

Nancy Buchanan, *Full House*, screen image (aerial view of Encino housing tracts) from *Developing: The Idea of Home*, 1994–99, interactive CD-ROM. The concept of home is examined from the personal to the global and environmental, with images, texts, animation, video, and audio. Southern California history exemplifies boom-bust cycles in real estate.

IN THE WEST, IT'S BEEN SAID, NATURE IS POLITICS AND POLITICS is nature. In a literary commemoration of her native land—the Colorado Plateau—Terry Tempest Williams writes: “I believe we are in the process of creating our own mythology, a mythology born out of this spare, raw, broken country, so frightfully true, complex, and elegant in its searing simplicity of form . . . the high points of excursions into the Colorado Plateau are usually points of descent. Down canyons. Down rivers. Down washes left dry, scoured, and sculpted by sporadic flash floods.”



Eve Andrée Laramée, *Fluid Geographies*, 2001–04, detail of installation at Cochiti Dam Turnout, Cochiti Pueblo: mirrors engraved with a list of fifty-five known contaminants buried at Los Alamos National Laboratory (LANL), flowing into the Rio Grande from the Pajarito Plateau, inserted in “scenic overlook” plaques. The artist’s team (Lost Artists in Nuclear Landscapes, or LANL) were threatened with arrest by armed guards for a federal offense—photographing signage.

Down under the land we walk on, more toxic subterranean substances are entering the bodies of southwesterners (and now northeasterners and mid-westerners as well) in the form of the unknown chemicals used in hydraulic fracturing (fracking) for oil and natural gas, in which enormous amounts of water and toxic chemicals are blasted into deep rock to release resources that would be unprofitable to extract any other way. Fracking fluids are generally 99.5 percent water—bad enough. The remainder is a horrific mix of some

750 chemicals that can include acids, xylene, toluene, benzene, formaldehyde, polyacrylamides, chromates, diesel fuel, hydrochloric acid, gels, and methanol. The fracking process has been in use for some sixty years, though the addition of horizontal drilling in the past decade provoked the current boom. “Pumping fractures rock. Fluid invades fracks. Oil comes to Papa,” is how one engineer explained it.

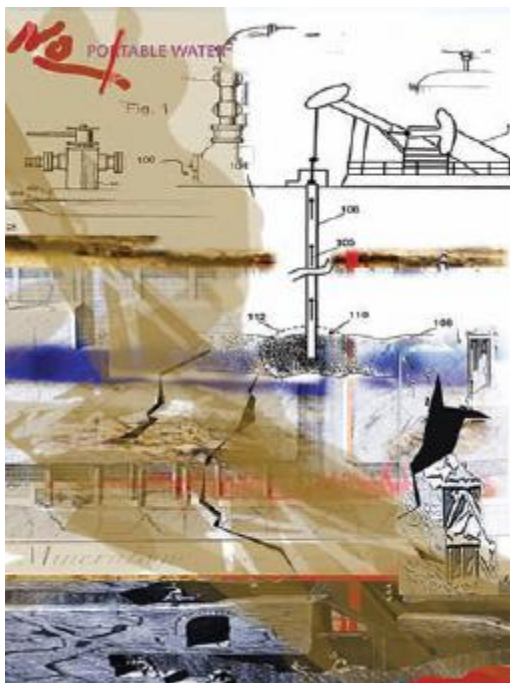
The process is still considered by some to be relatively safe if—and it’s a big if—wells are designed properly and are regularly inspected. The exponential rise of fracking in the last few years has made this a losing battle. The majority of the nearly one hundred thousand oil and gas wells in production in New Mexico alone have been fracked. Not only is the combined state and federal inspection force in this poor state (rich in shale gas) only one hundred strong, but the best petroleum engineers and environmental inspectors are leaving the public sector to work for the industry at double the salary. Until monitoring systems are installed around gas well sites, computer modeling provides the best evidence of abuse.



John Ammirati, *The Plume Project*, 1991, charcoal and water, 210' x 560', converted from film to digital. The artist's studio was in an industrial landfill. The installation, a comment on toxic leaks made with non-toxic materials, inspired by ancient earth drawings, was executed at Candlestick Point State Recreation Area, San Francisco.

Federal monitoring is almost non-existent, with few violations resulting in fines—rare slaps on the wrist for drilling crimes—hardly commensurate with the billions the industry is hauling off. In 2005, Congress and the EPA exempted fracking fluids from the Clean Air, Clean Water, and Safe Drinking Water Acts, but they are being forced to reconsider. Fracking's nasty cocktails can migrate into aquifers through natural faults and fractures more quickly than once predicted—in decades or less, countering assumptions that the rock layers are impermeable.

Not enough is known about the presence or extent of subterranean faults to guarantee that they won't be breached.



Ellen K. Levy, *No Potable Water*, 2011, contaminated water, spray paint, print, and acrylic, 30" x 24" (Photo: David E. Levy). The lower level shows coal mining from Diderot's eighteenth-century encyclopedia; above is a fracking scene from a recent patent drawing promising to deliver "Portable Water." This false promise led Levy to delete the "r" and add "no," yielding the title's warning.



Aviva Rahmani, *Oil & Water #10*, digitized photograph, 11" x 11", 2011, from artist's book inspired by conversations on global warming with Dr. James White and Dr. Gene Turner. Rahmani's mantra is "What the World Needs is a Good Housekeeper."

Evidence of contamination of aquifers goes back as early as 1984, to a case in West Virginia unreported in the media. Even then it was suspected to be among hundreds of cases affecting drinking water for millions. But it was "unproven" and impossible to investigate, in part because the industry is allowed to keep the chemical ingredients secret. Incidents of damage are "unavailable for review," as stated in a 2011 EPA report. The New Mexico Oil Conservation Commission has

approved a rule requiring companies to disclose the chemical contents of their fracking fluids, but the industry prefers to do so only after the fact, when it is too late to protect populations and environment. The diluted current version, backed by then-Secretary of

the Interior Salazar, requires disclosure only within thirty days after use, and the industry is busy finding loopholes with the help of ALEC (the conservative American Legislative Exchange Council). As of April 2012, only eleven states require some disclosure, with widely varying laws. Colorado has model disclosure rules, but New Mexico Governor Martinez is not on board and has even succeeded in getting rid of the “pit rule”—a law requiring plastic linings for copper mining pits. She has supported not a single protection for clean air and the state’s diminishing clean water.



Debbie Fleming Caffery, *Protective Suit Worn by Oil Spill Workers Floating in Oil*, 2010, gelatin silver print. © Debbie

Fleming Caffery. The New Orleans-based photographer, who had previously worked with local fishermen, went on to shoot the disastrous British Petroleum/Deep Horizon spill that spewed 40,000–50,000 gallons a day into the Gulf of Mexico and the Florida Panhandle’s beaches. Human and animal populations continue to suffer serious health problems, which are only expected to worsen.

Leaking, a slow, invisible process, is less dramatic and more insidious than monstrous oil spills like the 1989 Exxon Valdez and the BP/Deep Horizon disasters, which attract all the media. Smaller spills of fracking fluids like one in North Dakota in 2011 get little or no national coverage. While methane (a greenhouse gas twenty times more potent than carbon dioxide) exists naturally in ground water, fracking with faulty cement seals on the well casings is estimated to leak 40 to 60 percent more methane than conventional wells. It takes 1 to 5 million gallons of water to frack a single gas or oil well—more, the second time around. In a classic example of short-term thinking, some Colorado cities are selling their “excess” water (as though any arid western state has excess water) to oil and gas companies, earning revenue while risking their future. In the huge floods of 2013, 18,000 gallons of oil leaked into Colorado rivers. There is also disturbing evidence that the fracking process—particularly the resulting wastewater wells—is causing earthquakes.

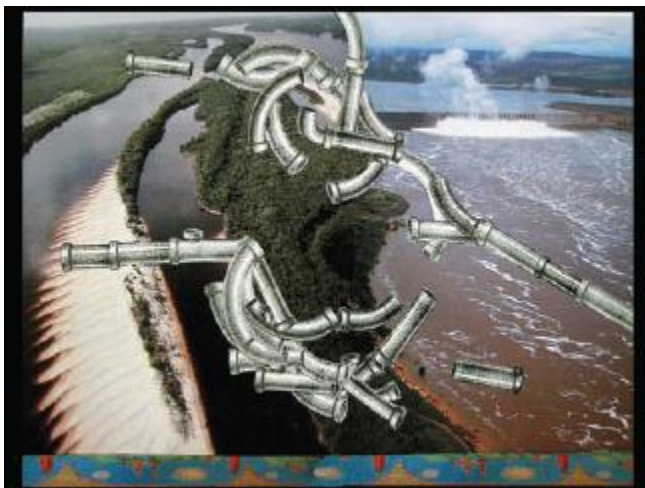


Janet Culbertson, *The First Billboard*, 1989, oil on canvas, 34” x 48”. “Inspired and horrified” at the “pollution and lifelessness” of an industrial area near Elizabeth, NJ—“an image of hell” with billboards touting luxuries, the Statue of Liberty in the distance—the artist chose the billboard as a vehicle for her environmental activism.



Bremner Benedict, *Alewife*, 2004, color print, Gridlines series. An outdated national electrical grid spans the West, defining landscapes with graphic shapes. Rising temperatures and volatile weather challenge its future.

Nobody is looking gift horses in the mouth in these days of economic hardship. Liquefied natural gas is now being exported from the U.S., which means an increase in profits and fracking all over the country, not just in the West but in the vast Marcellus shale deposits of New York and Pennsylvania. In 2011, fossil fuels were the U.S.'s top export and the Big Five gasoline makers enjoyed record profits. A warm winter, and overproduction, however, led to falling prices. There is a shortage of storage for surplus. Laid-off workers are put to work drilling oil, adding to the glut of gas as byproduct.



Christy Rupp, *Flood Plain/Food Plan*, 2010, cut-paper collage, 16" x 20".



Christy Rupp, *Big Bail*, 2010, cut-paper collage, 16" x 20", from the series Wake Up and Smell the Benzene. Nearly half

the fracking in the U.S. is happening in places already water-stressed, like New Mexico, Texas, and Colorado, yet billions of gallons of water are being wasted and prices driven up by energy companies to levels unaffordable for farmers, some of whom are selling their water rights. Some corporations are beginning to recycle wastewater. One Texas oil field uses about half the water recharged annually in an area that is home to 330,000 people.

Jeff Goodell's interviews with billionaire natural gas tycoon Aubrey McClendon reveal that fracking "is about producing cheap energy the same ways the mortgage crisis was about helping realize the dreams of middle-class homeowners. . . . [It's] more about land rights and leases than anything else." In the meantime, major media and official sources are touting natural gas as "inexpensive," echoing the American Petroleum Institute's boast: "Shale energy is the answer. It creates jobs, stimulates the economy, and provides a secure energy future for America." However, following the initial euphoria, a report showed official downgrading of the nation's estimated shale gas reserves by 40 percent and a shrinkage of 66 percent in the northeastern Marcellus shale reserves. Yet the boom is on (and the fix is in).

