

[Un]described Fields of the Great Plains

“Everyone knows that more than half of mankind lives in cities, that everyone is moving to the cities. And I became interested in simply, what did they leave behind. ... I am discovering the countryside now is a totally undescribed field and nobody thinks about it. In spite of that, it is changing very fast. The countryside is no longer an idyllic environment.”

—Rem Koolhaas

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VAST OPENNESS

Few have dared to move beyond the obvious choice by scholars and practitioners to investigate the increasing density in urban areas and consider the vast openness left behind. Recently however, scholars and practitioners Rem Koolhaas and Stan Allen have called for a reconsideration of the liminal areas outside large metropolitan areas. Rem Koolhaas states,

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The undescribed countryside of the U.S., specifically the Great Plains, has been altered to maximize or exploit certain resources including agriculture, cattle, and water. Additionally, Princeton University’s Center for Architecture, Urbanism, Infrastructure “Microcities” project, directed by Stan Allen, “suggests that architects and urban thinkers might more profitably turn their attention to the opposite scale of urban development: successful small-scale cities with a productive regional presence.”² Jeremy Till and Tatjana Schneider, from Spatial Agency, have investigated factors related to invisible agency via scarcity while Keller Easterling, Yale University School of Architecture, has discussed the subtraction and contraction of buildings in favor of environmental preservation. The unbounded region of the Great Plains is largely unnoticed in this discussion of the countryside and currently many parts of the region have been classified as underperforming primarily because of decreasing population and a vulnerable environmental climate.³ By enhancing the boundless spatial options between architecture, urbanism, and geography how might we generate a new form of architectural inhabitation in the Great Plains?

[UN]DESCRIBED FIELD

The Great Plains ecosystem is charismatic and transcends humanity and values defining our relationship to it. Cultural relationships to nature on the Plains can be viewed through the

various labels America has given to this landscape since the 1800s: The Great Plains, The Land of the Buffalo, The Great American Desert, The Great American Garden, The Wheat Belt, and The Dust Bowl. Each title implies a new narrative with individual histories.

The Great Plains was transformed from a natural ecosystem into a social and ecological space constructed by the melding of policy and technology to invigorate the region as the nation's new farming frontier. This region includes part of Canada, stretches into Texas, and embraces nearly one-fifth of the area of the United States, exclusive of Alaska. The variability of environmental conditions in the region is translated into a lack of specificity when defining its borders. Over the years fifty different published map boundaries have defined it, and these boundaries indicate the shifting edges of this prairie landscape. This landscape is a bureaucratic territory shaped by decades of cost-sharing initiatives between the government and private landowners. These cooperative land agreements have been implemented over two centuries and with each land act came a better understanding of the region's capacities. The Plains is a constructed landscape where strategic government action has established a fragile balance between private owners' rights and political will. Currently the Plains environment is at a time of reflection as the region confronts a critical crossroads of population, agriculture, and resources. This constructed landscape offers a unique regional study allowing design to consider the influences it might have on emerging architectural scenarios. How can the discipline of architecture and landscape architecture strategically participate in an "undescribed field" devoid of spatial designers? The below design-research merges current discourse on urbanism with a focus on issues and forces in the Great Plains region.

PRO-ARCHITECTURE

The conditions of the vast openness and undescribed field were the framework of a graduate architecture studio on "ecological context," which proposed to envision future architectural scenarios in extreme Great Plains landscapes. The selected site was the Sandhills, the largest and most intricate wetland ecosystem in the United States. Beyond addressing the site as environmental systems, the studio was interested in generating projective, proactive, productive and pro-architecture speculation on architecture(s).

