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Counter-infrastructure in the US–Mexico borderlands: some archaeological perspectives

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ABSTRACT

Massive infrastructures of transportation and border security, designed to control flows of people and things, dominate the contemporary US–Mexico border. Together, these material projects work to inscribe the hegemonic processes of neoliberal capitalism and national sovereignty onto the physical landscape and into everyday life, giving them an aura of inevitability and permanence. Using archaeology, we challenge this narrative by exploring the counter-infrastructures developed by marginal communities in the US–Mexico borderlands – including miners, hippies, and migrants – to navigate and/or resist these projects. Specifically, we compare the shifting fields of in/visibility created by infrastructure and counter-infrastructure from the 1880s to the present to emphasize that bordering projects are neither inevitable nor permanent.

KEYWORDS

US–Mexico borderlands; counter-infrastructure; mining; smuggling; undocumented migration

Introduction

International borderlands are definitive marginal spaces of the modern world. Uneven and ambiguous, these landscapes emerge where state-sponsored projects of territorialization, security, and exclusion collide (or collude) with global projects of deterritorialization, mobility, and inclusion (Agier 2016). The power of these bordering projects, as both political-economic processes and ideological expressions, depends largely on infrastructure – the networks of natural, material, and human resources made to control the movement of people, things, and ideas (Larkin 2013). At the same time, people reside in the shadows of these projects, build lives alongside them, and, in some cases, slip through their cracks. How do the everyday experiences and strategies of these communities play out in relation to the massive infrastructures that have come to form and deform modern national borders?

Focusing on the US–Mexico borderlands, we address this question through an historical archaeology of *counter-infrastructures* – those that people develop and/or repurpose to avoid, resist, or subvert structures of power and authority. Specifically, we put archaeological data in dialogue with historical and ethnographic accounts to argue that counter-infrastructures have been vital to successive groups of miners, hippies, and migrants navigating the fields of in/visibility imposed by infrastructures of border security and capital extraction from the 1880s to present.

Infrastructure of the US–Mexico borderlands

The international border between Arizona (US) and Sonora (Mexico) cuts through a desert landscape whose natural austerity is interrupted by material projects designed to promote trade and reinforce national sovereignty. Highways, bridges, trains, and other transportation infrastructure move vast amounts of goods (\$27.6 billion in 2018) and people (~25 million in 2018) across this border each year (Kim 2019). Meanwhile, military-grade walls, checkpoints, vehicles, cameras, and similar weapons of security infrastructure attempt to delimit spaces of sovereign control and police the clandestine movement of people (78,416 apprehensions in FY2018) and narcotics (771 tons seized in FY2018) across this same terrain (USBP 2021). The dense materiality of these infrastructures gives the border an aura of permanence.

This aura, however, belies the actual history of the US–Mexico borderlands (Delay 2009; St. John 2011; Truett 2008). Following the Mexican-American War (1846–1848), the Treaty of Guadalupe Hidalgo fixed the US–Mexico boundary line to the general contours of the Rio Grande and Gila Rivers. Five years later, US ambassador James Gadsden was sent to buy additional land for a railroad capable of opening the American West to political influence from the American South. This ‘Gadsden Purchase’ etched a geometric borderline across unmapped swaths of the Sonoran Desert, establishing a southern limit for the future US states of Arizona and New Mexico. This boundary-making project also divided the territory and people of the Tohono O’odham Nation, setting the stage for future thefts of indigenous land.

Over the next century and a half, the US–Mexico border would become a unique juxtaposition of political and economic disparities – vividly described by Chicana scholar-activist Gloria Anzaldúa as *‘una herida abierta* where the Third World grates against the first and bleeds’ (1987, 3). Several decades of interdisciplinary border studies have fully diagnosed this ‘open wound’ as the result of chronic, and often violent, frictions between the hegemonic processes of global capitalism and national sovereignty. Whereas the former promotes the production of goods and the free (market) circulation of labor and capital around and across international borders, the latter defines access to environmental resources, political agency, and human rights around state-enforced boundaries of territory and citizenship. Alignments in these agendas have made the US–Mexico borderlands a lucrative zone for industry: tariff-free trade is coupled with significant national differences in the regulation of wage labor, commodity prices, and ecological protections (Alvarez 2005; Lugo 2008; Peña 1997). Misalignments, meanwhile, have bent the borderlands into a vast ‘space of exception’ (Doty 2011): international supply and demand for undocumented labor and illicit commodities clash with the callous exercise of state power to enforce borders through surveillance and the suspension of rights (Andreas 2009; Dunn 2009; Nevins 2010; Truett 2008). These uneven topographies of state power and market flows make for equally uneven social processes among people living, working, and moving along the US–Mexico Border. This has made the borderlands a locale for numerous groups (undocumented migrants, drug smugglers, etc.) whose goals and identities run counter to the hegemonic forces of national sovereignty and capital. We define these groups as marginal communities.

Towards an archaeology of counter-infrastructure

For contemporary communities in the US–Mexico borderlands, the power and supposed permanence of nation-state and capital are largely encountered as the massive infrastructures made to control the flows of people and things through this seemingly marginal space. Whether implicitly or explicitly, most border studies address what Larkin (2013) calls the ‘politics and poetics’ of these

infrastructures, particularly 'the wall', as tools of globalization and militarization (e.g. Andreas 2009) or as objects of discourse about sovereignty and identity (e.g. Anzaldúa 1987). Recent work, however, urges us to ask how the specific materials and contingent histories of these infrastructures both enact and act back on the multifarious interests of nation-states, global markets, and local communities as they come together in borderlands (Boyce 2016; Mora-Gamez 2020).