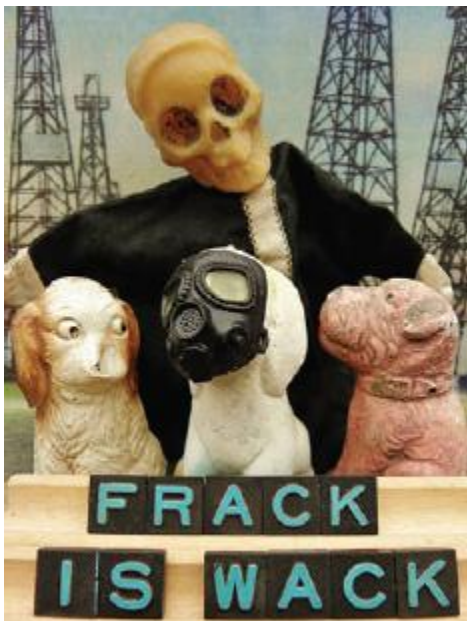
Local geology combined with fracking makes for complex situations.

Increased scrutiny of individuals and communities complaining of health effects and a chemical stench in their water (also known to burst into flames at the faucet) finally resulted in the EPA presenting one thoroughly documented contamination case in Pavillion, Wyoming, from 2005. Reports keep coming: high school students in Texas complaining of nosebleeds, chest pains, and disorientation;

mothers in a Denver suburb reporting asthma, migraines, nausea, and dizziness; Pennsylvania water bubbling with methane or turning brown and causing sores on those who shower in it; cattle and pets dying. It will get worse.



Brandi Merolla, *Where Has All the Water Gone?*, 2011, digital photograph, 16" x 20", 2011.



Brandi Merolla, *Frack Is Wack*, 2012, digital photograph, 16" x 20". Merolla composes and photographs antiques and collectibles “to create mysterious narratives” from their interactions.

In 2011, France became the first country to ban fracking (but not shale gas exploration) until it is proven safe for environment and landscape. In the U.S., Longmont, Colorado, and Mora County, New Mexico, lead a growing list of places with bans, and a number of states are considering them. (In November 2013, even Pope Francis came out against fracking.) On the other hand, many states welcome the process with open arms. Pennsylvania State University even allows fracking on its campus. Thanks to environmental activism—and perhaps to

onomatopoeia—fracking is acquiring a very bad rep. The industry reportedly loves the process and hates the name. Matt Damon, John Krasinski, and Frances McDormand have produced a feature film about fracking in the East—*Promised Land*—which could have been the *Chinatown* of the early twenty-first century.



Louis Helbig, *Residual Bitumen*, N 56.51.42 W 111.20.36, Suncor Southern Tar Pond, Alberta, Canada, 2008, from the series Beautiful Destruction—Alberta Tar Sands Aerial Photographs. A massive dike holds a manmade lake in the Athabaskan Tar Sands north of Ft. McMurray. While the residual bitumen floating on the surface (escaped from the extraction process) is quite dramatic, the brown water/sludge is more dangerous. Waterborne silt, saturated with carcinogens and toxins, is integral to the mining process. In over forty-five years of bitumen production, no commercial process has been applied to dispose of this effluent.

MY CONSTANT MANTRA—LONG-TERM THINKING IS IN SHORT supply—is egregiously confirmed by TransCanada’s proposed (and already partially executed) Keystone XL Pipeline, approved by Canadian Prime Minister Stephen Harper, a Christian Libertarian and not incidentally the son of a Calgary oil accountant. XL would transport the hard-to-extract (hitherto inaccessible) bitumen, or “tar sands oil”—one of the world’s dirtiest fossil fuels—over 1,700 miles, from Alberta in western Canada through private land in the Midwest, across the Missouri, Yellowstone and Platte Rivers, over the vast underlying Ogallala aquifer, to refineries on the Texas Gulf Coast, where it can be shipped out to the rest of the world. According to journalist Andrew Nikiforuk, Harper’s government has muzzled scientists, gutted environmental laws, cracked down on dissidents (even those leaning Right), and ignored water quality in downstream First Nations in his zeal to make Canada “an emerging energy superpower.” The culprit is “a costly junk crude . . . which even Big Oil describes as ugly . . . mined from Canada’s northern forests or steamed from deeper deposits.”



Terry Evans, *South of Williston, south of Missouri River looking north, North Dakota*, April 2012. Evans has photographed the prairie for decades, beginning with “the untouched virgin prairie . . . now it has come to the point where the prairie is being very damaged and very changed.” In her work on the Bakken oil fields, she makes strikingly visible those long-term changes, short-term economic benefits, and the underlying complexities.

In January 2012, the Obama administration rejected the XL pipeline for all the right reasons. Only a few months later, TransCanada was given the go-ahead to begin construction on a 485-mile stretch of the pipeline’s southern leg, without even a thorough environmental review. Native protesters from

Oklahoma (originally Indian Territory) were forced to speak from a fenced “cage” far from the President’s speech announcing an apparent change of heart. Two years later the decision has been postponed yet again, stalled by news of serious conflicts of interest: the consulting firm contracted to decide whether the pipeline would or would not be “good for the environment” had lied about its strong industry ties. Ironically, “Black Eagle” Obama has done more for Native nations than any previous President. Yet on this issue, they are up in arms. Because the project will “desecrate known sacred sites and artifacts,” the Crow tribe, which adopted him as a candidate, publicly stated its sense of betrayal. The Nez Perce tribe has blocked tar sands “megaloads” in Idaho, and Canada’s First Nations joined the Yinka Dene Alliance of British Columbia on a “Freedom Train” to Toronto in April 2012.



Louis Helbig, *Effluent Delta*, N 57.13.58 W 111.33.48, *Shell Albion Sands*, Alberta, Canada, 2008. In June 2013, in a victory for the wildlife of Spirit Bear Coast, the government of British Columbia announced its opposition to the Northern Gateway pipeline, but July brought the tar sands derailment disaster in Lac-Mégantic, Quebec. The southern route is described as a Trojan horse bringing this “asphalt” not to, but through the U.S., endangering local environment for global export.



John Willis, *Water Tower, Pine Ridge*, 2004. Each housing community on the Pine Ridge Reservation has a water tower, reminding the photographer of the poverty of the residents and the government's choices of apparently worthless property for reservations.

Approval of the XL Pipeline will set back renewable energy production, produce three times the carbon emissions of regular mining, threaten drinking water across a swath of the continent, and destroy habitats for rare and endangered species like whooping cranes, piping plovers, and American burying beetles. There have been major protests not only in the Northeast—since tar sands oil may also be shipped across Canada and New England to Portland, Maine—but even in Texas, where it threatens agriculture, public health, and

property rights. By December 2012, Vermont had banned the pipeline, and Montana—where it will cross the Missouri and Yellowstone Rivers—had welcomed it. Nebraska was still thinking about it. So is President Obama.



John Ganis, *Alaska Pipeline, North of Valdez, Alaska*, 2001, chromogenic print. The occasionally leaky pipeline lies near the site of the disastrous Exxon-Valdez spill, since dwarfed by other disasters.

There have already been at least fourteen spills along the pipeline's course since sections began to operate in June 2010. A crude oil spill in the Red Deer River in Alberta, Canada, following a much worse spill in late April 2011, was exacerbated by heavy rains. Cleanups cost millions, while local agriculture and the nation's food supply also suffer. Although the pipeline is touted as a path to cheap gas, a Cornell University research institute concludes that it would

actually raise gas prices in the U.S. ten to twenty cents, particularly in fifteen central states, not to mention the increase in methane gases sent into the atmosphere. Despite Obama's admirable declaration for better fuel economy standards (the last significant update was in 1975), conversion to natural gas vehicles, cutting circa 25 percent of emissions (it's already a fact in Armenia), is waiting in the wings until someone dares to invest in it and construct stations across the country.



Kim Stringfellow, *There It Is—Take It! Owens Valley and the Los Angeles Aqueduct, 1913–2013*, self-guided audio tour along U.S. 395 through Owens Valley, CA, examining the social, political, and environmental history of the Los Angeles Aqueduct system and illuminating the impacts of this divisive water conveyance infrastructure over its century-long history. Aqueduct stories are told from multiple perspectives in the voices of historians, biologists, activists, Native speakers,

environmentalists, litigators, city employees, and residents of Los Angeles and the Owens Valley. California is the first state to explicitly connect transportation and land use to the reduction of greenhouse gases. Half the billions of gallons of water imported from the Owens Valley diversion is now used simply to tamp down dust.

The XL pipeline is a line in the (tar) sand, weighing environmental catastrophe against our apparently inoperable national consumerism. A pipeline inspector turned whistleblower who reported on shoddy materials and sloppy construction on the XL has stated, “I am not telling you we shouldn’t build pipelines. We just should not build this one.”

“THE AMERICAN WEST HAS A DRINKING PROBLEM,” WRITES Pete Zrioka. It is impossible to ignore water here. We watch the skies anxiously in an ever-expanding drought, and we ponder each conflicting report

from developers and hydrologists. As climate change settles in, “the Southwest comes out as one of the big losers,” writes deBuys, citing computer models indicating that by the mid twenty-first century, the region will have a fifth less available water than during the previous century, droughts included. We live in an “orphaned land” as V.B. Price puts it in his comprehensive book on New Mexico’s environment.



Andre Ruesch, *Big Water at 760 Feet*, March 2002. Too much water is still drawn from domestic wells in the Southwest as federal and state agencies grapple with outdated regulations in the face of uncharted territory—a new norm (not just a serious “drought”).

Deep wells and mountain runoff are among the significant pits and erections of the New West. Wars over land here have always been wars over water, as desert land without water is “useless.” Two old western sayings sum up the ongoing situation: “Whiskey is for drinkin’, water is for fightin,’” and “Water runs uphill toward money.” According to the EPA, 40 percent of the headwaters of western watersheds have been polluted by mining. Now these adages are applicable all over the globe, where available fresh water is less than 3 percent of the planet’s water.



Wanda Hammerbeck, *Untitled*, 1991, Lake Powell, Page, AZ. This dam on the Colorado River serves seven states as well as Mexico. Since the water was apportioned during a series of atypically wet years, the river is severely oversubscribed. Nearby is a golf course—a contentious presence in the West. Sustainable models include sand courses and those fed by effluent treated in ponds on the grounds (as at Santa Ana Pueblo’s Tamaya Resort in New Mexico).

WATER ABSENCE-PRESENCE

Average annual rainfall in New Mexico over the last two thousand years is 14.5 inches; in most areas, 2012 clocked less. After the last devastating long-term drought in the 1950s, the state had a welcome but dangerous thirty-year “wet” spell, then returned to normal, which is potential drought with no letup in sight. In 1956, when the Rio Grande

dried up before reaching the Elephant Butte reservoir and ranching was devastated, rainfall was *above* the two hundred-year average. Yet population continues to grow, and the powers that be continue to permit irresponsible expansion. In 2002, New Mexico's water-cooled power plants each used 52 million gallons a year; fifteen new plants are imminent. How much fossil water is left underground? One thing is sure: sooner or later it's not going to be enough.

Most of New Mexico's water is stored in dynamic and variable aquifers below the surface, occupying small spaces between grains of sand or gravel and small cracks or fractures in the rock—notoriously difficult to chart.

