group of Kentucky authors set off on a mountaintop removal tour across Leslie and Perry counties. Their Statement on Mountaintop Removal begins:

Yesterday we witnessed appalling destruction to the land. The practice of mountaintop removal to extract coal is ravaging Eastern Kentucky, and its effects are headed your way. Mountaintop removal represents economic and cultural violence which eventually reaches the whole state. What we have seen convinced us that mountaintop removal is a blight on the entire state that is robbing our people of a better future by destroying our most abundant resources and the very ones we will need for building a viable future economy. Streams and groundwater, scenic beauty, diverse forests, and native plants are all being ruined forever by mountaintop removal. (Bates et al. 2005: 21)

An indicator of the political and economic power that coal retains in Kentucky is the 2008 addition of “Environment” to “Energy” in the

name of Kentucky's environmental regulatory cabinet (agency), in a switch from Environmental and Public Protection Cabinet to Energy and Environment Cabinet (*Land, Air and Water* 2008: 1). Yes, energy equals coal in Kentucky. Putting coal production in front of the protection of water, land, and air seems like a last-ditch attempt to prop up what is, nationwide, a dying industry. In the past decade, the handwriting has been on the wall that coal is on its way out as a primary fuel in the USA. Damned from every direction as a source of carbon dioxide and other potent greenhouse gases, implicated without a scientific doubt as a major contributor to global warming and climate change, the U.S. coal industry is on the wane (U.S. Energy Information Administration 2016).²

In Kentucky, this evident environmental and economic fact has led to a circling of the wagons to protect what some still think is Kentucky's only economic asset. The state's senior U.S. Senator Mitch McConnell is a stalwart opponent of environmental protections that he regards as anti-coal. In October 2015, on the day that the Environmental Protection Agency published proposed new regulations that would require existing coal-fired power plants to reduce carbon dioxide emissions, Kentucky and 23 other states sued to stop this rule from going into effect. EPA says that the improvements would save \$34 billion to \$54 billion a year through reduced premature deaths and other health improvements; the lawsuit contends that the changes would be too expensive for the coal industry (Peterson 2015a). This knee-jerk, protect-coal-at-any-cost reaction is the norm.

In December 2015, Kentucky State Representative Jim Gooch (formerly a Democrat, now a Republican) sponsored a bill that would make Kentucky a "sanctuary" from state and federal controls on air pollution emitted by Kentucky's coal-fired power plants. Kentucky is sixth in the nation in coal power generation, with 56 operating coal-fired generating units at 21 locations (Sourcewatch 2016). A sharp rejoinder to Gooch on how government works came from Tom FitzGerald, attorney with the Kentucky Resources Council:

You can call yourself a sanctuary state, you can call yourself whatever you want to, legally the choices that you have are to continue to maintain and implement the programs that you have sought delegation for, or

to default and let the federal government run those programs . . . but the idea that you're going to stand at the border and say, "We are a sanctuary state and you have no power here" is absurd. (Peterson 2015b)

While this fight may seem fantastical to outsiders, it is business as usual in the Commonwealth of Kentucky.

The Eastern USA's Headwaters are Threatened by Coal Mining

Southern Appalachia is a biodiversity hotspot, with over 2,000 species of vascular plants and the most biologically diverse freshwater systems in North America. Ten percent of the planet's salamander and freshwater mussel diversity flourishes there. The Appalachian highlands are headwaters for several major American rivers, the Susquehanna, Ohio, and Potomac among them, and provide water services downstream for tens of millions in eastern cities and the heart of the country. The Cumberland Plateau is home to the headwaters for numerous Kentucky rivers: the Cumberland, Kentucky, Licking, Big Sandy, Rockcastle, and Red. This headwaters region is the source of clean water for much of the United States's eastern half. It needs protection in our emerging era of climate change. It is an ecological treasure house for the future. Instead, the dominant land use change agent is destructive: surface mining and mountain top removal (Bernhard and Palmer 2011: 40–41).