Built infrastructure is used and re-used in ways that far exceeds its intended design. At the same time, infrastructure should not be understood simply through the manner in which it does or does not fulfill the designs of hegemonic power. Building on research into the alter-lives of infrastructure (Mora-Gamez 2020; Muehlmann 2019), we should also examine the *counter-infrastructures* that marginal communities develop to avoid, resist, or subvert these same hegemonic processes. For instance, drug smugglers build new infrastructure, such as tunnels, ad-hoc roads, and vehicle ramps, designed to contravene state authority. At the same time, as discussed by Muehlmann (2019), counter-infrastructures of narco-traffickers in the US/Mexico borderlands also involve repurposing the infrastructure of the state through a process 'doubling': houses double as warehouses, roads double as landing strips. The feasibility of doubling turns on the situated nature of clandestine knowledge, what we call in/visibility. Houses only work as warehouses for narcotics if they appear to the state as houses and appear to narco-traffickers as warehouses. The dyad of in/visibility is not simply a one-way street in which clandestine knowledge allows counter-infrastructures to stay hidden from the state. Much of the security infrastructures of both state and corporate entities relies upon the invisibility of the security infrastructure to the surveilled (Jusionyte and Goldstein 2016; Masco 2014).

Drawing from an archaeological study of infrastructure and counter-infrastructure in a small region of the US/Mexico borderlands over a 200-year period, we expand the analytical frame of counter-infrastructure in two directions. First, following Jusionyte and Goldstein (2016), we approach the field of in/visibility less as a conscribed dyad (in which invisibility facilitates clandestine activities and visibility facilitates hegemonic activity) and more as an open question. We argue that just as state infrastructures play on situated in/visibility differently in different scenarios, the counter-infrastructures of local communities and illicit economies also play on in/visibility in multiple ways. Second, we approach the question of infrastructure and counter-infrastructure, not at the short-term temporal scale of the regimes that produced them, but rather on the long-term scale of the material lives of the infrastructure itself. By attending to changes, uses, and reuses of infrastructure and counter-infrastructure in the US/Borderlands over a 200-year period, we aim to challenge monolithic views of the former and promote dynamic views of the latter.

Archaeology is well suited to this long-term analysis of infrastructure and counter-infrastructure along the US–Mexico border (see McGuire 2013). Frontiers, borderlands, and other marginal landscapes have long been a focus of archaeological research (Lightfoot and Martinez 1995), fostering a critical appreciation for the things mobilized to negotiate and counter projects of colonialism, nationalism, and capitalism (e.g. González-Ruibal 2014; Liebmann 2012; Voss 2008). Of course, roads, canals, walls, and other infrastructures have an even longer legacy as objects of archaeological study, most often to answer questions about the materialization of power in past societies (see Wilkinson 2019). We propose that archaeological investigations of infrastructure can reveal how people experience and respond to the projection of national interests and market forces into modern borderlands. In particular, archaeology can identify the manner in which local communities manifest counter-infrastructures within the border landscape, re-using and doubling existing infrastructure for their own purposes. This involves first mapping the forms and contexts of these infrastructures, then plotting changes (and continuities) across moments of assembly, use, reuse, and ruin. This approach highlights the situated in/visibility that mediates the gap between

infrastructure and counter-infrastructure: the particular forms of local practice and knowledge that allowed the clandestine uses of counter-infrastructure to remain clandestine. These material histories, when read against written documents and ethnographic accounts, offer a means to enrich or contest the common borderland narratives of sovereignty, mobility, and hybridity.

Our following discussion explores this approach for one small stretch of the southern Arizona borderlands between the federal ports of entry at Nogales and Sasabe (Figure 1). Focusing on three eras from 1880 to present, we consider how the physical forms and spatial contexts of infrastructures worked to enable, constrain, or compel hegemonic projects, and how these same parameters gave rise to counter-infrastructures through alternative possibilities of in/visibility.

Mining (1880-1940)

After the railroad arrived in southern Arizona in 1880, American perceptions of the US–Mexico borderlands as distant and barren were challenged by growing rumors of mineral wealth (Truett 2008). In the Tumacácori Mountains west of Nogales (Figure 1), legends of Spanish-era gold mines drew American prospectors to the Oro Blanco region, where they ultimately established 10 gold and silver mines between the border and the small ranching town of Arivaca (Ring, Ring, and Ring 2005). These mines required significant labor to dig, process, and ship the ore, but were located far from the major population centers of the US. To solve this problem, the mine owners imported workers from Sonora (Mexico), China, and Japan across an international border that was functionally absent. There was no security infrastructure, and the nearest US immigration control point was 350 miles (560 km) to the east in El Paso. As a result, Oro Blanco was soon bustling with labor camps, including one beneath Montana Peak that would eventually become the town of Ruby.

These early mines lacked support (and oversight) from corporate stakeholders and the US government, but as they became more lucrative this began to change. Investors pumped in new capital for processing mills, mining equipment, and other state-of-the-art technologies. As this infrastructure arose around the mines, the Oro Blanco district became a place worth protecting. American investors had the power to secure that protection through lobbyists and other political allies in Washington. Thus, when the Mexican Revolution (1910–1920) threatened regional stability, US troops were quickly dispatched to patrol the border (and ensure the profits from American-owned mines). Arivaca, for example, was home to a large camp stationed with US cavalry, including the Connecticut and Utah National Guards, all charged with defending the Oro Blanco mines from marauding Mexican revolutionaries. Soon after, national and corporate concerns about securing the entire border led to the creation of a dedicated agency, the US Border Patrol, in 1924.