Groundwater is not wholly non-renewable like a mineral deposit, but it is not reliably renewable like scarce surface water. Most water that hits the ground is used up by plants and evaporation before it gets to the aquifers. Alluvial aquifers (like our Galisteo creek) lie in sand or gravel; other categories lie in other kinds of rocks—sandstone, limestone, etc. In unconfined aquifers, recharged by rain to some extent, the level of water is the level of the aquifer; in confined aquifers, like those in shales, not much water gets through.



David T. Hanson, *Atlas Asbestos Mine, Fresno County, California* (detail), 1985, Ektacolor print, modified USGS map, and gelatin silver print text panel, 17½"x 47", from the series *Waste Land*, 1985–86. © 2013 David T. Hanson. Landscapes like these “are in dramatic flux, the kind that not only destroys life, but also shapes it and creates it anew. . . .” (Sarah Gilman, *High Country News*, January 23, 2012). (See Hanson, *Waste Land: Meditations on a Ravaged Landscape*. New York: Aperture, 1997.)

The ankle-deep Rio Galisteo (which would barely pass for a creek in better watered regions) accumulates agricultural runoff in its short journey from the Sangre de Cristo Mountains to the Rio Grande, where it joins the waters committed to several states in two countries, the U.S. and

Mexico. Downstream from Los Alamos, the Rio Grande is threatened by decades of sloppy nuclear waste burial. Sandia National Laboratories, which operated a nuclear weapons dump from 1959–88, “is estimated to contain 1.5 million cubic feet of

radioactive and hazardous wastes disposed in unlined pits and trenches.” In late 2012, authorities triumphantly announced that they may have found the edge of the plume originating there that is threatening Albuquerque’s drinking water aquifer. In 2013 they announced that a jet fuel line leak from Kirtland Air Force Base (rumored to be twice the size of the Exxon Valdez spill) has not (yet?) reached the city’s water supply.



Richard Misrach, *Bomb Crater and Destroyed Convoy*, Bravo 20 Bombing Range, NV, 1986. Misrach describes the site on alkali flats between the Stillwater and Humboldt ranges and the Carson Sink, on land once occupied by Paiute tribes: “Only the smell of rusted metal. Bombs and lifeless holes. Side-by-side were great beauty and great horror. . . .”

Given another saying—*aqua es vida* (water is life)—it makes sense that the tanks of our village’s Mutual Domestic Water Consumers Association stand right between our two cemeteries. For close to a century, Galisteo farmers depended on *acequias* (Arabic for irrigation ditches) brought to northern New Mexico by the Spanish in the late sixteenth century, though the indigenous Hohokam of the Phoenix Basin had built an extraordinary ditch and canal system a millennium earlier. Over centuries of Native and Hispano culture, the acequia has represented communal endeavor. The large scale “American”

ditches of the nineteenth and twentieth centuries, like the Aztec and Inca ditches in northwestern New Mexico, were commercial schemes that sometimes paid off and sometimes didn’t. But the little ditches in the precarious valleys of the Southwest, dug by the Spanish/Mexicans in the seventeenth and eighteenth centuries (a few wooden flumes still exist) made life possible. Galisteo’s ditches were left high and dry when erosion—resulting from overgrazing, deforestation, railroad construction, and, some say, the eruption of Krakatoa halfway across the world—cut the creek 20 feet down into the arroyo, ending access and any future for farming in the village.



Joan Myers, *Old Galisteo Cemetery and Community Water Tank*, 2013. Water was hauled in wagons to village homes until 1962 when the first community water system was initiated by residents.

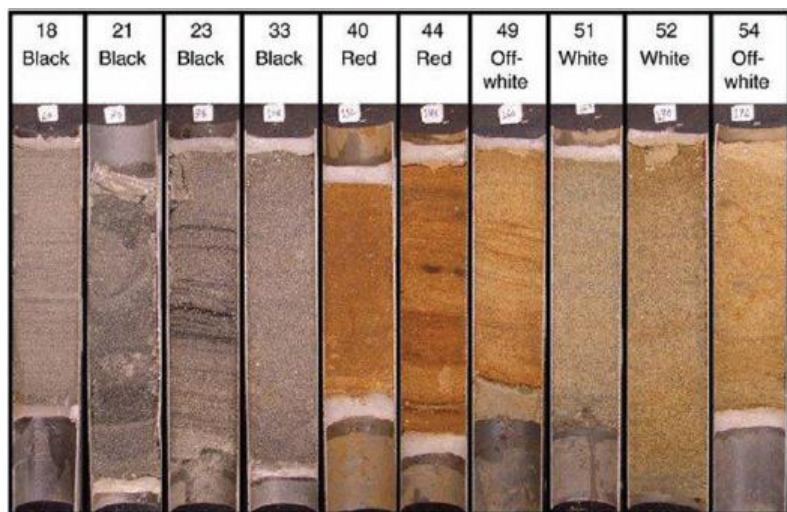


Sharon Stewart, *Teddy at the Desagüe, the Annual Spring Cleaning of the Acequia Madre, El Cerrito, N.M.*, 1993. © Sharon Stewart. The desagüe is the gate used for flushing detritus from the freshly cleaned and recharged gravity flow irrigation ditch back into the Pecos River.

Mutual Domestic Water Consumers Associations are ubiquitous small independent community systems with a fixed number of water rights (Galisteo has 42.56 acre-feet annually; an acre-foot is roughly 326,000 gallons). This number does not change when communities grow, although the state is required to allow anyone not hooked up to the current system to dig a private

well using up to (and often more than) a quarter acre-foot annually. (I waited for almost eighteen years to hook up to the system, hauling water after my well went bad.) Few rural settlements in New Mexico have community sewers, and the dangers posed by makeshift septic tanks to clean water

systems are becoming obvious. (When one old adobe home in Santa Fe was being tarted up, the septic tank was found to be a rusted Chevy chassis.)



Hydrologic Core. (Courtesy of the *Journal of Contaminate Hydrology*, vol. 99, nos.1–4, July 2008). At a meeting with a local hydrologist, I was drawn to a hydrologic core that showed soils 600 feet down in the Galisteo Basin, a cylinder extracted from the earth to analyze soils for pending development in my own neighborhood. “Core logs” offer subtly varying colors and textures, evoking eons of geologic history. This record of my turf was a “readymade” that would stand up in any gallery and had far-reaching implications for the area.

Among the greatest changes—and indicative of how the old acequia culture is giving way to modernity—is the younger generation’s proposal that those with more water rights have

more votes, instead of the traditional one vote, one *parciante* (member). Even that democratic holdover, still employed by many acequias, has often succumbed to the use of proxies from family members still listed on deeds but no longer living on their land. When bonds to family, neighbors, and acequias weaken, outside forces can step in and take advantage of divided loyalties. Water rights become simply private property

rights, contradicting “the very concept of water as a community resource,” writes Kay Matthews, fearless editor of *La Jicarita*, who lives in El Valle, a village to the north that is smaller and more isolated than Galisteo and still maintains some agriculture and three acequias. She has dared to expose “what we don’t talk about. . . . How the internecine bickering and demographic changes within this community are just as big a threat to acequia vitality as is the transfer of agricultural water to what the powers that be define as the ‘highest and best’ uses: urban, industrial, and recreational.”



Simparch (Matt Lynch, Steve Badgett, et al.), *Solar Stills*, 2007, detail of *Hydromancy* at the Rubin Center, University of Texas, El Paso, an offshoot of their Dirty Water Initiative; sound from both sides of the Rio Grande by Steve Rowell. “Simple architecture” fuses pop culture and DIY engineering. Rio Grande water from a holding tank on the hilltop was purified in the stills, then dripped into the gallery, via a temporary aqueduct, forming a puddle and drinking “fountain.” The apparatus was later donated to Mexican communities.

Water prices range from \$12,000 per acre foot in some areas to \$30,000 in other more desperate places. Surface water is prioritized over aquifer water (which requires more treatment). “Paper” water rights parallel “wet” water rights in labyrinthine legal squabbles that can last decades. Today, corporate forces are buying up small agricultural water rights to send to metropolitan centers, endangering river ecosystems, forcibly fallowing small farms, and diminishing local food production. This, in turn, cranks up the amount of energy expended and exacerbates climate change. In early 2012 a New York-based company applied to pump billions of gallons of groundwater from a ranch near Magdalena in southwestern New Mexico to make it available to the cities. It was the largest amount of water ever sought by a private entity—about twice what the city of Santa Fe currently uses in a year—and the application was totally speculative, intended for no specific project. Enraged locals protested, and eventually, to a state-wide sigh of relief, a newly appointed State Engineer turned down the request. This does not mean we have heard the last of it.



David Ondrik, *Elephant Butte*, 2004, archival pigment ink print. As a child, Ondrik boated and jet skied on the reservoir. Returning as an adult, he found a new island exposed by years of drought and “Please Add Water”—a local call for help—spelled out in stones on the ground. Some 75 percent of New Mexico’s water goes to agriculture, which has simply “outgrown its water supply” (*High Country News*, February 18, 2013).



Water Meter on Site of New Subdivision Overlooking the Galisteo Basin, c. 2007.

Elephant Butte Reservoir in south central New Mexico is the state's largest body of water. The dam was built in the early 1900s for flood control, irrigation, and water distribution. It has been described as the "Rio Grande bank account for Colorado, NM, Texas and Mexico . . . the place where their water debits and credits are counted" and the place where the buck stops in the midst of our periodic droughts, rising population, agricultural demands, and unstable climate. Were it not for the Buckman Direct Diversion (BDD) into the Rio Grande, tunneled through mountains from the San Juan and Chama Rivers to the west, northern New Mexico would already be in trouble;

it provides some 50 percent of our water, more than twice as much as the sinking reservoirs. In December 2012 it was announced that if the drought continues, the water received from San Juan Chama by the Middle Rio Grande Water District may be cut by 20 percent. The cities will survive on storage for the time being, but farmers may have to cut their growing season by one week, and many small towns will also suffer. Even the astounding rains and devastating floods of September 2013 did not solve these problems.



Bremner Benedict, *Dry Lake*, 2009, color print, from the Re-Imagining Eden series (“Wayfinding” chapter). This series describes the arc of a child’s maturity and her gradual distancing from the natural world as she grows up. In “Wayfinding,” the artist’s daughter finds her identity in encounters with nature. In “Field Trip,” she experiences a vanishing state of the natural world as a fantasy in natural history dioramas. Finally, in “Wanderer,” she becomes a virtual girl in a simulated natural world painted on city walls.

The U.S. and Mexico have agreed on a five-year pilot project to update the Colorado Water Compact so it is more

equitable, more efficient, more conservation-oriented, and to restore the badly damaged Colorado River Delta. The New Mexico Interstate Stream Commission is in the process of updating the State Water Plan (covering sixteen water planning regions and twelve major river and groundwater basins) for the first time since 2003, and about time. But statewide planning, involving rivers that flow from one water district or county to another, one state to another, and one country to another via national and international water compacts, is a complex challenge. Mexican and Texan farmers are already fighting over water from the Rio Grande and Pecos Rivers. And as usual, Native water rights are even more precarious. Few Indian treaties deal with water in dependable legal terms, but in August 2013, the Navajo Nation was awarded enough water from the San Juan River to irrigate 40,000 acres of farmland, which was less than anticipated; its claims on the Colorado River could amount to more than 10 percent of the river's flow.



