

# Architectures of Care :

## From the Intimate

## to the Common



Edited by Brittany Utting



# 10

## FIELD STATIONS FOR A FUTURE CLIMATE

### Architectures of Environmental Care

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A dry, hot breeze drifts through the mesh screen enclosing the field station, stirring the brittle bluestems growing next to the door. Inside, loose papers float off a stack of dog-eared field guides and onto a crumpled sleeping bag. On a folding table, the remains of a forgotten meal lie next to a half-repaired sensor. Outside, two battered lawn chairs sit next to a soil test experiment carefully gridded onto the ground. Above the station's mesh envelope, the metal roof bristles with air sensors, Wi-Fi transmitters, solar panels, and whirring weather instruments. In the distance, the hum of a drone can be heard over the movement of the prairie grasses.

While the term “field station” often conjures images of cutting-edge modular habitats perched in an alien landscape, most field stations are typically somewhere between a tent and a building, serving as low-tech laboratories, outdoor classrooms, and environmental sensor nodes. Situated within the terrains that they study, they operate as part of a network of institutions, researchers, and publics. Outside of the hermetic space of a laboratory, the field station is an immersive site to research the interrelationships between flora, fauna, pollutants, pollinators, and peoples. Field stations also serve as critical infrastructures for studying the effects of climate change, engaged in long-term fieldwork to understand habitat loss, decline in biodiversity, and environmental damage. Through this lens, when we think of fieldwork as *care work*—care for the entangled ecosystems, atmospheres, geologies, and technologies that are increasingly defining our epoch—the field station offers a potent site for projecting and enacting new ways of being in the world. This chapter argues that the field station is a potent site of care: an architecture that enables observations and action across the uneven temporalities and terrains of the Anthropocene.<sup>1</sup>

From the slow processes of deep geological time to the Great Acceleration of fossil capital today, the realities of climate change require us to understand the increasing entanglement of multiple time scales. These temporal shifts collapse into our messy present, suggesting a possible methodology for rethinking the terms of environmental repair. In this sense, the field station functions as a time machine for possible climate futures, roving forward and backward through time to observe and care for our disturbed environments.

### Reclaiming the Field Station

It is important to note that many scientific outposts, weather stations, and military research sites emerged from imperial and settler colonial infrastructures. From the acquisition of local ecological knowledge for the development of agriculture and identification of natural resources, to the establishment of territorial power through data-gathering missions and mapping projects, field stations served as critical tools for mobilizing ecological research for colonial and corporate extraction. As James C. Scott argues in his book *Seeing Like a State*, an increase in environmental legibility is often followed by an increased infiltration of state power into that environment.<sup>2</sup> For example, describing the colonial origins of tropical field stations, historian Megan Raby writes that “the relationship between applied science and the expansion of U.S. political and economic power is conspicuous.”<sup>3</sup> She points out how the United States used the field station as an extension of its imperial power after the Spanish-American War in 1898. After acquiring Cuba, Puerto Rico, the Philippines, and Guam as colonies, the United States established a network of field stations staffed by American scientists and researchers throughout these tropical regions. As the United States gained geopolitical power in the Caribbean, sites such as the Barro Colorado Island (which would become the Smithsonian Tropical Research Institute) and the Harvard Botanic Station for Tropical Research and Sugarcane Investigation (Atkins Institution) in Cienfuegos, Cuba, became critical spaces of ecological fieldwork for US scientists. However, American imperialism and influence went beyond environmental research. Raby writes that “U.S. agricultural scientists, chemists, and economic botanists likewise played key roles in the establishment of vast banana, sugar, and rubber monocultures throughout the region,” mobilizing field station research to optimize extraction.<sup>4</sup> Today, these postcolonial landscapes, particularly in the Global South, experience some of the worst impacts of climate change: decreased biodiversity, rising sea levels, desertification, extreme weather events, and forced climate migration. Indeed, imperial agendas of resource extraction, industrialization, and modernization from the past continue to fuel the carbon logics of the Anthropocene today (Figure 10.1).