The early-20th century also witnessed the materialization of these concerns through greater investment in surveillance infrastructure along the US-Mexico border. Customs houses, immigration officials, and cleared strips of ‘no man’s land’ emerged in the heart of established border towns like Nogales. Mirroring the greater visibility of the borderline as a corporate and national project, new counter-infrastructures began to emerge through the processes of building and doubling. As one US governmental report noted in 1907, ‘row boats, carriage roads, pathways, and mountain trails’ were ‘all being used for surreptitious entry into the United States’ (quoted in St. John 2011, 104). Smuggling goods and people to avoid customs duties and immigration control had become big business.

The development of border security infrastructure coincided with an expansion of mining activities in the Oro Blanco district in the 1920s. As sources of lead ore were identified Eagle-Pricher Lead purchased the Montana Mine just outside the town of Ruby in 1926. The company then sunk over one million dollars into new infrastructures, including a road, a water pipeline, and dozens

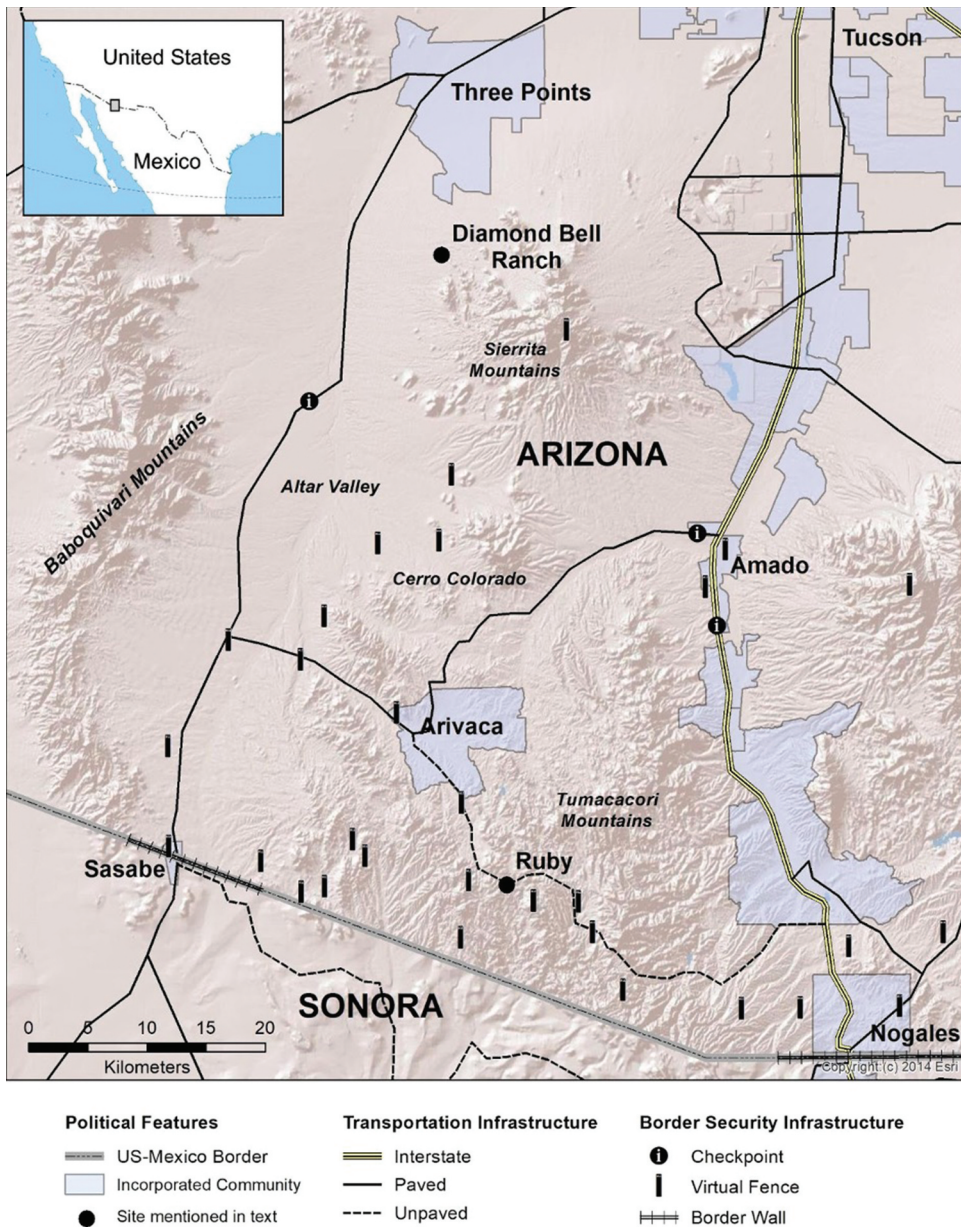


Figure 1. Map of the Nogales-Sasabe corridor in southern Arizona.

of buildings for processing ore and managing the mine. Between 1928 and 1935, the mine workforce grew from 150 to 350 men, while the population of Ruby boomed to 1200. However, this prosperity was short-lived. The mine closed in 1940 following a collapse in lead prices. The company salvaged equipment and miners moved away, leaving behind vacant buildings, two dammed lakes, and over 700,000 tons of tailings waste. By 1948, Ruby had become a ghost town, and the Oro Blanco district was largely abandoned.