Robert Dawson, *Shotgun shell casings and Truckee Canal, near Fernley, Nevada*, 1992, dye color print. Locals living along the Truckee River were skeptical about water restrictions despite living in an (unacknowledged) desert. “Why conserve water when it will just be gobbled up by casinos and developers? Might as well use it till it’s gone,” said one. And another: “I’m not going to let my lawn die if they are going to keep letting people from California move in and do here what they have done in L.A.” (*A Doubtful River*).

The Santa Fe River, running through the city, has been mostly dry for decades. Even during a recent year of dire drought, popular legislation was passed to release a paltry 1,000 acre-feet, in “pulses,” to begin the restoration process. A “living” river is

recommended not only for the ecosystem, quality of life, and survival of wildlife, but as an asset to tourism, always a consideration in the Land of Enchantment. While domestic rainwater harvesting seems to be a sensible decision, in some western states it is discouraged or even illegal because it swallows a large enough proportion of runoff to affect interstate and international compacts; eco-aware homeowners have actually been arrested. In parts of New Mexico, harvesting is encouraged. During peak summertime water use in Santa Fe, 44 percent of its water goes to landscaping, although the city is something of a role model, using only 105 gallons per capita per day—one of the lowest rates in the country (Phoenix uses circa 185 Los Angeles, 123). To avoid dry mouths, it is estimated that we will all have to get down to 85 gallons per capita by 2045.



Flash Flood, November 20, 2010, Santa Fe, NM (Photo: Michael Clark). The Santa Fe EARTH event, created by

350.org and the Santa Fe Art Institute, showed the Santa Fe River—one of the ten most endangered rivers in North America—with a blue “stream” running through it. Over one thousand people held up blue cardboard, tarps, or fabrics while a satellite passed over. A 2013 U.S. EPA report found that more than half the nation’s rivers and streams are in biologically poor health.



Edward Ranney, *Water Storage Tanks Looking Northeast to the Sangre de Cristo Mountains, Chaquako, New Mexico*, 1974. Chaquako is an old ranch in the western Galisteo Basin where Ranney has lived for over forty years.

CLIMATE CHANGE UPS THE ANTE. A 2012 NRDC ANALYSIS FOUND that twenty-nine of the fifty states have done little or nothing

to prepare for the effects of climate change on their water supplies. Incredibly, New Mexico, Arizona, and Texas are among those that have done the least. New Mexico state regulators have unwisely overturned a feeble cap-and-trade program to control greenhouse gas emissions, despite the fact that May 2011 to April 2012 was the warmest consecutive twelve-month period on record in the contiguous U.S. Predictions are 3 to 6 (or 8) degrees hotter and 300-foot-higher sea levels by 2050. (In a quasi-art intervention, the Maldives Cabinet met underwater to make the point that rising seas will inundate their islands.)

While we may have heard too often that “everything is connected,” there is no longer any doubt that it is. We ignore this truism at our risk. Water drained from the land undermines everything. Access to water should be a universal right, though not in plastic bottles. Global water security is already

precarious. Well over half the world’s population could face water shortages by 2025. And a handful of nations, including the U.S., are “guzzling their groundwater reserves” much faster than they can be renewed. We would rather have wars than collaborate on solutions to climate change. The creeping desertification of northern Africa serves as a ghastly warning for our own southwestern deserts. A recent U.S. intelligence report selfishly presented imminent water wars as a boon to the nation: we will pick up the slack on agricultural and industrial production made impossible in other countries by water scarcity. The need for genetically modified crops is also implied, which explains a recent ad from Monsanto headlined “How Can We Squeeze More Food from a Raindrop?” citing hybrid and biotech seeds as the answer. A blooming desert (like that in Israel, sustained by stolen Palestinian water) is

only within reach by expending massive amounts of water—a contradiction in practice. Wealthy brokers continue to steal water, though the people of Bolivia won a significant battle in 2000 when they pushed back the privatization of national water resources.



Richard Misrach, *Dead Animals* #327 (“*Desert Cantos Canto VI: The Pit*”), 1987, digital chromogenic print, 30" x 37". The Bravo 20 bombing range in Nevada was described by the artist as “the most graphically ravaged environment I had ever seen.” Along with burned out and abandoned tanks and weapons and toxic dumps of napalm and jet fuel, Misrach found pits of dead horses and cattle. (For a history of the military occupation of the American West, see Myriam Weisang Misrach’s text in Misrach, *Bravo 20: The Bombing*

of the American West. Baltimore: Johns Hopkins Press, 1990.)



Robert Dawson, *San Francisco's entire water supply from Hetch Hetchy flows through this pipe, near Mather, California*, 1992, gelatin silver print.

It is said that a good definition of a local is someone who gives more than they take. The same obviously goes for the global citizen. I'm always depressed by a much-quoted statistic: The U.S., with 5 percent of the population, uses 20 percent of the world's resources. Add China and it's almost 50 percent. Our way of life is endangering the whole world and those in charge seem powerless to stand up to the powers that profit from this global colonization. The poor pay the rich

for their use and abuse of natural resources. Few Americans take into account the 95 percent of individual water consumption that is hidden, or indirect—like the 338 gallons needed to produce a 3-ounce steak, or the 2,900 gallons to make a pair of jeans, or the 44 gallons for one glass of orange juice. The true environmental cost of a McDonald’s Big Mac is \$200. Take it from there. . . . We can control our individual water footprints by paying attention to what kind of clothes and food we buy, how far they have had to travel, and at what cost, to reach our bodies—consumer’s choice. (Those of us who shop mostly at thrift shops can smugly halve the expenditures.) The ever-diminishing flows, runoff, and monsoons should be haunting us. When all the water is sucked out from beneath us, we too go under.



Postcommodity (Raven Chacon, Cristobal Martinez, Kade Twist, Nathan Young), *P’oeiwe navi ûnp’oe dînmuu* (My

Blood is in the Water), 2010, installation with sound (mule deer taxidermy, wood, water, red pigment, amplifier, drum), Museum of Contemporary Native Art, Santa Fe. The New Mexico-based Native multimedia collective deals with issues of land, culture and community, “pulsing as a beacon of indigenous noise.” Dripping “blood” is amplified on the drum.

PHOTOGRAPHY PLAYS A MAJOR ROLE IN COMMUNICATING land use issues to a public that resists change and takes our places for granted. Though we no longer see photography as “truth,” and Photoshop has made lies easy, it still implies first-hand experience like no other medium, and works in the gap between art and life where I like to hang out. Art is a framing device for visual and social experience, and even photographic art forms cannot dispense altogether with the frame. Changing frames on the spot, offering a set of multiple views of the ways a space or place can be seen or used is one alternative, now theorized as “sequencing.” Since I began writing about photographs years ago, I see them everywhere, untaken, but framed, in my mind’s eye. As Dorothea Lange once said, “A camera is a tool for learning how to see without a camera.”



Michael Berman, *Bulldozed Spirals, Fowlkes Ranch, Texas, from the Chihuahuan Desert Project*. (See Charles Bowden in *Bowden/Berman, Trinity*. Austin: University of Texas Press, 2009.)

Yet without the aid of informative captions we have no idea what part of the world we're seeing—where it is, how it got that way, or what part of life it shelters. Socially engaged landscape photography is dependent on verbal contextualization. The photographer, having “been there,” may feel she has captured the place, but communicating her fragments of insight to those who haven't been there or even to those who live there is another matter altogether. Cryptic, ironic, arty titles or captions, or none at all, distance the

viewer from the subject by transforming it into a non-referential object, unleashed from anyone's reality.

The West's dramatic landscapes can be made merely melodramatic by generalized or banal imagery, overwhelming place with image, floating off into artland on the wings of over-filtered clouds. These images are preferred by the apolitical connoisseur since they appear to have no content, though some of the most gorgeous have been used as propaganda to grease the wheels of manifest destiny and tourism. For this reason, all landscape photography can be implicated in the failure to articulate the social importance of landscape and land use. At the same time landscape photography has historically been a weapon in the battle to save the environment. With a critical edge, it can be a unique way of communicating many levels of places to those who will never see them first-hand.



Subhankar Banerjee, *Known and Unknown Tracks, Oil and the Geese*, 2006, 68" x 86", Teshekpuk Lake wetland, AK. The photograph was used in the campaign opposing oil and gas development in this Central Arctic wetland. Linear tracks on the tundra are from heavy seismic exploration vehicles used by oil companies. There should have been no development permits for this ecologically significant section of the wetland, but the George W. Bush administration opened up the area. Environmental groups and the indigenous Inupiat community filed a successful lawsuit against the U.S. Department of the Interior. For the moment the wetland remains development free, unlike many of its counterparts worldwide.

The photographers represented in this book are among those who are deeply aware of the meanings embedded in their

images, even when they are not obvious. Some, like Subhankar Banerjee, known for his stunning images of the Arctic and his eloquent advocacy on its behalf, declare themselves activists first and artists second. (Banerjee's *Climate Storytellers* blog is an integral part of his work.) Many are not challenging their medium in art world terms, because individual style may not be their primary concern; in fact, it can be difficult to distinguish their works. Yet there is a fundamental disjunction: when even the most critical photographs are exhibited, they become art objects. Their activism is in danger of being diminished by context. Where a view of the future, an imagined landscape, is called for, painting can be equally effective.



Amy Stein, *Howl*, 2007, chromogenic print, 24" x 30". (Collection the Nevada Museum of Art, The Altered Landscape, Carol Franc Buck Collection). The coyote is stuffed. "The use of taxidermy in the series is integral to its meaning and something I've been pretty open about," writes Stein. "Each image from the series is based on true stories of human/animal encounters in and around Matamoras, Pennsylvania," but it could be anywhere in the U.S. Coyotes rule.

I think of a photograph as a field rather than an artifact, suggesting sequence, layers, and periphery even when the number of images is limited. In a sense, photography is the original readymade, "found" in the moment it is taken and again in the moment it is perused. As Jan Tumlir has suggested, the photographic process is subtractive, "literally a cut into the space time continuum. It is a minute, fragmentary part of an infinitely greater whole—the world that is shaved off at its edges." Photographers talk a lot about edges and the ethics of cropping, the effects on formal decisions and visual margins, as well as on marginality in the social landscape. The most powerful images present not just what we see; they are also haunted by what we don't see.



John Willis, *The Mass Gravesite at Wounded Knee*, 2002. In 1890 the U.S. Seventh Cavalry massacred more than two hundred Miniconjou and Hunkpapa Lakota, led by Chief Big Foot, who had already surrendered. In 1973, the Wounded Knee occupation by the American Indian Movement protested federal practices in Indian Country. Amnesty and open talks were promised but not delivered.



Robert Adams, *A second growth stump on top of a first growth stump*, Coos County, Oregon, 1999 (Courtesy of Fraenkel Gallery, San Francisco; Matthew Marks Gallery, NYC). © Robert Adams.

Photography has been called the only art form that is still disputed. Virtually every other medium (or esthetic strategy) has been welcomed into the “high art” canon . . . or dismissed as “low art.” Photography remains in a kind of privileged limbo—even as it dominates the contemporary art scene with video, installation, documentation, testimony, and esthetic invention, even as it appears in museums, attracting more and more critical attention, perhaps precisely because it does remain contested ground. Scale has something to do with this. Movie screens and huge flat-screen TVs have set the mark.