How can we retool the instruments, technologies, and vantage points of the environmental research station? While field stations are entangled within these

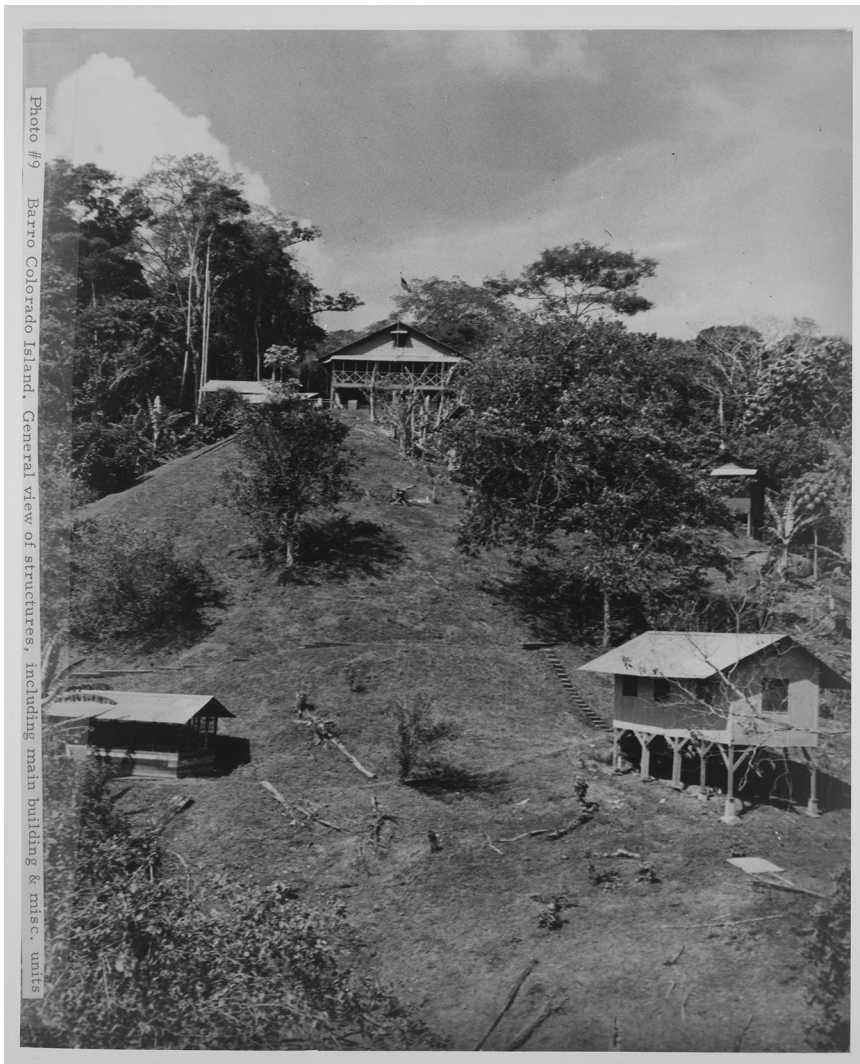


Photo #9 Barro Colorado Island, General view of structures, including main building & misc. units

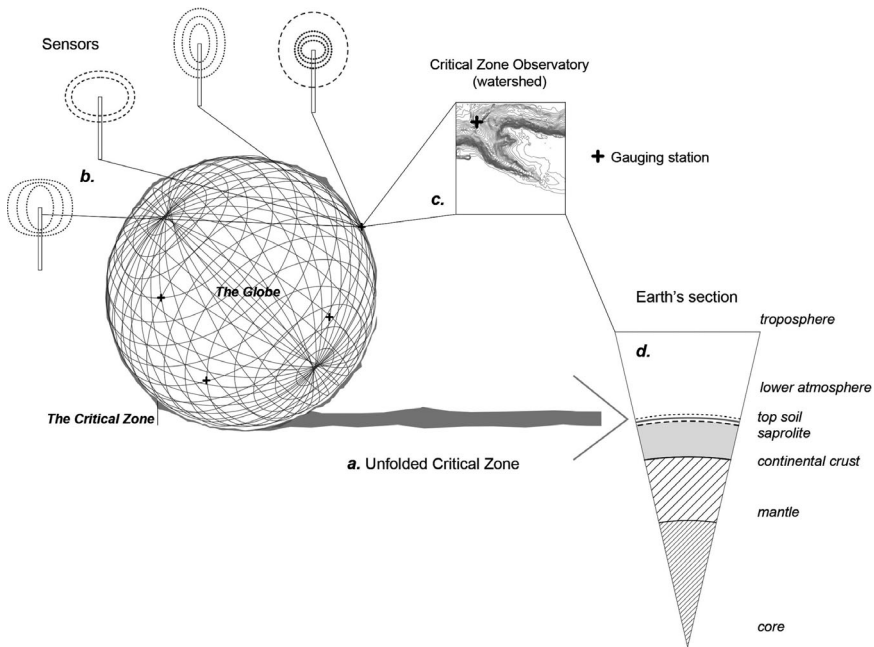
**FIGURE 10.1** Barro Colorado Island, general view of structures, including main building and miscellaneous units, Smithsonian Tropical Research Institute, Panama. (Courtesy of Smithsonian Institution Archives, Image # SIA\_000095\_B34\_F31\_008.)