Against these trends in border enforcement and economic investment during the early-20th century, archaeology at Ruby can reveal how people participated in, or resisted, these processes through their cultural practices and communities. Historical sources suggest that life in this community was very segregated (Ring, Ring, and Ring 2005), particularly in comparison to the less pronounced ethnic and class distinctions between Anglo-Americans and Mexicans of the mid-19th century (McGuire 1982). Mexican miners and their families, who accounted for 85% of the population, lived in a tent city across from the mine and its massive tailings pile, while Anglo-American engineers and managers lived in the prefab houses of the 'Hollywood' neighborhood near the out-of-town road. The built infrastructure, forged by the convergent interests of state and capital, materialized the marginalization of the Mexican miners and their families. At the same time, the infrastructure of Ruby also provided opportunities for the families of otherwise marginalized miners.

One of us (Haeden Stewart) has begun to explore these counter-infrastructures through a new program of archaeological research at Ruby (Figure 2). The survey first helped to identify the tent city located on a series of stone terraces. Shovel tests in this area recovered a sample of artifacts, such as glass bottles and food remains, associated with everyday consumption. Less frequent finds, such as ceramic dolls, glass marbles and Mexican coins, speak to the presence of families, as well as their national origins and economic connections to people and places south of the border (Figure 3). Beyond life in the tent city, the mine laborers and their families also made alternative and oblique uses of the mining infrastructure beyond its primary functions. For example, the two concrete dams captured monsoon rains in large reservoir ponds for processing ore, but these waters were also good for recreation, such as swimming and boating. Another example comes from the tailings mound of industrial-mineral waste stretching away to the southwest. The gentle grade of this feature made it suitable as a picnic area and baseball diamond for local families. Rather than clandestine, this doubling of infrastructure was completely public, yet vital to the development of social ties between mining families. By publicly repurposing the infrastructures and waste of industrial mining at Ruby, Mexican-origin laborers found ways to cultivate community relations, and perhaps national, ethnic, and class identities, in relation to a regional landscape that was being severely reworked by greater capital investment and border enforcement.

These counter-infrastructures were a boon for community life, but they could also have unanticipated effects. From the late-19th to early-20th centuries, the rapid growth of national and economic infrastructures brought radical changes to the natural environment of the US–Mexico borderlands: mountains were clear-cut for wood; roads and railways were made to control movement; streams were dammed to form reservoirs; and rocks and waste tailings were piled up around mines. Shantytowns associated with mining communities grew amidst this rubble, their inhabitants gardening and living on the land being continually devastated by infrastructure and industry. To assess the health risks posed to one of these communities, archaeological soil analysis at Ruby made use of a Niton X5 Portable XRF instrument to measure heavy metal concentrations in samples from the tent city ($n = 25$) and Hollywood neighborhood ($n = 25$). As shown in Figure 4, lead levels in the Hollywood neighborhood ($\mu = 76$ ppm, $\sigma = 62$ ppm) were significantly lower than in the tent city ($\mu = 262$ ppm, $\sigma = 171$ ppm), where 20% of the samples exceeded the modern safe standards (400 ppm) for yard soil (USEPA 2021). This disparity likely owes to southerly summer winds blowing across the lead-rich tailings mound ($\mu = 1380$ ppm) and depositing fine dust in the tent-city to the north. As a result, everyday activities in the tent-city, such as playing in yards, digging in gardens, and breathing the air, would have come with an elevated risk of lead exposure, now known to cause physical and mental impairment in adults and developmental problems in children. In this case, the visible appropriation of mining infrastructure into the socio-spatial organization of Ruby (e.g. the