In the decades since 1970, while much of the rest of the USA has benefitted from passage of the Clean Water Act, Clean Air Act, and other protective, restorative laws, "King Coal" has stood in Kentucky's doorway to progress, barring many attempts to protect water, land, and communities. Strip mining, in use since the 1930s, really took off during the 1970s *after* the major environmental laws were passed, and is far more destructive than deep mining. With the advent of ever-bigger machines, mountain top removal (MTR) mining increased rapidly in the 1980s when amendments to the Clean Air Act curtailed sulfur emissions, necessitating a switch to the low sulfur coal found in much of the central Appalachians. Replacing underground miners with machines reduced employment while increasing productivity by 32 percent more coal per worker. In 1979, there were 35,902 mining jobs in eastern Kentucky. By 2003, the number stood at 13,036; over half of all mining jobs

had vanished (Bernard and Palmer 2011: 44; Kentuckians For The Commonwealth 2005).

Strip mining and mountaintop removal (MTR) use explosive charges to blast away the top 50–200 meters (165–660 feet) of mountain tops and ridges, to expose coal seams. Forest clear-cutting and blasting are followed by massive draglines that clear away the ruins, now termed “overburden.” This is bulldozed into adjacent creek valleys, creating “valleyfills” or “hollowfills.” All creeks or waterways in these valleys are buried. According to Bernard and Palmer (2011: 43): “Individual valley fills can be hundreds of feet wide and more than a mile in length, and each fill buries the headwater streams of the former valley under tens to hundreds of meters of overburden.”

In October 2015, the MTR Coalition of nearly 50 environmental protection groups submitted comments on the Office of Surface Mining Reclamation and Enforcement’s (OSMRE’s) proposed “Stream Protection Rule,” and accompanying Draft Environmental Impact Statement (DEIS) and Draft Regulatory Impact Analysis. The proposed rule, if adopted, would extensively revise national minimum standards for coal mining operations under the Surface Mining Control and Reclamation Act (SMCRA). The opening salvo of the MTR Coalition (2015: i–ii) is uncompromising:

The practice of large-scale surface coal mining in Central Appalachia, known as mountaintop removal mining, is a national disgrace. This extremely destructive form of coal mining devastates both the thriving natural ecosystems of the Appalachian Mountains as well as entire communities of residents who have lived on their homesteads for generations. Mountaintop removal mining generates some of the most damaging, large-scale environmental impacts of any industrial activity in the country. It is responsible for the destruction of over 500 mountains and approximately 2000 miles of stream channels across Central Appalachia.

Citing documents used in compiling the figure of 2,000 destroyed miles, the Coalition includes an evocative 1999 statement made by federal Judge Charles Haden II:

When valley fills are permitted in intermittent and perennial streams, they destroy those stream segments. The normal flow and gradient of the stream is now buried under millions of cubic yards of excess spoil waste material, an extremely adverse effect. If there are fish, they cannot migrate. If there is any life form that cannot acclimate to life deep in a rubble pile, it is eliminated. No effect on related environmental values is more adverse than obliteration. Under a valley fill, the water quality of the stream becomes zero. Because there is no stream, there is no water quality. (MTR Coalition 2015: 10; Gormley 2015)

Coal Slurry Impoundments: Ticking Time Bombs at the Top of Watersheds

Two byproducts of coal production are coal slurry and coal ash. Coal slurry is produced when newly mined coal is washed, in preparation for shipment to markets. Coal ash is the result of coal combustion, and is stored in often-unlined landfills next to coal-fired power plants (Cayuga Lake Watershed Network 2013). This article focuses on coal slurry ponds, a constant danger to communities and water quality downslope of mining operations. The contaminated washwater is stored in large ponds, and in addition to mud, contains pyrite minerals from coal dust and other trace elements leached from coal, which can include arsenic, mercury, chromium, cadmium, selenium, and others (Berhard and Palmer 2011: 42; Southwings 2016).

Many slurry ponds and coal washing facilities are situated conveniently near strip mining sites, in the heads of hollows—that is, at the top of creek and stream watersheds. To contain the slurry or sludge, a dam is built across the top of a headwaters stream, and is constructed from MTR debris. Billions of gallons of coal slurry are impounded in a pond, over the productive life of the strip mine. These remain in place permanently, a toxic menace to wildlife, and a ticking time bomb for life, land, and water quality below. While there are standards, laws, best practices, and required long-term oversight, surveys indicate that many of the known slurry storage impoundments (650 in Appalachia, 250 in Kentucky) are leaking or in danger of collapse. In one Pike County, Kentucky example, the U.S. Environmental Protection Agency determined that slurry pond leakage was impacting water well quality to the detriment of human health (Butler and Wuerthner 2009).