colonial histories, today the scientific research conducted at these sites forms a critical knowledge base for understanding the local environmental effects of climate change. Ironically, field stations often bear witness to the ongoing environmental traumas caused by the same processes of capitalist-colonial extraction that led to their establishment. In the parallel projects of decolonization and

environmental care, can the field station—and its associated practices of ecological observation, restoration, and community land stewardship—offer more powerful spaces for climate action? And just as critical, how can these agendas of stewardship unfold without resorting to what ecologist Ramachandra Guha describes as the “imperialist yearning” embedded in Western agendas for conservation, that seek to restore the land to a pristine wilderness at the expense of Indigenous and rural peasant communities?<sup>5</sup>

Overcoming this yearning to return to an unspoiled “nature,” projects of environmental care and justice must confront the increasing overlaps of human systems with more-than-human worlds. We need more methods of witnessing and understanding the everyday realities of human development, ecological loss, and extraction. A possible methodology to approach these disturbed landscapes can be found in the term “Patchy Anthropocene,” developed by anthropologists Anna Lowenhaupt Tsing, Andrew S. Mathews, and Nils Bubandt. The “Patchy Anthropocene” refers to “the uneven conditions of more-than-human livability in landscapes increasingly dominated by industrial forms.”<sup>6</sup> Through practices of noticing and multi-species systems thinking, Tsing, Mathews, and Bubandt examine the frictions between human and non-human worlds as possible sites for hope, arguing that the landscapes we inhabit are “politically made, ecologically remade, and uncannily unreal.”<sup>7</sup> This uncanny hybridity of politics and ecology, of colonial ghosts and neocolonial presents, of natural worlds and industrial systems, opens up a space in which new practices of environmental care can unfold: friction-*full* and contested, messy and mundane (Figure 10.2).

Field stations are patchy architectures for these patchy times. Today, they serve as important infrastructures for environmental research, education, and conservation, creating sites of meaningful collaboration between researchers, students, and the public. For instance, dozens of field stations in the Long Term Ecological Research (LTER) Network host extended observations and experiments, sharing knowledge with scientists all over the world through open-access data platforms. As biologist Edward O. Wilson writes, “The only places to pursue biology at this advanced and long-term level are the field stations, where free-living species are secure and data sets cumulative over generations.”<sup>8</sup> Adding to this conversation, in their 2018 essay “Giving Depth to the Surface,” Alexandra Arènes, Bruno Latour, and Jérôme Gaillardet argue that a network of field laboratories in the Earth’s “critical zone” is crucial to making visible the effects of climate change from the point of view of the site rather than the abstract perspective of the global.<sup>9</sup> In articulating their concept of “Gaia-graphy,” they argue for alternative forms of environmental representation and mapping that reconstruct “a view of the earth that is much more concrete, dynamic, complex, heterogeneous and reactive than what can be captured through the cartographic imaginary of points defined on a map by longitude and latitude.”<sup>10</sup> Such networks of field-based observation relate broader



**FIGURE 10.2** From a global to a “Critical Zone” perspective. (Drawing by Alexandra Arènes, Bruno Latour, and Jérôme Gaillardet, in “Giving Depth to the Surface – an Exercise in the Gaia-graphy of Critical Zones,” *The Anthropocene Review* 5, no. 2 (June 2018). Courtesy of the artist.)

planetary conditions to the land in new ways, suggesting forms of knowledge and representation that decenter the human in more-than-human worlds. Alongside this necessary reorientation of data sets and climate models, an anti-colonial project of environmental research must be in dialogue with traditional practices of land stewardship. For example, the Indigenous Guardians Initiative—a program launched in 2017 by the Canadian Government—provides grant funding to support Indigenous-led groups to coordinate field station research and educational programs, as well as further integrate Traditional Ecological Knowledge (TEK) in scientific and environmental management projects.<sup>11</sup> One such group is the Scotty Creek Research Station, part of Laurier University, which became the first Indigenous-led research station in Canada in 2022.<sup>12</sup> The initiative helps to fund the conservation of millions of acres of land and ocean, supporting partnerships between scientists and the Łíídlı́ Kúé First Nation (LKFN) people to monitor and study the impacts of climate change on the region. Empowered by these initiatives, field station researchers can increasingly harness environmental data and on-the-ground accounts to respond to destructive extraction, illegal logging, land treaty violations, and unmonitored pollution across a variety of ecosystems (Figure 10.3).