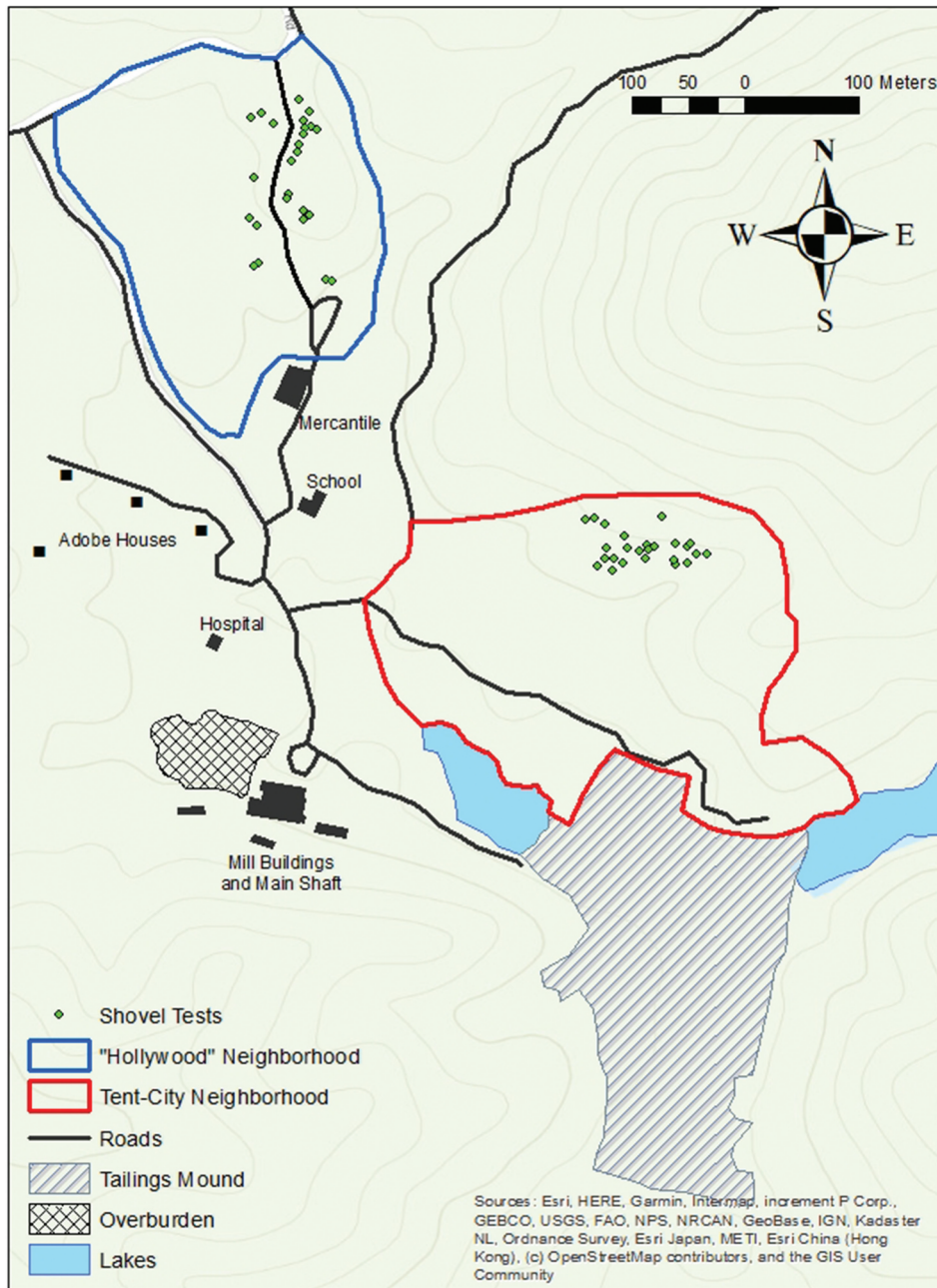


Figure 2. Map of Ruby showing infrastructural features and archaeological units.

creation of a baseball field on top of mine tailings) came with invisible side effects, leading to probable health disparities between the Anglo-American mine supervisors and the mostly Mexican working class – a sort of slow structural violence against this marginalized community.



Figure 3. Artifacts recovered from the Tent-City area at Ruby.

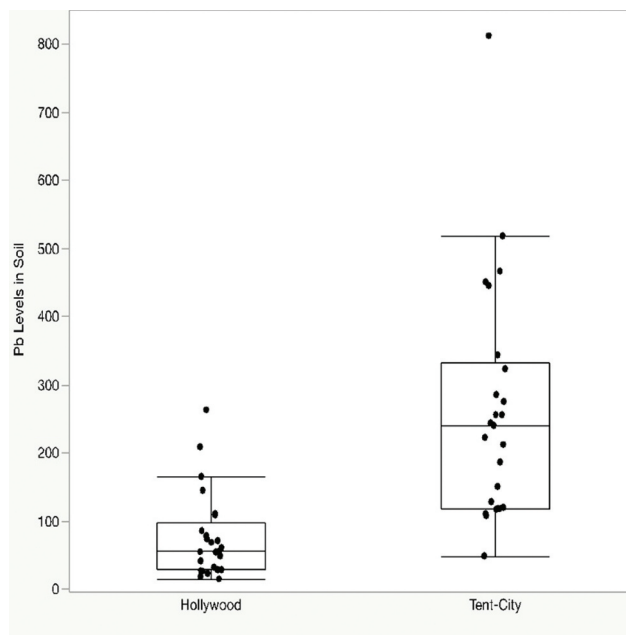


Figure 4. Lead levels (ppm) in soils for the Hollywood and Tent-City areas at Ruby.

Counter-culture (1960-1980)

Several decades after the abandonment of Ruby, a very different marginal community moved into the region. Driven by philosophies of anti-capitalism and anti-imperialism, by the late 1960s significant numbers of hippies began to settle in the Oro Blanco region due to its warm climate and extreme remoteness. These hippies sought to live free of the confines of mainstream society and cast off the strictures of mass consumption, Christian moralism, and oppressive governmental authority (Kasulaitis 2019). In particular, they wished to ‘get away from the polluting life of the cities’ (“Longhairs” 1971) and live off the grid, unencumbered by possessions and ownership. Coming into the area from all over the country, these hippies set up camps in and around the remains of the old

mining claims. Many repurposed mining shacks or salvaged mining equipment to build their homes (Negri 1976). In some cases, they built homes into the old mine shafts themselves (Lalli and Williamson 1979).

By 1968, Ruby had become a center of hippie life in the area, deemed 'Hippie Headquarters' by the local newspaper, *Arivaca Briefs* (Ring, Ring, and Ring 2005). The hippies set up semi-permanent squats in and around Ruby's abandoned buildings (McCarthy 1971). Old adobe buildings, such as those that had housed the doctor and the judge back when Ruby was a mining center, were fixed up as homes for both long- and short-term residents. A hippie named Terry, who was the caretaker of Ruby from 1969 to 1972 fixed up an old adobe residence as his home and named it *Impossible Dream*, allowing a stream of itinerant youths to stay there as they moved through the area. In other cases, the hippies salvaged from the ghost town, stripping wood from the mercantile building for construction materials and firewood (Pegnam 1992). They swam in the town's two large lakes and hunted in the backcountry. Old fifty-gallon metal drums, once used to hold chemicals for leaching ore, were transformed into wood stoves (Lalli and Williamson 1979). Two miles south of Ruby, the California Gulch commune was another major center of hippie life, also located on an old mining claim. There, a group of families built camps around the remains of abandoned mining infrastructure, building five large Indigenous-style tipis to sleep in.