Photographers aiming for the museum/gallery scene realized long ago that size counts. In order to compete with contemporary paintings and sculpture, photographs sometimes rival in size the scenes themselves, recalling Jorge Luis Borges's map that was so detailed that it covered the entire area

it described. The longtime standard 8 x 10-inch or 20 x 36-inch prints now seem overly modest, especially when displayed in the increasingly cavernous galleries of New York's Chelsea art district. At the same time, looking in rather than out, better (and more expensive) technology allows extraordinary attention to detail; a new device will even refocus entire images, so the background becomes as sharp as the foreground. What does this mean for vision itself? A deeper map or a shallower one?



Robert Adams, *Clearcut, Humbug Mountain, Oregon*, 2001, from his book *Turning Back*, a photographic journal on the anniversary of the Lewis and Clark expedition, including images of clearcutting in Oregon, where the photographer lives. (Courtesy of Fraenkel Gallery, San Francisco; Matthew Marks Gallery, New York). © Robert Adams. Adams has referred to this destruction of old growth forests as “ecocide.” *Science News* (May 22, 2010) reports that some 3 percent of forests standing in 2000 were gone by 2005.

The context of documentary photography in particular—originally the purview of journalism rather than high art—has endowed it with a functional mission once associated in the public eye with infallibility, fueling a barrage of criticism over the last few decades. Spanish writer Pepe Baeza contends that both press and documentary images have become pawns of the advertising industry, a co-optation necessary to business because reality interferes and conflicts with marketing. Because the same images are used for everything,

reality is reduced to “stereotypes that conceal the diversity of the phenomena to which they refer, and conceal the most obvious information—who is *benefiting* from such injustice and violence.” While blockbuster photography, war correspondence, and the spectacular continue to get most of the attention, the social consequences *in place* are often neglected.



Robert Adams, Denver, *Colorado*, 1973–74. (Courtesy of Fraenkel Gallery, San Francisco; Matthew Marks Gallery, New York; and Yale University Art Gallery). © Robert Adams. Adams was one of the first photographers to focus on the extent of western agricultural land being swallowed up by subdivisions and shopping malls. “No place is boring,” he wrote, “if you’ve had enough sleep and have a pocket full of unexposed film.” (See Robert Adams, *The New West*. New York: Aperture, 1974/2008).

Landscape photography is a unique kind of documentation, and it has been redefined by any number of talented photographers, heirs to the 1970s New Topographers, who insisted on context and a seriality that is quasi-narrative, though inevitably fragmentary. “We rely, I think, on

landscape photography to make intelligible to us what we already know,” writes Robert Adams, whose serial approach to landscape photography gave it a new social life. “Landscape pictures can offer us 3 verities (truths): geography, autobiography, & metaphor. Geography is, if taken alone, sometimes boring, autobiography is frequently trivial, and metaphor can be dubious. But taken together . . . the three

kinds of information strengthen each other and reinforce what we all work to keep intact—an affection for life. . . . What a landscape photographer traditionally tries to do is show what is past, present, and future at once. You want ghosts and the daily news and prophecy. . . . It’s presumptuous and ridiculous. You fail all the time.”



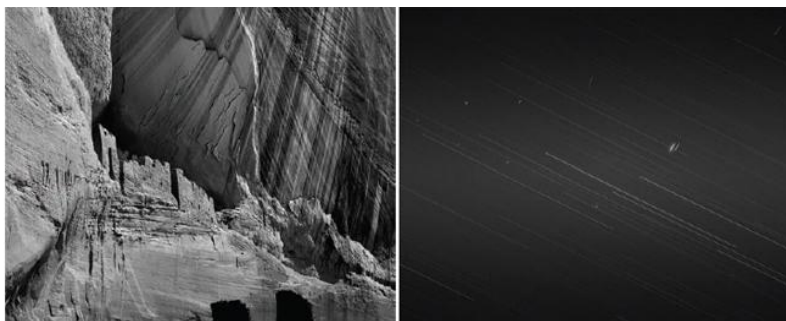
Peter Goin, *The Liberty Pit*, Ruth, NV, 1986. In 1909, the Nevada Consolidated Copper Co. excavated the Liberty shaft, which became a large, open-pit copper mining operation, contaminating water supplies. By 1986, the pit was inoperative and filled with water.



Judy Natal, *Wrapped Saguaro*, Las Vegas, NV, archival inkjet print from *Future Perfect* (2006–12): “a photographic sweep” of three sites where we can imagine the future: a sustainable Las Vegas desert preserve, Biosphere II’s controlled ecosystems (Oracle, AZ), and Iceland’s geothermal landscapes.

The battle between esthetics and reportage in landscape photography is an old one, but has yet to be resolved, which is

a good thing, since it forces artists, critics, and environmentalists to carefully consider images and the artists' intentions. Driven by a short-lived conviction that there was no point in putting more stuff into the world, conceptual artists in the 1960s and 1970s focused on the appeal of absence rather than presence, the invisible rather than the visible, the dematerialized rather than the commodified object. The snapshot, often paired with Xeroxed texts (now called "photo-text work"), became a staple of Conceptualism.



Trevor Paglen, *Artifacts (Anasazi Cliff Dwelling, Canyon de Chelly, Spacecraft in Perpetual Geosynchronous Orbit, 35.78 kilometers above Equator)*, 2010. Some of the militarization of the West is invisible intrusion from above. Paglen suggests the abyss between celestial significance for those living in Canyon de Chelly in the thirteenth century and today's covert operations in space, using photography, astronomy, and "subversive geography" to represent the limits of vision.

Today, while specificity and local knowledge provide the base lines when the vortex of land and lives are being followed, a rich liminal space has opened up between disciplines, between "fine art," photography, geography,

history, archaeology, and sociology—space occupied, for instance, by Trevor Paglen, whose “landscapes” follow the night skies and the black sites of governmental secrecy. He coined the term “experimental geography”—the title of an important exhibition. Curator Nato Thompson says Paglen “combines the tools of urbanism and cultural geography with those of contemporary art. . . . Using both tool sets (and the fields that inform them) allows him to consider knowledge as a complicated performance.” CLUI is the leading contemporary model of this new conceptual art. Although its projects are often described as a maverick “land art,” the center is actually a significant innovator in landscape photography—so much so that it has undermined the entire genre by reimagining what it might be in extra-art terms. Black Mesa, Mount

Taylor, Zuni Salt Lake, Blackwater Draw, and the Chino Pit are the kind of layered and contradictory sites that are grist to its mill.



Center for Land Use Interpretation Photo Archive, *Cathedral Canyon, Nevada, 1999*. Religion rationalizes destruction.

Many of these photographers have struggled with the beauty of ugliness. Photographs of wounds on the land, sculpturally destroyed or picturesque—graphic aerial shots or colorfully polluted waters—can be so striking that the message is overwhelmed and misery or horror is merely estheticized. On the other hand, beauty can powerfully convey difficult ideas by engaging people when they might otherwise turn away. Those who choose beauty for tragic subject matter are most effective when they're also aware of the flipside—when their choice of beauty is a conscious means to counter brutality.

WHERE DEVASTATED LANDSCAPES PROVIDE FODDER FOR photographic advocacy and raw materials for land art, the next hopeful step—in tandem with progressive land use politics—is a focus on actual recycling, reclamation, or remediation. There are hundreds of thousands of exhausted sites littering the national landscape, waiting to be made meaningful: unsightly, dangerous quarries and mines, clearcut forests, slag heaps, mine shafts, trampled riparian areas, piles of hazardous waste leaking into our vulnerable waterways, and overgrazed pastures (victims of the Taylor Grazing Act of 1934). As Wes Jackson of the Land Institute in Salina, Kansas, often says in his pleas for agricultural polyculture to replace our disastrously expanding monocultures, “There’s more to be discovered than invented.” This caveat might have come from conceptual artists, recalling the Duchampian readymade esthetic. From Cubism and Dada to the present, artists have recycled society’s detritus, sometimes to comment on its origins. Abandoned industrial sites begging for imaginative remediation, or

damage control, qualify as large-scale found objects, but they are hard to access, not to mention running the gamut of endless bureaucratic rigmarole for permission, and finding the funds. There are Superfund sites that require superfunding. Money for art is way down the list. At the moment, in a nation with backwards, impotent environmental laws and without any cultural policy, there's little support for artists who want to challenge archaic regulations and create social and environmental change, especially in rural areas. Those brave enough to proceed must be braced for long confrontations, not just with the opposition but with clueless local bureaucracies. Maybe this is where the burgeoning global DIY (Do It Yourself) movement comes in, recalling the 1960s and 1970s when artists strove to act and make art independent of the commercial art world.



Patricia Johanson, *Ellis Creek Water Recycling Facility, Petaluma, California, 2000–09* (detail). The project is a

public park designed as a magnified image of living organisms (the Salt Marsh Harvest Mouse and Morning Glory pools), which simultaneously treats sewage, collects and cleanses stormwater, grows crops, creates wildlife habitat, and provides recycled water for urban and agricultural use (in the reservoir at the end of the mouse's tail). Nesting islands and duckweed (food for waterfowl) partially cover the water surface, keeping the system in balance.



Hardrock Revision (Grant Pound, director), Colorado Art Ranch, Lake City, CO. Environmental artists at a 2011 interdisciplinary residency suggested restoration projects for toxic tailings at the Ute Ulay Mine (named for the Indians it displaced in 1873). The EPA has approved a \$1.3 million cleanup. Bland Hoke, *Miners Tarp*, proposal to showcase and preserve the heritage of those who labored long ago (and protect the roof).

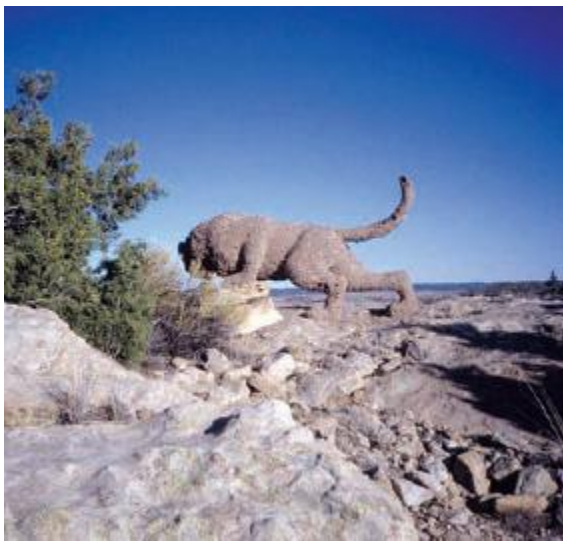


Linda Wysong, *Local Material*, photo collage—timber headframe for pulley into mineshaft; gabions of different rock types.

All of us concerned with the intersections of art, nature, and society (or “political ecology”) need to learn how to read these competitive bureaucracies. Working primarily with art for years, I had no idea how complex and frustrating they could be until I started to get my feet wet, so to speak, in watershed protection, county open space, community planning, and local land use controversies. It’s never easy. Among many cautionary tales is that of eco-artist Ciel Bergman, member of a group that invented and briefly produced plasphalt, a product consuming all types of unsorted waste plastic; it is now being used on highways in India and China, but the New Mexico company went bankrupt due to lack of local governmental support.