FIGURE 10.3 Scotty Creek Research Station, October 2021. (Photo by Mason Dominico.)

Despite their critical contributions to research and education, field stations are becoming increasingly precarious institutions because of unreliable funding sources, difficulties in acquiring and securing land due to development and habitat loss, and unstable and partisan environmental policies that threaten scientific research. As scientists Richard L. Wyman, Eugene Wallensky, and Mark Baine note, Earth's populations:

place pressures on field stations; and create a sense of urgency in field stations' activities. Field stations monitor and report on ecological matters such as the effects of climate change, and are sometimes in the midst of the resulting chaos.<sup>13</sup>

Scotty Creek provides a particularly stark example of the urgency of these activities. In October 2022, a wildfire swept through the Scotty Creek preserve, consuming much of the forested landscape and destroying the field station structures and experimental equipment.<sup>14</sup> While Scotty Creek is rebuilding, such climate-related events are becoming more common and pose a significant threat to these institutions and peoples. Yet gathering site-specific data through experiments and multi-generational sensing projects

is a critical aspect of measuring and understanding the ecological damage of climate change. Through this lens, we explore how the field station can be reclaimed not as an elite scientific laboratory or a colonial instrument of extraction, but instead as an architecture serving agendas of ecological forensics, restoration, and environmental pedagogy. As T. J. Demos writes: “Political ecology necessitates engaging with these inequalities of our neocolonial present, just as centuries of colonialism initiated climate change.”<sup>15</sup> This chapter analyzes a series of case studies that theorize the field station in art and architectural pedagogy, using design to ask: How can these tools of environmental knowledge, observation, and action be reclaimed for practices of care?

### **Guerilla Tactics: Field Stations for a Disturbed Swamp**

Who are the future agents of such climate care? Conceptual artist Mark Dion works through a variety of site-specific installations and field-station structures to make visible the traces of ecological disturbance and propose new caretakers for these landscapes. Dion often mobilizes humor, nostalgia, and aesthetics associated with a range of actors and subjectivities: from nineteenth-century naturalists and specimen collectors, as well as their *Wunderkammern*, to eccentric scientists, guerilla environmentalists, and fictional governmental agencies. Through these mediating visual narratives, Dion’s work functions as a sort of Trojan Horse, using the institution of the field station to construct environmental counter-narratives that reframe the relationship between climate change and human agency. Dion chooses sites—sometimes in the gallery, sometimes out in the field—that bear the traumas and ghosts of anthropogenic disturbance: working with spaces of resource extraction, cultivation, species devastation, ecological perturbation, and urbanization (Figure 10.4).

Within these sites, Dion creates field stations and mobile laboratories that interface with various publics and ecosystems.<sup>16</sup> While these projects seek to articulate the complex relationships between the artist, scientist, naturalist, citizen, landscape, and environment, they are united by their reliance on the embodied experience of this multiplicity of actors. For example, in *The South Florida Wildlife Rescue Unit* exhibition at the Pérez Art Museum Miami in 2006, Dion worked with students and conservationists to collect native plants and artifacts from sites in the Florida Everglades slated for construction. Although parts of the Everglades are protected today, the swamp is often dismissed as a wasteland and continues to suffer severe habitat loss and environmental degradation.<sup>17</sup> Not only do the Everglades contain crucial biological diversity in the region, but their mangrove forests, cypress swamps, coastal prairies, and coral reefs protect the Florida coast from storm surges, control flooding, and help replenish aquifers with fresh water. Already, half of the Everglades have been drained for agriculture and development, disrupting the complex cycle of evapotranspiration crucial to the wetland’s hydrology. Activated by





FIGURE 10.4 Installation view, *Mark Dion: Misadventures of a 21st-Century Naturalist*, 2017, Institute of Contemporary Art/Boston. (Photo by Charles Mayer.)

this disturbed environment, Dion's exhibition consisted of a bright yellow repurposed food truck that functioned as a mobile laboratory, filled with the research equipment, scientific instruments, materials, and specimens associated with the histories of field excursions, plant hunting, and conservation in the Everglades. Emblazoned with the logo of the *South Florida Wildlife Rescue Unit*, the fictitious agency's vehicle supported a pseudo-sanctioned citizen-scientist action squad tasked with saving endangered plants and animals from the destruction of encroaching development. As Ruth Erickson writes in the 2017 book *Mark Dion: Misadventures of a 21st-Century Naturalist*, Dion's project imagines "a next step for this quiet guerilla environmental activism, [envisioning] a conservationist organization that would compensate for policymakers' inaction."<sup>18</sup> This imaginary mobile laboratory projects an alternative form of governance and maintenance of precarious ecological systems, painting a picture of an organization demonstrating "significant state funding with its official uniforms and research tools," which "stands in ironic contrast to the government's real-life inaction to preserve the Everglades over the years."<sup>19</sup> This double reading of the truck's inhabitants as a guerilla task force and well-funded agency, combined with Dion's real-world collecting trips with students and conservationists, paints an image of a collective of ecological operators, with the truck/field station as the instrument of action.