In October 2000, a slurry impoundment operated by the Martin County Coal Company burst during the night, and 300 million gallons poured downslope, inundating two mountain streams, Wolf Creek and Coldwater Fork. The impoundment had been built on top of an abandoned mine, and the weight of the slurry caused a collapse. Residents in these upland creek valleys woke to find their houses stranded in thick, gray goo extending across the valley, up to five feet deep. The Martin County Coal Company set up roadblocks to prevent anyone but local residents in. This author and others were invited by a resident to view and report about Coldwater Fork, and others followed in ensuing weeks.

Residents reported that the spill began about midnight and continued for five hours, but it took three days for slurry to stop flowing. Activist Dave Cooper reported: "There's goo ranging from several inches to several feet thick along the entire length of the two smaller Martin County streams . . . It would not be an overstatement to state that every living thing in the two smaller streams is now dead. Don't know about the Big Sandy; I would guess it is in serious trouble" (Collier-Slone 2000).

In the valley bottom far below, the creek water ran gray and black; banks were coated with the viscous slurry, which flowed into the Big Sandy River, the border between Kentucky and West Virginia. The slurry did not dissipate until absorbed into the Ohio River (Lambert 2000; Reece 2006a). In mid-November, local resident Larry Preece (2000) mailed a statement to people outside the affected area:

The area we live in is not the Coldwater I knew before October 11, 2000 and I am afraid that it never will be again. Mullett Branch is a very unsafe place to be with everything going on all around us—I hope and pray that no one is hurt during this cleanup that is taking place on the rural roads among our homes. If someone was injured or killed would anyone from the coal company shed a tear?

We still don't have answers to many of our questions we have asked, and I believe we never will. The coal company owners will not be required to, and they know it. This might be a work area for the owners of the coal company, but our homes belong to us even though the sludge belongs to the coal company.

The residents on Coldwater will get through this although it seems unbearable at times. The people from Eastern Kentucky have always known hard times. Maybe one day there will be a light at the end of the tunnel, instead of a tunnel full of sludge.

This spill was termed the “worst ecological disaster in the Southeast” by U.S. EPA, but the inadequate cleanup, co-managed by Martin County Coal Company and EPA, did not satisfy local residents, some of whom moved out (Salyer 2005). Several years later, Kentucky author Eric Reece visited homes along the upper valley and found that the slurry was still visible in the streams, and was buried in what had once been fertile farmland. Reece (2006a: 128) reports a conversation with resident Glenn Cornett:

Cornett told me his family has been farming this eight-acre bottomland for three generations. Before the slurry came rolling through, this fertile soil was filled with corn, wheat and potatoes. Now there is only grass and a few dying walnut trees. Four feet up from their base, the trees still bear the black stain of slurry.

Regulations Allow Cleanups Far Away from Damaged Areas

Federal and state laws require coal companies to restore strip mine sites and underground mines. However, the financial penalties for failing to restore these ruined landscapes and waterways are small, so many coal companies leave mine sites unmitigated and abandoned. From 1996 to 2012, 266 mine permits were forfeited across Kentucky, so the state did not receive promised bond payments that could be used for cleanup, and could only add these sites to the Abandoned Mines Lands Inventory system operated by the Office of Surface Mining Reclamation and Enforcement (Joice 2014).

Clean Water Act Section 404 Permits allowing coal companies to fill valleys with mining debris are issued by the U.S. Army Corps of Engineers on the understanding that cleanup and reconstruction afterwards—either at the ruined waterway or elsewhere—will compensate for the environmental damage done. According to Joice (2014), this is not happening. Research by the Kentucky Waterways Alliance (KWA) indicates that mitigation projects are often up to 60 miles distant from an impacted area. Focusing on the adjoining Big Sandy and Little

Sandy-Tygarts watersheds in eastern Kentucky, KWA concludes that mine permits issued by the Corps directly led to long-term water quality impairments because mitigation funds cannot be used for chronic water quality problems. Yes, it is that convoluted:

The Corps issues 404s with the assumption that the proposed impacts themselves will not cause downstream harm (which they do, made even worse knowing that a great many other Corps 404-permitted impacts have resulted in Abandoned Mines), and the assumption that the mitigation projects will provide sufficient compensation for the impacts. Based on the reality that hydrologic and ecologic resources are being almost wholly lost in widespread areas, and that those resources are being “replaced” in entirely different watersheds many miles away, logic suggests the mitigation is entirely insufficient. (Joyce 2014)