Anna McLeod, *Proposal for Watertower/Camera Obscura*, mixed media. The Ute Ulay's redwood tower becomes a viewing device where space, time, and presence collide. (See Emily Guerin, "It's a hardrock life," *High Country News*, February 4, 2013.)



Shira Landman, *Adobe Mountain Lion*, Galisteo, c. 2005.

If we fail to heal what Karl Marx called “our metabolic rift with nature,” it will just go on without us. New species will arise to replace those we have killed off. We need nature. Nature doesn’t need us. It will simply be a different world. The model for reclamation art is often nature itself, in response to society’s interventions. Nature takes what it is given but is likely to fight back in unexpected ways. And the assumption that her services are free disregards the trillions of dollars needed to restore our degraded ecosystems, as Jane Gleeson-White points out. Three quarters of American bird species depend on wetlands for rest, food, or nesting, but over the past two centuries

we have destroyed 60 acres of wetlands every hour. The devastating drought in Texas has dried up the wetlands necessary to migratory birds, and the BP oil spill in the Gulf

of Mexico has made killing grounds of many habitats. As a result, gravel pits and even nuclear sites have become new eco zones (or potentially toxic parks)—partly because so much habitat is being destroyed by heedless growth that wildlife has to settle for what it can find. Abandoned pits and quarries become sanctuaries faster than anyone thought possible. A few years ago, an Ohio pit slated to become a landfill was discovered by migrating birds before people could act to make it a dump, which led to its (temporary) protection.



Dorie Klein, *Deer, Birds Nest, at the Rocky Mountain Arsenal: Detoxification into Perpetuity*, 1994. A de-commissioned Army base in Denver—the largest Superfund site in Colorado—is being transformed into a (dangerous) wildlife preserve.



M-12, *International School of Rural Experiences*, 2012, abandoned mine site, Nevadaville, CO. M-12 is a Boulder-based artists collective. This particular experiential “school” focused on mining sites and “ghost towns” in Gilpin County. Students felt “loss” and “vacancy” at the mine and remains of workers’ housing; they composed memorial music, amplified with microphones dropped into the mine shaft.

Although there are no illusions that anything can be returned to its “original” condition, art’s purpose, as defined by James Baldwin, is “to lay bare the questions which have been hidden by the answers.” Precedents for art as remediation have been set since the 1960s by Ukeles, Smithson, Holt, Helen and Newton Harrison, Johanson, Mary Miss, Agnes Denes, Stacey Levy, Rahmani, Lynn Hull, and Harriet Feigenbaum, among others. If the heyday of huge earthworks

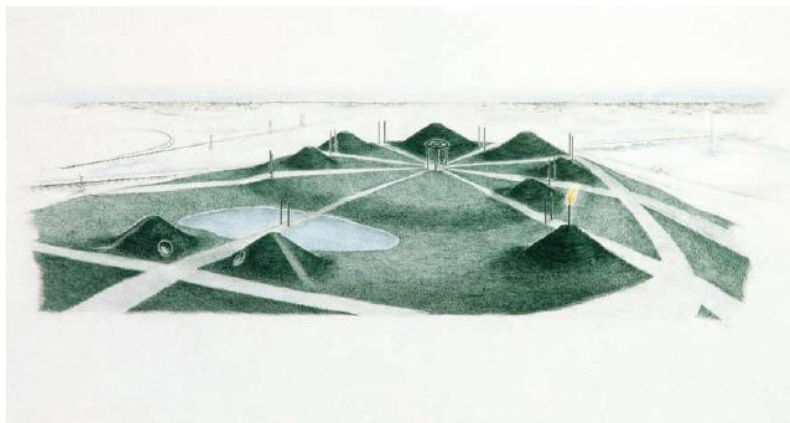
may be largely in the past, ambitious reclamation projects make sense. Here is a real and valuable function for artists who think big and really do want to escape cultural confines. (A one-percent-for-art program in the remediation/cleanup field would pick up the pace.) What is now called “eco art” differs from the earthworks of the 1960s and 1970s in its raised awareness of ecological issues and climate change, and in its strategies for invading infrastructural systems, sometimes collaborating with scientists. As theorist Timothy Morton has wryly observed, “we will lose nature, but gain ecology.”



Peter Goin, *Old Town Mine View, Virginia, MN*, 1996. Some thirty-three people died in abandoned mine accidents between 1999 and 2007. Here a caged-in lookout protects sightseers from the potentially threatening landscape—a massive, heavily revegetated pit.

Ecosystems are local and specific. What goes for a forest in New Mexico does not go for a forest in Oregon or Brazil or Indonesia. Artists, architects, landscape architects, and sometimes community activists working together in urban contexts have come up with some provocative notions about how to transform the world’s accumulating

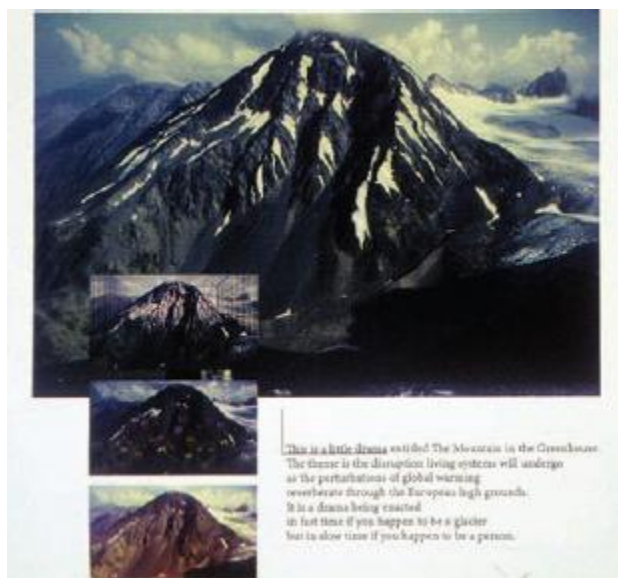
brownfields—from abandoned mines or railyards like the Santa Fe Railyard Park and Plaza, to immense factories and a cemetery in Europe. Pioneer solid waste artist Ukeles has worked for decades with the New York City Department of Sanitation. She pointed out almost forty years ago that it's no accident that so many women artists have tackled the handling of waste, maintenance, and cleaning up after civilization. Nature or nurture? Women identify with “nature,” not because of “essentialism,” but because we share with nature the dominant culture’s attempts at control. Issues of urban waste management and recycling are also more accessible to artists than those at rural pits and mines hidden away in private preserves. Garbage is right at our doorsteps, domestic in every sense of the word, and it is free raw material, creative compost. Yet a paltry 2.5 percent of our waste is domestic; the rest is industrial and agricultural, out of the reach of most artists and activists demanding broader and more thorough schemes for remediation.



Nancy Holt, *Drawing for Sky Mound: Sun Viewing Area with Pond and Star Viewing Mounds*, 1985, graphite on paper, 23½" x 47½". (Licensed by VAGA.) This project for a 50-acre landfill in the Hackensack Meadowlands, NJ, inspired by midwestern "Indian Mounds," was to be oriented to solstices and equinoxes, with pathways, a pond, and periodically flaming gas wells. After a decade of work, construction was halted.



Poison/Palate: The Bay Area in Your Body 2009. (Courtesy of Rebecca Solnit). Artwork by Sunaura Taylor; design by Lia Tjandra; cartography by Ben Pease; research and concept by Rebecca Solnit, from her book *Infinite City: A San Francisco Atlas*. Berkeley: University of California Press, 2010.



Helen Mayer Harrison and Newton Harrison, *The Mountain in the Greenhouse*, 2001, video: a “little drama” about “the disruption living systems will undergo” as global warming takes its toll. Global research by Dr. Georg Grabherr shows that plants and their dependents move up the mountain with rising temperatures. Once at the top, there is nowhere to go.

Interdisciplinary landscape studies programs are becoming popular at universities. Eco-artists and photographers involved in reclamation have begun to contextualize the history of production buried in the land. Some collaborate with nature on her own ground or on communal ground beyond the art context. A few collaborate in the field with grassroots environmental organizations. As their numbers increase, many of the barriers that separate the motives, thought patterns and educations of artists, activists, planners,

and resource managers are being dismantled. Place-specific artists working in the public or within communities are becoming savvy not only about landscape design, but city planning and rural land use, infrastructure, traffic patterns, demographics, changing development regulations, zoning, water rights, land and stream reclamation, and inevitably, local politics and power

structures. At an international art conference a few years ago in Cornwall, England, I was struck by the number of younger artists concerned with innovative practices on and about land—rural and urban. Looking for new angles from which to affect the ways we define and defile the natural, often without the ego adrenaline demanded by the art world, they aim to expose the layers of social and esthetic resonance in our relationships to local place, to tell the disparate stories about the intersections of land and lives, and expose the contradictions of twenty-first century political attitudes.



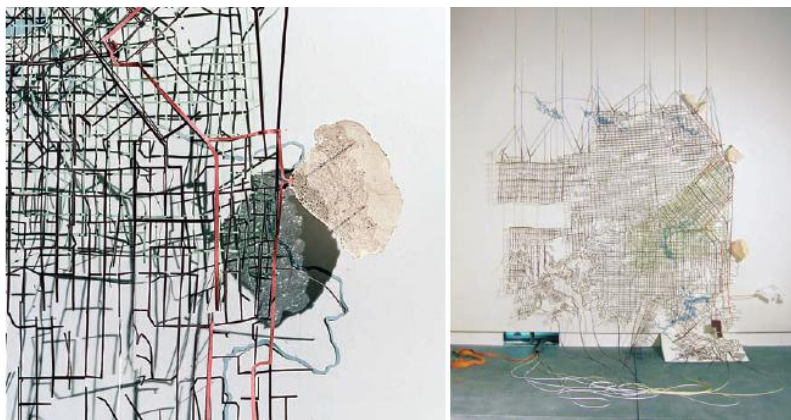
Patricia Johanson, *Mary's Garden: Chrysanthemum coronarium (Mary's Seventh Sorrow: The Burial)*, 2009, acrylic/ink study for mine reclamation at Marywood University, Scranton, PA. Patterns are mining maps from the seven levels of the Marvine Colliery; miners' corpses remain below; culm banks, slag heaps, and waste ponds will be replaced by Johanson's pictorial wetlands, pond, and plantings.



Futurefarmers, *Soil Kitchen*, Philadelphia, 2011. Temporary project by the San Francisco-based group (Amy Franceschini, lead artist), coinciding with the EPA's Brownfields Conference to pressure the city to deal with soil contamination. Free soup cooked by wind energy was exchanged for soil samples.

But what happens when a county or state (or nation, for that matter) has to say No More Growth because there's not

enough water, for instance, to maintain the current population? Overpopulation is not the problem so much as overconsumption. Americans are immune to dire warnings about the distant future even since 9/11, even since Superstorm Sandy and her ominous sisters around the globe. We are reluctant to give up our vaunted quality of life even as it crumbles before our very eyes, as money goes to ideological wars and support for the ever richer, instead of for social services and care of our lands. We prefer science fiction, wars of the worlds, star wars. In 1972, the authorial team of the controversial book *The Limits to Growth* predicted a cataclysm in the mid-twenty-first century if we kept going as we were then. We did. Today some say it is too late. But writer Chris Floyd insists that “this is the age of loss, not the age of defeat.”