If the *South Florida Wildlife Rescue Unit* highlighted methods of ecological preservation by bringing a fictional guerilla agency and field laboratory into the space of the gallery, Dion's *Buffalo Bayou Invasive Plant Eradication Unit* from 2011 functions as its alter ego, venturing out of the gallery into the city of Houston, Texas. Repurposing another food truck, the field station functions as both a mobile workstation and a public outreach tool that supports volunteer groups in the removal of invasive species encroaching on the Buffalo Bayou ecosystem in Houston. The project was commissioned in part by the Buffalo Bayou Partnership (BBP), which maintains and operates a ten-square-mile stretch of the bayou from the Buffalo Bayou Park, through the downtown core, and into the Houston Ship Channel. The intensely managed bayou has multiple functions in the city: not only does it serve as a main artery for Houston's rainwater runoff and drainage to the Gulf of Mexico, but the majority of the city's oil infrastructure and port activities are also located along its banks as it travels to Galveston Bay. While many of the city's bayous are concretized and canalized, portions of the bayou are actively being restored and transformed into a riparian park under Houston's Bayou Greenways project, serving as a space of public leisure, economic development, and ecological biodiversity in the urban core.

Complicating this project to restore Houston's native ecosystems in the city, this landscape struggles with the proliferation of non-native species such as alligator weed, giant cane, and Chinese tallow, disrupting the wetland and bayou ecologies in the city. As opposed to the tone of rescue in the Florida Everglades, in Houston, Dion's game takes a dark turn: focusing on the destruction and eradication of these invasive species and "doomsday monocultures" that threaten downstream ecosystems.<sup>20</sup> The emblem painted on the truck and stitched on the uniforms of this second guerilla task force features a skull beneath an "X" made from a shovel and pickaxe: the tools of the eradication trade. The truck was designed to support the efforts of volunteer teams led by the BBP to annihilate the "thickety, wild-looking stretches" of the bayou where "almost every plant is an invasive."<sup>21</sup> Simultaneously, the truck serves as a mobile library and classroom, with the pedagogical intent to inform the public about the history and dangers of non-native species and to encourage planting of indigenous species in yards and public spaces across the city. While the field station instrument (the truck) remains the same, this tonal shift from salvation to extermination implies strange new possibilities of roving, guerilla, or government-funded eco-activists proliferating in the disturbed ecologies of an urbanizing and post-natural world. Dion hijacks the often-nostalgic tones embedded in the histories of fieldwork—from colonial collectors to Victorian plant hunters—to propose guerilla tactics for environmental protection, casting ecosystem care as an uneasy blend of both eradication and salvation. His work détourns these colonial aesthetics and institutions for a future landscape,

mobilizing the field station to observe, teach, and act across multiple temporalities and landscapes. Further complicating these narratives, while the tone of Dion's project instrumentalizes the good vs. evil rhetoric of invasive species, some contemporary trajectories in ecological thought recognize the importance of exotic plants to create "novel ecosystems" that can adapt to human-caused climate change: filling emptied ecological niches, assisting in species migration, and increasing genetic diversity of threatened species.<sup>22</sup> As environments increasingly become patchy, hybrid, and disturbed, a future project may actually entail similar guerilla tactics to introduce and even re-invade non-native species to assist in this messy environmental future.

### **New Vantage Points: Field Stations for a Terminal Desert**

In the deserts of the American West, a growing cadre of researchers and teachers have developed immersive pedagogical programs that seek to reposition the space of artistic and architectural production into the environment, researching sites of extraction and climatic transformation.<sup>23</sup> In these projects, field stations often play a key role in mobilizing students and organizers to conduct fieldwork and learn from the land in new ways. In 2015, architect Chris Taylor of the Land Arts of the American West program at Texas Tech University, in collaboration with artist Steve Badgett and the Center for Land Use Interpretation, created The Great Salt Lake Exploration Platform (GSLEP). As Taylor describes, the GSLEP is a floating aquatic field station and classroom for people "to explore strange vestigial waters in the desert"<sup>24</sup> (Figure 10.5).