Limited archaeological survey of Ruby has found little obvious material remains of hippie life, outside of beer cans and bottles (Figure 5). While this absence is notable, it by no means denies their presence in the area or the richness of their life. As Severin Fowles and Kate Huelgel note in their study of hippie encampments in New Mexico, this material culture must be taken in the context of the anti-materialist ethos (2013). The ideal of the hippie commune at Ruby was to live as simply as possible with as few material possessions as possible. Interviews with people at California Gulch in 1971, for instance, highlighted the group's emphasis on leaving no trash behind and recycling



Figure 5. Schlitz beer associated with the Hippie commune at Ruby (ca. 1970).

refuse that others had left (“Claims in Forest” 1971). The lack of a clearly definable hippie material signature or at least the concealed nature of such a signature, is in keeping with this ethos of anti-consumerism, recycling, and salvage. Based on archival records and local histories, the communities at both Ruby and California Gulch lived simply, relying on hunting and the purchasing of a few basic staples (rice, beans, and oatmeal) to get by. The main legal economic activity was selling candles and other crafts (Kasulaitis 2019).

At the same time, many hippies were also involved in the illicit economy: growing marijuana in the valleys around Ruby and California Gulch (Mary Kasulaitis personal communication), as well as helping to move marijuana and other black-market items across the border (Negri 1976). Taking advantage of their proximity to the border and their familiarity with the old mining backroads (Figure 6), people could easily bypass border control and bring illicit materials from the border up to Arivaca or Tucson. The maze of roads and trails inherited from miners, along with the abandoned buildings, allowed hippies to repurpose the old infrastructure built by miners and the government that were previously used to extract mineral wealth: the old mining roads served as transit and abandoned buildings as ad-hoc warehouses. More than just providing the material conditions of possibility for moving clandestine goods, the functioning of this counter-infrastructure turned on the in/visibility of the area as a place of mining. The hippies legally justified their presence in the area, and on the old mining roads, via claims that they were in fact miners. Indeed, in order to dispute the National Forest service’s claims that California Gulch occupants were squatters, the families living there argued that they were mining prospectors due to the legal rights afforded prospectors. Prospectors were allowed to camp out on federal land for extended periods of time without being considered squatters. Despite not engaging in mining activities, the residents of

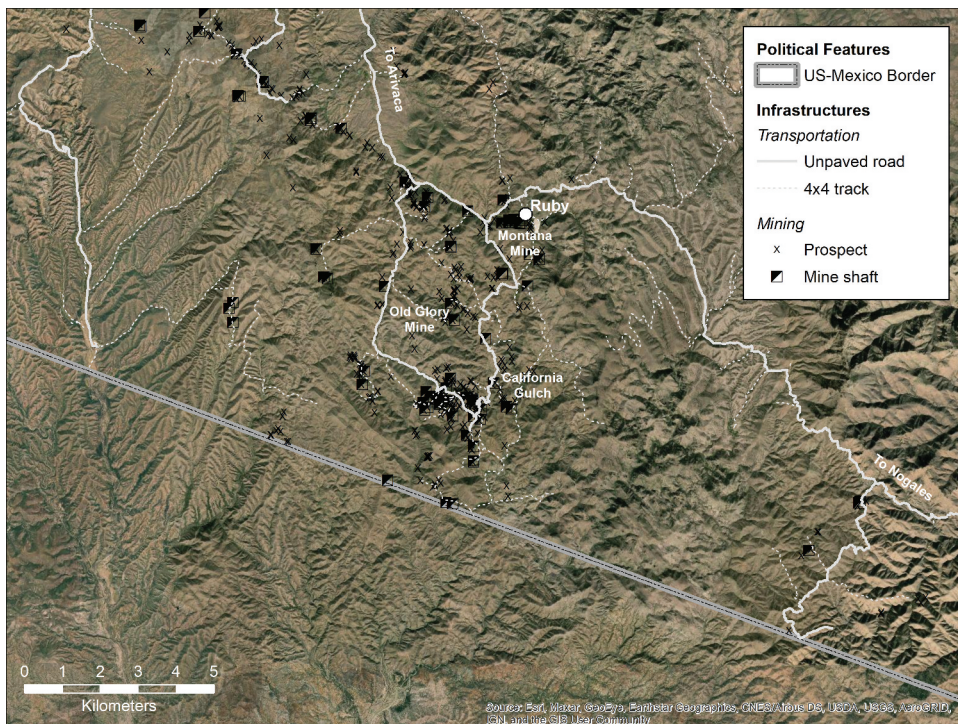


Figure 6. Map of the Oro Blanco mining district.

California Gulch named themselves HIPI Corp and claimed they were prospecting for gold and silver (“Claims in Forest” 1971). This claim undermined the Forest Service’s numerous attempted evictions. Mining served as legal cover for the hippies in California Gulch, one that shielded their occupation of the land and clandestine activities from oversight and removal.

Undocumented migration

More recently, the Oro Blanco district has become central to yet another type of clandestine movement, namely undocumented migration. Beginning in the mid-1990s, the US government initiated a series of border enforcement policies, known as ‘prevention-through-deterrence’ (PTD), designed to deter migration, or at least make it less visible, by ‘funneling’ border crossers away from urban areas and towards more remote regions (Andreas 2009; Dunn 2009; Nevins 2010). Key to this strategy are the so-called ‘tactical infrastructures’ of US border security including steel fences, highway checkpoints, optical sensors, military-grade drones, and off-road vehicles (Jusionyte 2017; Newell, Gomez, and Guajardo 2017; Nieto-Gomez 2016). These technologies, as hyper-visible expressions of state power, encourage migrants and smugglers to risk crossing through remote desert where rough terrain and extreme temperatures become ‘natural’ components of border security infrastructure (De León 2015). At the same time, native wildlife, high temperatures, and uneven terrain can easily disrupt high-power sensors and other surveillance technologies (Boyce 2016), making the Sonoran Desert an imperfect ally of US border enforcement.