Adriane Colburn, *Just Below (Sewer to Bay)*, 2005, paper and ink, hung from 30' ceiling, Yerba Buena Center for the Arts. Installation charting the water course from the museum's pipes to San Francisco Bay through the city sewer system and wastewater treatment plants; layers of maps culled from the

city's public library, sewer department, and California Historical Society.

“Can a few conspicuous solar homes, constructed wetlands, bike paths, recycling industries, organic agricultural plots, and wind farms really be the key to saving the world?” asks Robert Thayer. “Isn’t a much greater transformation needed in global economic, political and social institutions?” The answer to the last question has to be a resounding YES. “Sustainable capitalism” is a contradiction in terms because the entire system is based on growth, waste, and profits. As Slovenian philosopher Slavoj Žižek has quipped, it is easier to conceive of the end of the world than the end of capitalism. We have to wonder, with writer Charles Bowden, why can’t we imagine a future where we *have* less but *are* more?



David T. Hanson, *Mine spoil piles and intersected water table*, 1984, Ektacolor print, 9 x 11", from the series *Colstrip, Montana* (1982–85). © 2013 David T. Hanson. Hanson was raised near Colstrip, which was once Crow tribal land. Wendell Berry writes that his photography “has given us the topography of our open wounds.” (See Hanson, *Colstrip, Montana*. Fairfield: Taverner Press, 2010.)



Mary Miss, *Connect the Dots: Mapping the High Water, Hazards and History of Boulder Creek*, 2007, mixed media. Blue discs indicating floodwater depth and extent at various sites in the city of Boulder made climate change visible to residents. Miss worked with local geologists and hydrologists for the exhibition *Weather Report: Art and Climate Change* at the Boulder Museum of Contemporary Art. In the fall of 2013, unprecedented floods proved Miss’s premise.

As Wallace Stegner wrote years ago, “The West is less a place than a process.” Limerick argues that the ubiquitous industrial ruins of the American West must be seen as evidence of failure, rather than forgotten in favor of rarer successes. They offer lessons we ignore at our peril. Although I am astounded that so little is being done about climate change, and resigned to the vast amount of art that continues to isolate nature from culture and social justice, I hear Eduardo Galeano’s counsel “to save pessimism for better times.” The ubiquitous pits and erections can energize us. Bioregionalism offers strong tools for grassroots activism and visionary art. While there is not yet an appropriate context in place for artists responding to social energies and necessities (though some art schools are now on board), there is no reason why artists should not be active participants in change. My guiding light for many years has been Antonio Gramsci’s stirring call for pessimism of the intellect, optimism of the will.

**IMAGINE SHAKING THIS
LAND FROM BELOW**

**STIRRING IT UP, TURNING IT
UPSIDE DOWN TO EXPOSE ALL
OF THE PLUNDERING AND
EXPLOITATION, AND THEN
SPREADING IT OUT AGAIN,
WITHOUT A TOP AND WITHOUT
A BOTTOM, EXCEPT FOR ITS
MOUNTAINS AND VALLEYS**

Oliver Ressler, banner, 2007–13, shown in public internationally as part of the artist’s long-term project, *Alternative Economics, Alternative Societies*, begun in 2003.

“What sway does geographical specificity hold for the arts in today’s cultural environment?” asks artist/poet Kenneth Goldsmith. “Over the past two decades, tremendous changes in technology, economics, and globalization have impacted the way artists live and work. Artists have sensed these changes and have responded with new forms of practice and distribution, skewing many of our long-held notions of geography. . . .” The rapid, complex maneuvers made possible by advancing electronic technologies offer new ways to collage or juxtapose vastly differing images and expose subtly connected issues. Intimate in content, but not in form, such inventive techno-ecological tactics raise a new cloud of

questions for works embracing both local/global connections and disjunctures. The Internet—that amorphous and ominous mass in cyberspace—facilitates a multicentered community, even as social context and interaction remain specific. Spontaneous art activism—mass demonstrations, guerrilla actions, or political flash mobs—can be sparked by social networks, but ultimately it requires a face-to-face (not Facebook) meeting place, like Tahrir Square, or Occupy Wall Street’s Zuccotti Park.



The Yes Men (Mike Bonanno and Andy Bichlbaum), *We're Screwed*, 2009. At conferences and on TV, the Yes Men impersonate corporate officers announcing startling changes of heart on environmental issues. Their messages are picked up by the mass media, giving journalists excuses to cover the issues, while humiliating “big time criminals” and forcing them to angrily deny in public that they made any decisions for the common good.



Survivaballs, 2009; very expensive refuges from the apocalypse, when all else fails.

How well does culture stand up for nature in this disheartening morass? There has been a good deal of skepticism about international attempts to make art about society's failures. Despite good intentions, say some critics, artists have changed little and even alienated audiences. This is certainly true in some cases, but contemporary artists dealing with social/environmental issues no longer emulate the nineteenth-century avant-garde's desire to *épater le bourgeois*. To the contrary, they hope to appeal to broader audiences (though the bourgeoisie still comes in for some flack). Sometimes resistant art can wither when decontextualized, co-opted, and welcomed into the mainstream, but the strongest works survive to move on upstream and spawn again. Without resorting to the quaint and the retrograde, many "biopolitical" artists and collectives are demonstrating that they can think micro and macro, local and global. Of course art cannot change the world alone, but

it is a worthy ally to those challenging power with unconventional solutions.



Judy Natal, *Biosphere II: Monet Experiment 2*, Oracle, AZ, archival inkjet print, 2006–12, from Future Perfect. © Judy Natal 2013. “Rising from the Arizona desert like the main terminal of a misplaced airport,” this controlled biological experiment, bankrolled by a Texas oil man, “proved a true microcosm” of Biosphere I (planet Earth), “where venality, ideology, self-interest, and other elements of the globe’s political ecology . . . have generated the greatest obstacles to solving environmental problems. . . .” (de Buys, *A Great Aridness*).

IT MAY SEEM THAT WE HAVE TRAVELED FAR AFIELD FROM THE pits and piles of gravel and the towering erections threatening social gravity. But they are still out there, standing for the blurred boundaries between what we call the natural and the “human-made.” This book documents only fragments of a moment in time. Almost every case study here could have been replaced by dozens of others as the narrative races on, becoming increasingly complex. Every issue raised here is in flux. Every outcome is a cliff hanger. My goal has been to take a rapid ride through a western landscape of beauty and foreboding, flashing snapshots of damage, change and potential. If shallow change is the norm today, there is no escaping the storm of deep change on the horizon, whether or not we choose to pay attention. Aldo Leopold wrote: “We abuse the land because we regard it as a commodity belonging to us. When we can see land as a community to which we belong we may begin to use it with love and respect.” On behalf of the land and everything living on it, new image wars must be waged.



Chris Jordan, *Running the Numbers: 320,000 Light Bulbs*, 2008. This is the number of kilowatt hours of electricity wasted in the U.S. every minute due to inefficient residential electricity usage (wiring, computers in sleep mode, etc.) Jordan has been graphically demonstrating our wasteful consumerism since 2005. (See Jordan, *Running the Numbers: An American Self-Portrait*. Munich: Prestel, and Pullman: Washington State University Museum of Art, 2009.)

NOTES

1. See Lucy R. Lippard, *Down Country: The Tano of the Galisteo Basin, 1250–1782*. Santa Fe: Museum of New Mexico Press, 2010. (Photographs by Edward Ranney).

5. Rimbaud in Daniel Mendelsohn, “Rebel, Rebel,” *New Yorker*, August 29, 2011.

9. Henri Cartier-Bresson, in Susan Ratcliffe, ed., *People on People: The Oxford Dictionary of Biographical Quotations*. New York: Oxford University Press, 2001.

15. Chellis Glendinning, “Challenging Globalization: Returning to Place, interview with Chellis Glendinning by Kay Matthews,” *Eldorado Sun*, October 2002. See Glendinning, *Off the Map*. Boston: Shambhala, 1999.

18. William L. Fox, “Field Notes,” in Mark Klett, *Third Views*.

26. David Owen, “Concrete Jungle,” *New Yorker*, November 10, 2001.

28. Matthew Coolidge in Markonish, *Badlands*. CLUI’s projects are described in its website and its newsletter, *The Lay of the Land* (“Margins in Our Midst” is in Winter 2003). The CLUI photographic database reveals the banal, the unorthodox, and the unseen.

33. See Douglas Preston, “Blackwater Draw: Mammoth Find Points to America’s Ancient Hunters,” *New Mexico Magazine*, November 1998; and Marc Simmons, *New*

Mexican, April 3, 2010. Newer information from excavations at Buttermilk Creek, Texas, suggest even earlier dates—from 3,200 to 15,500 years ago, which may upend Blackwater Draw history. (See *Archaeology Southwest*, May 9, 2011, www.archaeologysouthwest.org.)

35. David Yubeta, quoted in Ariana Brocius, “Can Ruins Be Ruined?” *High Country News*, December 6, 2010.

37. See Edward Crocker’s columns in *New Mexican*, 2005 to present. Portland Cement was invented in 1824 on the Isle of Portland, UK.

39. Alejandro Lopez, “Building in Adobe,” *Green Fire Times*, September 2013.

40. Hassan Fathy, *Architecture for the Poor: An Experiment in Rural Egypt*. Chicago: University of Chicago Press, 1973.

40. Dennis Dollens, *Simone Swan: Adobe Building*. SITES Books, 2006 and *New Mexican Real Estate Guide*, April 2006.

46. Jewell Praying Wolf James, quoted in *New Mexican*, Dec. 2, 2002.

47. Dean MacCannell, *Empty Meetings Grounds: The Tourist Papers*. London: Routledge, 1992.

47. Andy Baldwin, quoted in *New Mexican*, April 24, 2001.

48. See Maybury-Lewis, Trope, and Ortiz, *American Indian Religious Freedom*.

56. Paul Robinson, “Challenges to Protecting Mount Taylor,” *Voices from the Earth*, Summer 2010. See also Kay Matthews, “Mount Taylor Looms Large on the Horizon and in the Struggle Among Tribes, a Land Grant, and Ranchers,” *La Jicarita*, November 30, 2012. lajicarita.wordpress.com.

60. Ben Neary, “Sacred Land Under Siege,” *New Mexican*, January 7, 2001.

63. Jake Flake, quoted in *New Mexican*, December 13, 2001.

66. Personal communications with Kirk Bemis, Zuni Pueblo hydrologist and tribal member, 2012.

68. William Least Heat-Moon, *River-Horse*.

69. See Stephen Capra, “The Law That Keeps on Giving,” *New Mexico Wild!*, Winter 2012, and Tony Davis, “Hardrock Showdown: Will the Forest Service Finally Say No to Mining?” *High Country News*, November 22, 2010. Another antiquated law is the Taylor Grazing Act of 1934 (with later modifications) allowing “ranchers,” many of them the tax-break variety, to run cattle almost anywhere on public land in the West for a mere \$1.36 per animal per month, subsidized, again, by American taxpayers. Given soil and waterway erosion, water pollution, and declining species whose wildlife refuges are overrun by bovines, “the consumption of more beef is stupid,” opines Least Heat-Moon in *River-Horse*.