Located in northern Utah, the Great Salt Lake is the largest endorheic lake in the Western Hemisphere. These bodies of water have no outlet and only lose water through evaporation, creating highly saline environments that are particularly susceptible to the effects of anthropogenic climate change, such as extreme droughts and toxic dust bowls.<sup>25</sup> The current body of water is the remnant of the much larger prehistoric Lake Bonneville, a vast inland sea which began evaporating about 12,000 years ago due to the warming climate of the early Holocene. Because of its brackish waters, the lake was an important site of both salt extraction and recreation in the nineteenth and early twentieth centuries, hosting the palatial Saltair resorts frequented by bathers traveling to the lake to experience "America's Dead Sea." The GSLEP was deployed to study both the unusual ecologies that have evolved in these desiccated landscapes and their responses to a changing climate. The station consists of an open-air shelter constructed from tubular scaffolding and metal decking, all resting upon two bright blue pontoon boat logs. The boat/habitat is filled with jugs of freshwater, coolers of food, camping furniture, and cooking equipment for daily survival, and is fitted-out with a projector screen and speaker system for evening films and performances. Sensors, communication



**FIGURE 10.5** Steve Badgett and Chris Taylor for the Center for Land Use Interpretation, *Terminal Lake Exploration Platform*, 2012–ongoing. (Photograph at Gunnison Bay, Great Salt Lake, Utah, May 28, 2017, by Chris Taylor.)

equipment, and cameras are mounted to the scaffolding, and the shade roof is installed with solar panels to generate power.

The GSLEP’s tenuous DIY architecture produces a precarious sensibility, teetering on the edge of habitability. Buoyant on the slick silvery-pink surface of the salt lake, the aquatic laboratory operates as “a floating roost from which to explore this remote liquid desert.”<sup>26</sup> According to Rachel Pastand, a writer present at the launch of the GSLEP, the project enables artists, students, and researchers to ask novel questions about climate disruption: “What might they discover? A new species of salt-resistant algae? Clues for surviving in the hot world that’s coming?”<sup>27</sup> This purpose-built craft creates immersive forms of environmental mediation in a site that is otherwise inaccessible and difficult to observe, overcoming the “perceptual limits” of climate change through first-hand experience.<sup>28</sup> Occupying an “extreme” landscape—only algae, bacteria, brine shrimp, and brine flies can survive the brackish water of the Great Salt Lake—the project reclaims practices of embodied survival in an inhospitable climate as an increasingly essential form of environmental knowledge. Indeed, as scholars Ida Soulard, Abinadi Meza, and Bassam El Baroni observe in their

2021 book *Manual for a Future Desert*, “If the Forest is seen as a space of permanent blossoming...the desert is mostly understood as an empty and death-like territory, a sandy, dusty, or barren wasteland.”<sup>29</sup> Instead, they argue, the desert must be understood as a site that is both inhospitable and abundant, both a space of desolation and a site of renewed cultural and environmental imaginaries. By studying the rich ecologies, hydrological cycles, and geological artifacts of the desert, the GSLEP project proposes that this terrain is not an unproductive wasteland but in fact a space of thriving abundance. In this sense, the field station is actively searching out future practices of survival under climate change.

In 2019, as a contribution to the DesertX and Desert Biennial program, Taylor and Badgett moved the GSLEP to the Salton Sea in Southern California, renaming it the Terminal Lake Exploration Platform (TLEP). The Salton Sea is an artificial terminal lake created in the early twentieth century when the Colorado River broke through irrigation canals and filled the prehistoric Lake Cahuilla basin. The highly saline body of water was a popular resort and bird watching site until the 1980s, when contamination by agricultural runoff from California’s Imperial Valley caused massive die-offs of both fish and avian populations. Within this site of drought and chemical toxicity, the TLEP produced sonic scans of the lake basin and presented these aural landscapes to visitors of the DesertX 2019 program. As the artist/architect team observed, the project allowed them to understand the relationship between water as a resource and the environmental degradation often produced by large-scale water infrastructures: “Our interest is to peer into this murky bowl to reveal textures, contents, and circumstances that have been accruing under the protection of water since 1905.”<sup>30</sup> Visiting these terminal lakes produced by the combined effects of climate disruption and industrial extraction, the GSLEP/TLEP makes visible the scale, materiality, and logistics of collaborative survival in the Anthropocene. Within these brackish waterscapes, the observation rafts serve as both a mediator and an index of these ephemeral ecosystems: generating new observers, subjects, and possible stewards of our disturbed environments.