The Paradox of Fatalism Combined with Resistance

No one who is familiar with the history of Appalachia would question the extent of suffering people have endured. The anecdotes recounted here barely begin to tell the story. In 2006, Kentucky author Eric Reece (2006b) provided a summary of the region’s everyday suffering, such as the medical problems resulting from drinking and coming into contact with contaminated water:

Children in Letcher County, Kentucky, suffer from an alarmingly high rate of nausea, diarrhea, vomiting, and shortness of breath—symptoms of something called blue baby syndrome—that can all be traced back to sedimentation and dissolved minerals that have drained from mine sites into nearby streams. Long-term effects may include liver, kidney, and spleen failure, bone damage, and cancers of the digestive tract. [Flooding followed clear-cutting and blasting]: three so-called hundred-year floods happened in ten days. Between the blasting and the flooding, the people of McRoberts have been nearly flushed out of their homes. [Suicides occurred; a three-year-old boy asleep in bed, was crushed by a boulder loosened by a bulldozer operating without a permit at 2 a.m.; and these dreadful numbers]: In West Virginia, fourteen people drowned in the last three years because of floods and mudslides caused by mountaintop removal, and in Kentucky, fifty people have been killed and over five hundred injured in the last five years by coal trucks, almost all of which were illegally overloaded.

After generations of this sort of suffering and oppression at the hands of coal mining interests, it is understandable that most people have become fatalistic. They know realistically that nothing can be done to change the power dynamics.

Yet, paradoxically, the stalwart people of Appalachia keep struggling and resisting. The final sentence in Larry Preece's letter above (about "light at the end of the tunnel") displays the ability of eastern Kentuckians to both endure bad times and to be hopeful of better days ahead. Reece (2006a: 100) describes the doomed yet defiant tone of public testimony regarding strip-mine legislation:

One after another, coalfield citizens step to the podium to have their say about the effects of weakening regulations on strip mining, and one after another, they announce to anyone naïve enough to believe in participatory democracy that this is all a done deal anyway. Yet still they put themselves through this compulsory charade.

"The Long Struggle" Toward "New Power"

A recent history of the fight to retake Kentucky from the coal companies introduces two phrases: "The Long Struggle," and "New Power" (Brosi and Hardt 2005). "New Power" is a 2016 campaign by Kentuckians for the Commonwealth, the state's leading environmental and social justice group, to move beyond coal, on every level of life (Kentuckians for the Commonwealth 2016). In contrast to the recent short—and unfinished—seven-year fight to keep fracking out of New York State, Kentuckians have been struggling to get the horse back in the barn since the 1930s, when strip mining first emerged, and the consequences of mineral leases signed a generation earlier began to manifest themselves as large-scale environmental and social harms.

In the long struggle, lawsuits and attempts to regulate mining practices have been going on since the 1940s. The first direct action was in 1962 when a Letcher County preacher blocked a bulldozer while his wife sat nearby, loaded pistol in her lap. In 1965, an 81-year-old man held off bulldozers with a rifle, refusing arrest until he was promised his land would remain untouched. That night, armed men surrounded the jail, and he was freed. This dire situation—centered on a 15-year

contract with TVA to supply coal from Perry and Knott County mountains—led to the organization of the first community group to oppose strip mining, the Appalachian Group to Save the Land and People. Also in 1965, Ollie “Widow” Combs of Knott County was hauled away. The first of many legislative attempts to outlaw the broad form deed was named the Widow Combs Bill, after a photo of her eating Thanksgiving dinner in jail electrified the public (Brosi and Hardt 2005: 134–139). That bill, and many subsequent actions, were stalled or stopped by pro-coal politics.

Long the fight has certainly been. Brosi and Hardt (2005), and the many books they cite, detail the exhausting struggle in the mountains, the legislature, and the courts from the late 1960s to the present to try to make a dent in coal’s implacable will to consume Kentucky’s natural wealth. At a congressional hearing in 1968, the incomparable Harry Caudill testified:

Let us frankly recognize that the earth is just as important as the people who inhabit it and that the right to be free is matched by a responsibility to preserve freedom’s land . . . liberty in a wasteland is meaningless. (Brosi and Hardt 2005: 140)

Federal legislation in 1977, the founding of Kentuckians For The Commonwealth (KFTC) in 1988, and a continuous barrage of lawsuits and countersuits have pushed back against King Coal. In 1988, KFTC and allies won a massive victory, via an amendment to the state constitution, to restrict the power of the original broad form deeds, so that landowners have to approve a mining project for it to move forward. In the nearly 30 years since then, coal mining and adverse impacts have continued, and residents fight each and every day for small wins (Brosi and Hardt 2006: 141–151). Generations of Kentuckians raised in this fight are not about to give up. KFTC’s (2016) vision states, in part:

We have a vision . . .
We are working for a day when Kentuckians
— and all people — enjoy a better quality of life.
When the lives of people and communities matter before profits.
When our communities have good jobs that support our families without
doing damage to the water, air, and land.