75. Daniel Kraker, “Is the Southwest’s ‘Last Real Stinker’ on Its Last Legs?” *High Country News*, August 4, 2003.

77. Hopi water conference participants quoted in Brenda Norrell, “Covenant Broken,” *Indian Country Today*, November 12, 2003.

80. Federal blog quoted in Susan Montoya Bryan, “Alternative Energy That’s Close to Home,” *New Mexican*, July 19, 2008.

90. The rough edges include cultural sensitivity that is often lacking in what northern New Mexican logger Ike DeVargas calls “enviromaniacs,” or environmentalism *sin gente* (without the people). The editors of *La Jicarita* joined him in rejecting nature “disguised as a political construction in which some people claim to speak for a nature unrecognizable to the people who actually live there.” (David Correa, *La Jicarita*, February 23, 2012. lajicarita.wordpress.com.)

92. Forms of travel: Chris Taylor, interviewed by William L. Fox in Taylor and Gilbert, *Land Arts of the American West*.

94. See Lucy R. Lippard, *On the Beaten Track: Tourism, Art and Place*. New York: The New Press, 1999, and Peter Goin and Lucy R. Lippard, *Time and Time Again: History, Rephotography and Preservation in the Chaco World*. Santa Fe: Museum of New Mexico Press, 2013.

97. Jon Margolis, “Do You Want More Wilderness?” *High Country News*, September 27, 1999, quoting William Cronon, “The Trouble with Wilderness, or, Getting Back to the Wrong Nature,” in Cronon, ed., *Uncommon Ground*, New York: W.W. Norton, 1996.

99. Stephen J. Pyne, *How the Canyon Became Grand: A Short History*. New York: Penguin, 1988. See also Lucy R. Lippard, “Too Much: The Grand Canyon(s),” in Saunders, ed., *Nature, Landscape, and Building for Sustainability*.

102. David Brower quoted in Pyne.

102. Despite their inexplicable neglect, underfunding, and budget cuts, national parks bring \$30 billion a year to the U.S. economy.

103. *High Country News*, July 25, 2011. The list includes Navajo Nation land leased for a feedlot for ten thousand cattle owned by a Brazil-based company. The New West’s progress, and lack thereof, is chronicled weekly by *High Country News*, out of Paonia, CO, “for people who care about the west.”

107. Louise Abel in Eichstaedt, *If You Poison Us*.

110. Dorothy Purley, quoted in Kay Matthews, “Uranium Boom and Bust: ‘Otra Vez?’ Part One,” *La Jicarita*, August 4, 2012. lajicarita.wordpress.com.

113. Area B at LANL had been cleaned up at the cost of \$110 million, but in 2012 the lab insisted that the expense was too great to continue cleaning up. The alternative, of course, is that LANL itself, increasingly at risk from uncontrollable wildfires in the Jemez Mountains, will become an informal permanent dump site.

114. As it was recently explained to me by Emergency Manager and Assistant Fire Chief Martin Vigil of the Santa Fe County Fire Department, there is no evacuation plan in

place for U.S. 285, the WIPP route, for good reason: the choices are so limited in the current infrastructure, and unpredictable wildfires are the largest threat in the area. Santa Fe is one of the top counties in the U.S. in training for radiation risks, but Vigil says he is less worried about WIPP trucks—a known factor—than Wal-Mart trucks, because one has no idea of their contents: vegetables or pesticides.

116. Peter Hessler, “Letter from Colorado: The Uranium Widows,” *New Yorker*, September 13, 2010. See also Michael A. Amundson, *Yellowcake Towns: Uranium Mining Communities in the American West*. Boulder: University Press of Colorado, 2002.

125. Basharat Peer, “Modern Mecca,” *New Yorker*, April 16, 2012.

127. See Mary Marshall Clark, Peter Bearman, Catherine Ellis, and Stephen Drury Smith, eds., *After the Fall: New Yorkers Remember September 2001 and the Years That Followed*. New York: The New Press, 2011.

130. John Brinckerhoff Jackson, *The Necessity for Ruins and Other Topics*. Amherst: University of Massachusetts Press, 1980.

130. Rebecca Solnit, “After the Ruins,” *Art Issues*, November–December 2001. Susana Torre, “Constructing Memorials,” in Okui Enwezor et al, eds., *Documenta 11, Platform 2: Experiments in Truth*. Kassel: Documenta, 2001.

132. Joseba Zulaika, “Tough Beauty: Bilbao as Ruin, Architecture and Allegory,” *Neon*, Winter 2000–01.

135. Matthew Irwin, “The Swedish West,” *Santa Fe Reporter*, February 1, 2012.

139. Allen Best, “The Zombies of Teton County,” *High Country News*, March 5, 2012, and Ed Marston, “The Once and Future West,” *High Country News*, October 8, 2001.

140. Terry Tempest Williams, *Red: Passion and Patience in the Desert*. New York: Pantheon, 2001.

141. (Pumping fractures) quoted in Eric Konigsberg, “Kuwait on the Prairie,” *New Yorker*, April 25, 2011.

145. When the Northeast became aware of fracking (already a major issue in the West), its much larger and more active artist population began to organize in opposition, including Yoko Ono and her son Sean Lennon.

146. Jeff Goodell, “The Big Fracking Bubble: The Scam behind Aubrey McClendon’s Gas Boom,” *Rolling Stone*, March 1, 2012. www.rollingstone.com.

146. Richard Heinberg contends that the fracking boom is “slouching toward bust”; production rates are flattening or declining because of environmental degradation and increasing expense paired with diminished returns (*Common Dreams*, August 24, 2013).

149. Andrew Nikiforuk, “Stephen Harper’s Tar Pit,” *Adbusters America*, Summer 2012; and “Insert Pipeline Here,” *OnEarth*, Fall 2012.

151. Exxon's seventy-year-old Pegasus pipeline suffered major spills in Arkansas and Missouri in 2013. Yet even a spill of 1.7 million gallons would not trigger TransCanada's leak detection system. In addition, petcoke, an Alberta tar sands byproduct, has been dumped by the synonymous Koch Carbon Company along the Detroit River without any permitting process. The Bakken oil fields could be tied into the XL pipeline and it is well known that other companies are lining up to build their own pipelines whether or not TransCanada fails. Yet it has also been pointed out that so far the production capacity of these companies exceeds their distribution capacity. Proponents claim that water and energy use is being cut significantly with new technology and that even if we produced all our own energy, prices would still be determined by the global market. If we import tar sands oil from Venezuela, it would be just as bad for the planet. In August 2013 an Associated Press article by Jonathan Fahey reported that rising production from new fields could lower oil prices. "But if big oil companies can't earn strong profits at today's oil prices, it may mean prices will have to rise higher to convince them to aggressively explore new fields. If they worry they can't make enough money, they'll cut back."

152. Pipeline inspector quoted in ThinkProgress, January 3, 2012. www.thinkprogress.org. The pipeline's proposed route was eventually changed to avoid Nebraska's Sand Hills.

152. Pete Zrioka, "Desert Southwest an Oasis or Mirage?" May 3, 2012, *Research Matters*, <http://researchmatters.asu.edu>.

154. For example, the acequia in Mesilla in Rio Arriba County, NM served seventeen families in the 1950s and now serves around two thousand.

155. See the three hundred-page report by Robert Gilkeson and Dave McCoy, “Defective Groundwater Protection Practice at the Sandia National Laboratories, Mixed Waste Landfill—the Sandia MWT Dump,” 2011.

159. Kay Matthews, “The Political Economy of Acequias: From Democratic Communalism to Business as Usual?” *La Jicarita*, May 20, 2012. lajicarita.wordpress.com.

160. Elephant Butte: Staci Matlock, “Walk on History,” *New Mexican*, December 17, 2011.

161. The climate-related floods in Colorado in September 2013 drowned gas and oil field infrastructure, as well as agricultural fields, releasing fuel and toxic chemicals into the entire environment. In addition, around two years ago the EPA approved the breaching of plutonium holding ponds at Rocky Flats and they were drained into local creeks. According to activist LeRoy Moore, the post-flooding results of such short-term stewardship have not yet been determined.

162. Forty million people in seven western states share the Colorado River water, and the demand already exceeds the supply. At the same time, Nestlé annually extracts 265 million liters of fresh water from British Columbia to bottle and sell, paying absolutely nothing for it, thanks to the lack of proper regulation from the provincial government.

164. In May 2012, land artist Chris Drury's handsome abstract sculpture, *Carbon Sink* (a spiral of raw logs level with a grassy campus lawn) was removed by the University of Wyoming within months of its installation, purportedly due to industry complaints. The state legislature then passed a law requiring the approval of all future art displays at the university's new gym.

168. Dorothea Lange, quoted in *Los Angeles Times*, August 13, 1978.

170. Jan Tumlir, "John Divola," *Afterimage*, May/June 2012. See Jana Prikryl, "Erosion," *The Nation*, December 12, 2011. See also Jon Anderson's Letter to the Editor and Prikryl's response, *The Nation*, January 12, 2012.

175. Nato Thompson in "The New Geography," panel edited by Jeffrey Kastner, *Bookforum*, April–May 2009. See Trevor Paglen: *A Compendium of Secrets*. Giessen, Germany: Kerber Art/Kunsthalle Giessen, 2010.

179. In a letter to the editor of the *New Mexican* (December 2, 2012), Bergman complained that "Recycling answers are there but ignored."

179. Jane Gleeson-White, *Double Entry: How the Merchants of Venice Created Modern Finance*. New York: W.W. Norton, 2012.

181. Lost nature: Timothy Morton, "The Dark Ecology of Elegy," in Karen Weisman, ed., *The Oxford Handbook of the Elegy*. London: Oxford University Press, 2010.

185. Chris Floyd, “Empire Burlesque: This Is Not the Age of Defeat,” *Counterpunch*, April 2013.

185. Robert Thayer Jr., *Gray World, Green Heart: Technology, Nature and the Sustainable Landscape*. New York: Wiley, 1994. The book discusses topophilia, technophilia, and technophobia.

185. Slavoj Žižek, quoted in Rebecca Mead, “The Marx Brother,” *New Yorker*, May 5, 2003.

186. Charles Bowden, paraphrased by Phillip Connors, “Not So Pretty Horses, Too,” *The Nation*, September 30, 2002.

186. Wallace Stegner, *Where the Bluebird Sings to the Lemonade Springs*. New York: Random House, 1992.

187. Antonio Gramsci, *Letters from Prison*, New York: Harper and Row, 1973.

187. Kenneth Goldsmith, “Regionalism Reconfigured,” *2006 Report*, Pew Fellowships in the Arts, Philadelphia, 2007.

190. Aldo Leopold, *A Sand County Almanac*. New York: Oxford University Press, 1966.



Nancy Holt, *Concrete Poem*, 1968, from original 126-format transparency, Las Vegas, Nevada (licensed by VAGA). “The black plastic letters were arranged haphazardly on the concrete stairs. . . .” Holt was on a summer trip with Robert Smithson and Michael Heizer.

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