### **Convivial Tools: Field Stations for a Contested Forest**

While the impacts of climate change are clearly visible in landscapes such as the Great Salt Lake and the Salton Sea, environmental degradation also takes place in the patchy zones of the exurban periphery, where human and non-human systems comingle. One such patchy landscape is the Sam Houston National Forest, fifty miles northwest of Houston, Texas. Before colonization by Spanish, French, and Anglo settlers, people had occupied the land for 12,000 years, including the Bidai, Patiri, Deadose, and Akokisa tribes of the San Jacinto and

Trinity Rivers.<sup>31</sup> Today, the forest is a non-contiguous landscape overseen by the US Department of Agriculture and the National Forest Service. The terrain is a rich assemblage of ecologies that make up the East Texas Piney Woods region: stands of loblolly pines, bottomland hardwoods, deciduous forested wetlands, river swamps, and coastal prairies. Beneath the surface are outcrops of uranium-bearing strata, Eocene and Paleocene oil and gas fields, and quartz-rich industrial sands.<sup>32</sup> These ecologies and geologies are governed by the 1960 Multiple-Use Sustained-Yield Act, which ensures the balanced management of all forest resources.<sup>33</sup> While the forest appears ostensibly “wild,” the land is in fact a highly managed territory: a patchwork of private property and public lands hosting recreation, farming, mining, oil drilling, and timber harvesting.<sup>34</sup> From archaeological digs and ecological preserves to New Deal-era Civilian Conservation Corps infrastructures and active extraction sites, the forest is a messy terrain crisscrossed by hiking trails, utility easements, animal habitats, and oil pipelines. Like many managed forest ecosystems, the land embodies the dueling narratives of both extraction and regrowth. On the one hand, the forest offers a rich supply of resources, both renewable timber and non-renewable fossil fuels and minerals. Yet on the other hand, the forest persists in the human imagination as a site of climate healing, biodiversity, carbon sequestration, and ecological resilience. This landscape thus becomes a useful model for understanding the patchy relationship between an ecosystem and its material resources and helps us understand how architecture might participate in these contested spaces.

Located in the National Forest on the site of a former Works Progress Administration (WPA) Fish Hatchery, the Sam Houston State University’s Center for Biological Field Studies (CBFS) supports ecological research, restoration, and education.<sup>35</sup> The field station is an aggregation of industrial sheds, stick-frame structures, test landscapes, teaching laboratories, and outdoor experiments. The former fish hatchery ponds and canals host diverse and evolving ecosystems, from restored prairies and canebrakes to marshlands and loblolly forests. The ruined carcass of a New Deal-era dam that was used to control the water flow is now a riparian forest research area. A partially dismantled mesocosm experiment once simulated the effects of climate change on aquatic habitats, using an array of tanks to test different predation rates, growth cycles, and temperature shifts in a stream ecosystem. The red-cockaded woodpecker, a highly protected endangered species, has recently been spotted, mobilizing agendas for habitat protection and restoration in the forest. According to the biologist and station manager Alan Byboth, the ongoing mandate of the CBFS is to ensure the “biodiversity and abundance” of the forest ecosystems.<sup>36</sup> Making this process difficult is the shoestring budget Byboth has to run the field station, not to mention the contentious deed and property boundaries that nearby oil speculators have tried to exploit to gain territory (Figure 10.6).



FIGURE 10.6 HOME-OFFICE (Daniel Jacobs and Brittany Utting), *FIELD-STATION*, 2022. Digital render of field station prototype in forest understory. (Courtesy of the authors.)

Working with the CBFS as a model, *FIELD-STATION* (2022) by HOME-OFFICE, a research and design collaborative led by the authors, imagines a possible architecture of environmental sensing, climate action, and forest care. Staged as a public art piece at the Sam Fox School of Design & Visual Arts at Washington University in St. Louis, Missouri, the project created an immersive mural, using layers of digital forest scans and entourage to depict a field station in the lush understory of the Piney Woods forest.<sup>37</sup> While the projects by Taylor and Dion deploy mobile field stations in the form of aqueous crafts and mobile laboratories, *FIELD-STATION* proposes a long-term research structure with a light touch on the ground. The project utilizes low-tech building systems that require minimum site prep, are easy to assemble, can be adapted to multiple terrains, and have a low environmental impact. The envelope is composed of operable mesh windows and adjustable roof panels. Hand-driven helical screw piles provide

a nonpermanent foundation for structural columns on the forest floor. Impermanent, packable, and easily assembled, the prototype simplifies the construction, operation, and eventual dismantling of the structure. Using an improvised tectonic of straps, flaps, and scaffolding common to sensor infrastructures and frequently found in field stations, the project's low-tech construction and DIY aesthetics seek to democratize the tools of scientific observation.