Ultimately, PTD policies and infrastructures do not stop clandestine border crossing because they run counter to prevailing US markets for labor and narcotics (Andreas 2009). Between 1994 and 2020, the US Border Patrol apprehended on average more than a quarter million people each year in the Tucson Sector of southern Arizona (USBP 2021), with long-term variations due less to border security and more to labor demands north of the border and cartel violence to the south (Massey, Durand, and Pren 2014). Failing to prevent or deter the smuggling of people and drugs, PTD policies simply harm and kill border crossers in ever greater numbers, including more than 3400 people in southern Arizona alone (Martínez et al. 2021).

Tactical infrastructures make use of situated in/visibility to provide both a weapon and an alibi for this violence. First, the growing visibility of border enforcement technology over the past two decades has quite effectively ‘funneled’ border crossers into more remote stretches of the Sonoran Desert, where they continue to die in ever greater numbers (e.g. Boyce, Chambers, and Launius 2019; Chambers et al. 2019; Giordano and Spradley 2017; Soto 2018). For example, spatial trends in migrant death across the Nogales-Sasabe corridor (Figure 1) reveal a shift from routes across level terrain, such as the Altar Valley, into rugged areas, such as the Tumacacori Mountains, where people are less likely to survive days of difficult hiking and extreme temperatures while also evading capture by the US Border Patrol (Gokey, Stewart, and De León 2020; Stewart et al. 2017). Second, because the material spectacle of drones, fences, and checkpoints pushes border crossers into remote areas away from the public eye, the violence meted out by other key components of border security infrastructure, namely Border Patrol agents and the Sonoran Desert, is masked. Further, this serves to make migrants invisible by disposing of their dead bodies through various taphonomic pathways (Beck et al. 2015).

Playing on alternative fields of in/visibility, smugglers and migrants have developed their own counter-infrastructures to facilitate covert movement across the US–Mexico border. Beginning with the strategic use of material equipment, migrants have gradually replaced mass-market backpacks, clothes, and bottles used for survival with dark-colored or camouflage items, to better stay hidden

from US Border Patrol operating in the desert (Figure 7(a)). This shift in tactics has not been made individually; it is regularized through the strategies of human smugglers as well as the institutionalization of migrant material culture through vendors in Northern Mexico that sell exclusively to migrants (De León 2012). While helping migrants remain invisible in the desert, this uniform toolkit makes them more visible elsewhere along their journey, exposing them to the predations of thieves, police, and cartels in Mexico and federal agents and armed vigilantes in the US. For this reason, many people also carry spare clothes, along with hygiene products, to make themselves less conspicuous as they move onto paved roads headed north (De León, Gokee, and Schubert 2015).

Archaeological analysis of migrant material culture left behind in the desert provides further insight into migrant counter-infrastructure and how it articulates with both border security infrastructure, as well as civil infrastructure. As shown in Figure 8, large migrant pickup sites are always found in remote locations north of key US Border Patrol checkpoints, adjacent to dirt roads. They marked the termini of migrant routes on foot, where people can be picked up by a smuggler in the United States and driven on dirt roads that allow for onward travel that avoid paved roads. For example, a series of pickup sites around Diamond Bell Ranch (Figure 7(a)) reveal that the unfinished streets and unsold parcels of this real estate development have been repurposed for pickups by smuggler vehicles indistinguishable from local traffic. The question of in/visibility is always open



Figure 7. Contemporary archaeology sites in the Nogales-Sasabe corridor: (a) Migrant pick-up site near Diamond Bell Ranch; and (b) Altar dedicated to Santa Muerte near Bartolo Peak.

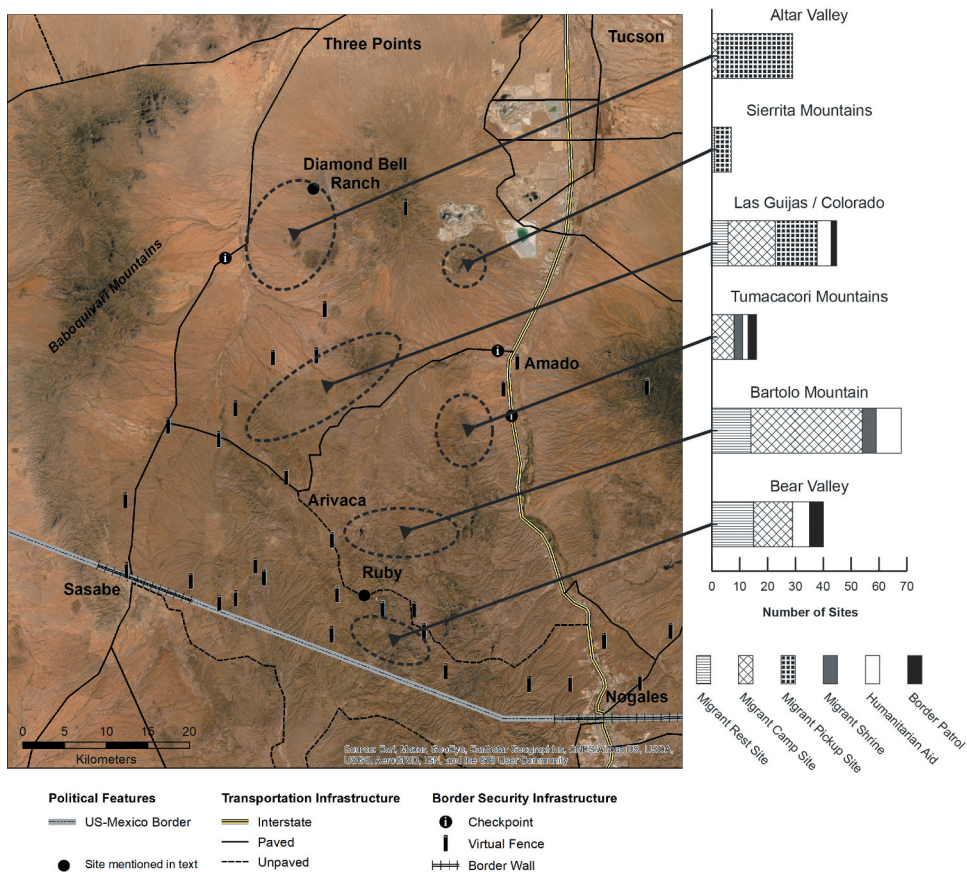


Figure 8. Distribution of contemporary archaeological sites recorded by the UMP in the Nogales-Sasabe corridor (2010–2013).