KFTC activists Teri Blanton and Joanne Golden Hill know that water protection is a key tool for reining in coal excess—eventually. Golden Hill (2016), who with Blanton and KFTC traveled to the state’s capitol in Frankfort for the annual “We Are Kentuckians” rally in January 2016, provided these comments:

We are all connected to our environment. Without accurate monitoring data, the true damage to the environment and ultimately the people living there cannot be determined. Citizens stream monitoring programs continue to establish legal standing to ensure the provisions of the Clean Water Act are accomplished, when this is the responsibility of the KY Energy and Environment Cabinet. To date I know of no volunteer water sampling being used in successful litigation. It is sad that citizens must pursue costly and lengthy litigation. Mountain top removal coal mining is a grave concern as mountains continue to disappear and life in the streams die because of the contaminants leaching from valley fills will continue to contaminate streams for centuries to come. Abandoned mines need to be addressed. In addition to the contaminants present as a result of coal mining, there is also concern that industrial hazardous wastes have also been disposed in abandoned mines. It is imperative that environmental contamination be cleaned up.

KFTC has allies. Member-powered, grassroots organizations such as the Kentucky Resources Council, Kentucky Heartwood, Mountain Justice, Headwaters Inc., Appalshop, and other in-state groups push back with support and advice from the Kentucky Environmental Foundation, Appalachian Citizens’ Law Center, Kentucky Resources Council, the Kentucky Waterways Alliance, the interstate Alliance for Appalachia, and the Kentucky Cumberland Chapter of the Sierra Club. Water testing is carried out by trained volunteers affiliated with the statewide Watershed Watch, and the Sierra Club-sponsored Water Sentinels.

Conclusion: A Fight Forever

This article provides a narrative of endless rural struggle against encroaching private interests in New York State and Kentucky, focused on water protection. Trends point to continued struggle. New York fractivists, allied with groups across the country, fight on to prevent the spread of the infrastructure of energy distribution, such as pipelines and train transport, compressor stations, and gas storage hubs like the

proposed Crestwood facility on the west shore of Seneca Lake. Many people are working to move the state's economy directly from fossil fuels to renewable energy sources, skipping the 30 years of "transitional fuel" fracked gas. For now, New York State has escaped the fracking blight. The 2014 ban sent a message to gas companies that New York is not open for their business. However, once the present nationwide gas glut is gone, thousands of wells will be reopened across the country. New York's Marcellus Shale still has, as a promoter might put it, "enormous untapped potential" (WeAreSenecaLake 2016; Ingraffea 2014; Coalition to Protect New York 2016; Krauss 2015).

In eastern Kentucky, a recent legal victory *may* change Frasure Creek Mining's pattern of falsifying thousands of water pollution reports, and send a warning to other companies. The proposed Bluegrass Pipeline across Kentucky was defeated by a lively new alliance including nuns, the Sisters of Loretto. Landsmen seeking lease signatures for a new gas investment "play" were outed by activists in the foothills of the Cumberland Plateau, and a ban on fracking was voted in by the city of Berea. At public hearings on fracking during 2014, participants spoke overwhelmingly against the practice. Kentuckians For The Commonwealth and allied groups are focused on a New Power Plan that will move communities beyond fossil fuel dependency. However, Kentucky's new Republican governor has appointed a recent coal company executive as head of the state's Energy and Environment Cabinet, and he is gutting the state's already-weakened environmental protection programs (Frack Free Foothills 2016; Kentuckians For The Commonwealth 2015, 2016; Savage 2015).