As media theorist Jennifer Gabrys argues, such assemblages of environmental sensors, electronics, and data sets used for measuring the world should be thought of “less as instruments able to implement certain ends, and more as openings.”<sup>38</sup> Gabrys refers to this perspective as an “open-air instrumentalism,” an accessible process of experimentation with the tools of environmental sensing and observation that engage with methods of collective worldmaking.<sup>39</sup> For example, equipped with air, water, and soil sensors, field stations can measure ecological disturbance and pollutant emissions, monitor habitat distress, and provide ground support for agitation against federal concessions for oil and minerals. Solar panel arrays provide an energy source for recharging stations and remote Wi-Fi transmitters. Water catchment and filtration create a freely available water supply, and lockers provide secure and dry storage for everything from laptops to fresh changes of clothes. Within the field station is a messy assemblage of research documents, sleeping bags, a map of a mine to be blockaded, laundry hung to dry, a space for a discussion circle, a seedling experiment, a rock bristling with a sensor grid, a pelican case for delicate instruments, and a disassembled sensor tripod. Offering a space for on-the-fly data gathering, sensor troubleshooting, and ecological experimentation, the field station creates a space for new sensibilities, subjectivities, and pedagogies.

The architecture itself also functions as an “open-air instrument” that can be inhabited, manipulated, and expanded using simple tools and without expertise. As described by philosopher Ivan Illich, such “convivial tools” are not complex or mystifying technologies but instead enable the “autonomous and creative intercourse among persons, and the intercourse of persons with their environment.”<sup>40</sup> In this sense, field station architecture seeks to demythologize the scientific process while opening up more accessible modes of interaction among the land, the building, and the public. These interactions are critical for ground-up practices of ecopolitical power: enabling activists, citizen-scientists, indigenous stewards, and researchers to react in real time to habitat disturbance and mobilize agendas of long-term environmental action. Beyond simply redesigning the field station as an architectural type, can these institutions serve more ambitious agendas for a public good? The field station can enable joyous protocols for stewardship and care, experimenting with our collective modes of observation within these patchy and more-than-human worlds.



## Conclusion

To care *about* an environment, care *for* a site, or care *with* the land requires an expanded notion of embodied research and relations.<sup>41</sup> Rather than describing anthropogenic climate change as a uniform tragedy, the field station is an architecture that instead engages with specific sites: situated, localized, and grounded. These landscapes described above—terminal lakes, dust bowl deserts, concretized bayous, and contested forests—are not spectacular and exceptional but rather increasingly typical in the Anthropocene. In their disturbance, these sites serve as models for a future landscape, one in which the competing agendas of conservation and extraction are highly visible. These projects demonstrate that environmental care is not only about tending a landscape but also about making visible the deep histories, conflicts, and tensions that have produced and continue to cause climate change. As anthropologist Andrew S. Mathews suggests, the “fieldwork practices of natural history and historical ecology are helpful in showing how we can pay attention to the partial and historical relations between plants, animals, soils, and politics.”<sup>42</sup> By reanimating the “ghostly presences”<sup>43</sup> that occupy each site—some ancient, others recent—the field station and its accompanying practices of fieldwork can project future forms of situated observation and action.

To patch also means to repair. If we understand the patch as both a condition of fragmentation and a tool of restoration, might the field station participate in this double meaning? Can it operate within these sites of disturbance as an instrument of planetary care? Situated fieldwork seeks to avoid simplifications and idealizations, putting forward an alternative relationship between embodied research and an ecosystem’s latent politics. As an experimental infrastructure for working in and on the world, the field station expands not only our capacities for collective action through data-informed policy change but also our sensibilities, perceptions, and spatial practices. These case studies are united by a similar critique: we must reanimate our patchy ecologies with new practices of environmental stewardship. Both deeply embedded *within* and dependent *upon* the lands that they inhabit and study, field stations offer a potent site of climate awareness. From critical fieldwork practices to long-term research agendas, the field station offers a powerful tool for renewed practices of environmental reciprocity, abundance, and care.

## Notes

- 1 The word Anthropocene here stands for the many threads of discourse and contestations surrounding the naming of our current geological epoch. For more information, see Donna J. Haraway, “Making Kin: Anthropocene, Capitalocene, Plantationocene, Chthulucene,” in *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, NC: Duke University Press, 2016), 99–103; and Kathryn

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- 2 James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998).
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- 36 Alan Byboth, conversation with the authors, September 2, 2022.
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- 39 Gabrys, *How to Do Things with Sensors*, 28.
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