ended. Once chosen for their invisibility, these sites gradually become more visible as discarded artifacts pile up, ultimately making them known to local ranchers, environmentalists, humanitarians, and Border Patrol agents.

The desert landscape, conscripted into border security infrastructure, is also doubled as part of the migrant's counter-infrastructure. As one migrant notes regarding how to avoid detection, 'You need to put yourself into the most difficult places that you can where people can't get to. You understand? Where there are lots of trees, mountains, rocks . . . off the trail. That's where you need to go. If you walk in the easiest places, [Border Patrol] will catch you quick' (quoted in De León 2015, 189). The counter-infrastructures of migrant trails have been worn into the landscape of southern Arizona. Some stops along these paths are the box culverts that allow seasonal floodwaters to pass beneath paved roads. The graffiti in these culverts, as documented by Soto (2016b), attests to their doubling as place-markers along covert routes across the borderlands. Other signposts for migrant routes include camps and rest sites with modest numbers of artifacts (<250 on average), mostly food and drink containers, attesting to repeated short-term use (Gokee and De León 2014). In the Nogales-Sasabe corridor, these sites are largely found in mountainous areas where they can be important waypoints for guiding border crossers through a labyrinth of steep canyons.

Migrant shrines, featuring votive candles, rosaries, prayer cards, and other religious objects are found throughout the Nogales-Sasabe corridor and commemorate religious figures and deceased migrants, and are frequented by both border crossers and locals to offer prayers and thanks. Several shrines in the Nogales-Sasabe corridor occupy rocky alcoves difficult to see from the ground or the air, and they invariably mark nearby access to water, a vital resource for border crossing (Gokee and De León 2014). Arivaca Lake Shrine, for example, lies at the head of a narrow ravine less than 1 km from its namesake, while Bartolo Mountain Shrine marks a seasonal spring near a main pass through the Tumacacori Mountains. This latter also includes many candles with images of *Santa Muerte* (Figure 7(b)), a folk saint of death condemned by the Catholic Church but revered by drug smugglers and other criminals (Chestnut 2018). The materialization of memory at these shrines binds the religious identities of border-crossers to the clandestine infrastructure of border-crossing (Soto 2016a). Specifically, in the face of a security infrastructure that is highly invested in harming and erasing migrant bodies, the network of shrines throughout the desert represents a counter-infrastructure of memorialization.

Conclusion

Many border studies rest on an implicit understanding of modern geopolitical boundaries as permanent. Focusing on the US–Mexico divide, we argue that this arises largely through the materialization of diverse, and often contradictory, political-economic agendas through infrastructure. For nearly two centuries, the borderlands between southern Arizona and northern Sonora have been a terrain for entangled and strained projects that have sought to remake the landscape according to their own ‘bordering’ logic. Roads, mines, mills, dams, and other massive terraforming projects were established to extract gold, silver, and lead, enable mobility, and integrate a ‘Wild West’ frontier into the global economy. Most recently, US national security has fostered increasingly elaborate infrastructures of surveillance and force in order to exert control over flows of illicit goods and undocumented migrants that parallel the growth in licit trade through neoliberal economic policies such as NAFTA. These projects have profoundly shaped the geography of the US–Mexico borderlands through geographies of uneven development and accumulating layers of industrial ruins and waste.

By attending to the materiality and history of these projects, archaeology enables us to question the apparent stability and inevitability of these projects and the fantasy of the modern border that they help naturalize. By focusing on the communities that emerge in and around the cracks of these border infrastructural projects, archaeology helps reveal a complex array of economies and identities that exceed any official narrative. Archaeological accounts of this history from a small section of the US/Mexico border in southern Arizona reveal that behind the intended use of infrastructure is a clandestine and often illicit history of counter-infrastructure: a story of mining roads used for smuggling, tailings used for entertainment, and a remote landscape used for hiding. As we show through our discussion of miners, hippies, and migrants, counter-infrastructure does not directly counter the effects of infrastructure, but rather it ‘doubles’ it, re-thinking and re-imagining infrastructure to suit the local community and their potentially illicit needs. The relationship between infrastructure and counter-infrastructure is not one of direct opposition, but rather one of situated in/visibility and reimagination. The legibility and visibility of the counter-infrastructure directly turns on local knowledge and the situated stakes of invisibility. In some cases, like that of undocumented migration or smuggling, the counter-infrastructure is manifestly hidden from the state; any visibility would completely undermine its use. In other cases, like the re-use of tailings and dammed lakes by

the Ruby miners, the question of visibility is less important. Following the counter-infrastructures of this region archaeologically reveals how these same groups have survived and built their community in the borderlands by making themselves and their mobilities more or less visible. Building on the examples put forth here, we propose that tracking counter-infrastructures, and their articulations with infrastructure, can provide an important material window onto the everyday experiences of marginal people and how they navigate spaces of hegemonic control.

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