As for water protection at the federal level, no anti-fracking or regulatory legislation has yet been made into law. The Halliburton Loophole remains wide open. The Clean Water Act protection of U.S. waters was eviscerated by Supreme Court decisions under Bush-Cheney; a proposed fix by EPA is stalled in the courts and Congress. In a late 2015 grassroots legal victory for water protection, a New York State appellate court ruled in favor of People for a Healthy Environment and other groups, that the New York village of Painted Post cannot sell well water for fracking operations in nearby Pennsylvania (Northrup 2016). Many are convinced that the only way to protect our environmental and social resources is at this local level, which requires constant vigilance

and a culture of commitment to political participation, with direct action where needed.

Urban populations drink clean water, wash clothes, flush toilets; and use inexpensive gas, coal, and oil for heating, cooking, and vehicle use. Most beneficiaries of these daily luxuries have little understanding of the decades-long, ferocious fights, such as in rural New York State and Kentucky, over these commodities. Wendell Berry (2005c) has written about an American, perhaps human, “contempt for small places.” Our modern mind admires what is largest, fastest, biggest. We forget that clean water begins in small places, on mountaintops, in wetlands, as rivulets and trickles, pooling, flowing. “There is not a more exemplary history of our contempt for small places,” says Berry, “than that of Eastern Kentucky coal mining, which has enriched many absentee corporate shareholders and left the region impoverished and defaced” (Berry 2005c). New York State may have awakened in time to stop the plunder. The Commonwealth of Kentucky is on a longer road to recovery. In both places, and across rural America, the fight is forever.

Notes

1. Although EPA chose to end the study in 2013 without issuing a final report because it may have contaminated its own evidence in the deep water testing part of its investigation, the tests reported by DiGiulio et al. (2012) that showed shallow water contamination were never contested (Gurule 2013).

2. According to EIA (2015): “Since reaching a high point in 2008, coal production in the United States has continued to decline. U.S. coal production in 2015 is expected to be about 900 million short tons (MMst), 10% lower than in 2014 and the lowest level since 1986. Regionally, production from the Appalachian Basin has fallen the most. Low natural gas prices, lower international coal demand, and environmental regulations have contributed to declining U.S. coal production.”

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Appendix

List of Organizations in the United States Addressing Issues Related to “Fracking” and Mountaintop Removal

Community Environmental Defense Council, CEDC: Helen and David Slottje’s frack-fighting nonprofit organization. <http://www.cedclaw.org/>;
 Slottje & Co. PLLC <http://www.slottje.lawyer/>

Concerned Health Professionals of New York & Physicians for Social Responsibility. (October 14, 2015). *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)*, 3rd ed. <http://concernedhealthny.org/compendium/>

Earthjustice “is the legal backbone for more than a thousand organizations, large and small.” <http://earthjustice.org/>, <https://www.facebook.com/Earthjustice/>

Earthworks is “a nonprofit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions.” <https://www.earthworksaction.org/>, <https://www.facebook.com/earthworksaction/>

Gasland, 2010. “GASLAND a film by Josh Fox.” View the Gasland movies, contact activist groups nationwide: <http://one.gaslandthemovie.com/>, <https://www.facebook.com/gaslandmovie/iLoveMountains.org>: Centralized information website about communities and lands at risk from mountaintop removal, coordinated by numerous organizations across Appalachia. <http://ilovemountains.org/>, <https://www.facebook.com/ilovemountains.org/>

Kentuckians For The Commonwealth, KFTC: This Kentucky-wide social justice organization maintains an online storehouse for finding out about and taking action on mountaintop removal and strip mining impacts to lands, waters, and communities. <http://www.kftc.org/campaigns/mountaintop-removal-and-strip-mining>; <https://www.facebook.com/Kentuckians-For-The-Commonwealth>

Kentucky Waterways Alliance, KWA: Ohio Valley Environmental Coalition, OVEC: Grassroots organization in West Virginia dedicated to the improvement and preservation of our environment and communities. <http://ohvec.org/>, https://www.facebook.com/OhVECinWV/info/?tab=page_info

Shaleshock, umbrella organization for anti-fracking groups and information flow across New York State and beyond. <https://www.facebook.com/Shaleshock>, www.shaleshock.org

Shaleshock Media, central repository for free-access videos and other activist media “to protect our communities and environment from exploitative shale gas drilling.” <https://www.facebook.com/ShaleShockMedia/>, <http://www.shaleshockmedia.org/>

Physicians Scientists and Engineers for Healthy Energy, PSE: Independent science-based group “provides a multi-disciplinary approach to identifying reasonable, healthy, and sustainable energy options for everyone.” <http://www.psehealthyenergy.org/>