The studio acknowledged the spatial abundance of the larger Great Plains and the Sandhills site specifically through the lens of opportunity rather than a lens of scarcity. The studio engaged with the scale of the Sandhills not to offer a cure or treatment but rather to engage in a projective practice on abundance. While seeking to answer what new role does the horizon play in the vast openness and our ideation of a building against the horizon? Engaging in relational thinking in the following three categories: site, recreational activity, and the productive potentials of ecology, each project paired one aspect from each category, and synthesized three seemingly unrelated program(s) on the Sandhills. This set up a projective tension of how the program(s) might relate to generating architecture. The feedback loop between the program(s) identified overlap within the bandwidth of spatial design. How do the activities, migrations, intensities, speeds, making, re-making, and un-making of these categories offer reconsideration of the relationships amongst them? The studio reviewed the work of Lateral Office's as a relevant precedent relating factors of architecture, urbanism, and geography in the undescribed field of the Arctic region. The studio projects seek to "discover new forms of architecture—indeed, what new forms of life—would both mirror and respond to the dynamic landscape," as described by Lola Sheppard and Mason White's in their "Undisciplined" lecture at Harvard's Graduate School of Design in 2015.⁴

The following scenarios illustrate opportunist architectural proposals related to inhabiting the extremes of the Sandhills environment. The projective architectural scenarios amplify existing situations and introduce overlooked ways of engagement with the landscape.

AN ELEVATED EMBRACE OF OPEN SPACE: SANDHILLS, STARGAZING, AND UNBOUNDED ARCHITECTURE

SITE: SANDHILLS

Large metropolitan cities are fast-paced, orderly, rational, and efficient. They are the permanent mark of human civilization and the architecture they produce is stationary, controlled, load bearing, resource-intensive, earthbound, and weather resistant. In contrast Nebraska's rural areas provides a slow-paced and raw experience of being truly in nature and, with the Nebraska Sandhills especially, the mark of humanity and the design discipline is almost entirely absent. Part of the appeal of rural areas is how they foil the urban areas where an increasing number of people are now living. The lack of buildings and the absence of a human presence is clearly seen in the Sandhills. The Sandhills are a unique eco-region that, due to being difficult to farm, largely have remained untouched during human history. The Sandhills covers 25% of western Nebraska, with the only towns in the region at the periphery and rarely populated by more than 500 people.

RECREATIONAL ACTIVITY: STARGAZING

Stargazing is a truly unique, rural-specific recreational activity. Whereas in many cities nowadays not a single star can be seen, in the rural environment of the Sandhills, where there is no light or air pollution, you can not only see stars but galaxies. The scale of space and distance of the Sandhills is amplified where the night sky is vast and untouched. To preserve the land below and the views above an elevated architecture occupies the middle plane between the Sandhills and the sky.



PRODUCTION: UNBOUNDED ARCHITECTURE

To maximize stargazing opportunity, this elevated architecture should be different. A floating helium bubble provides the ability to occupy the middle ground and does not visually disrupt the experience, allowing for a dynamic and dream-like experience appropriate for stargazing in the Sandhills. (figure 1) There are multiple journeys through the sandhills including the daytripper, the weekender, the backpacker, and the explorer. (figure 2) Each journey provides the participant with options related to duration of travel, supplies needed, and being tethered to the ground or free floating. The daytripper and weekender enable more controlled tethered experiences, while the backpacker and explorer provide a longer untethered

Figure 1: An Elevated Embrace of Open Space, by Bradley Wissmueller.

unbounded adventure. “Unbounded Architecture” proposes architectural scenarios that are mobile, unpredictable, weightless, resource-light, unbounded, a form of weather-responsive architecture.

THE DAYTRIPPER

Estimated Duration: 45min - 6 hours

Perfect for a one-night visit to the sandhills. With minimal supplies required, one can trek out to any point in the sandhills, stake in and begin their float. When the rope is retracted and you return to the ground, lift up on the second lever of the stake to release a seed into the ground marking your departure point.

TIME TO END OF ROPE	WIND SPEEDS		
	0-10 mph	10-20 mph	20+ mph
8 min	3 min	2 min	
	A relaxing float. Enjoy a pleasant ascent to upwards of 1/2 a mile in the air. Perfect option for stargazers.	An exhilarating ascent. Noticeable movement once you've reached the end of the tether. Lowered height due to horizontal wind stress.	Extreme ascent. Very shaky once you've reached the end of the tether. Lowest height. Not a relaxing journey.

SUPPLIES



THE EXPLORER

Estimated Duration: 10 hours - 50 hours
Distance: 190 miles

Float through the Sandhills along a guided path. Trajectory is controlled through a GPS and weather tracking system hooked up to tiny electric fans that move along the exterior of the bubble. Have a friend pick you up at the end or purchase shuttle service. Great way to have an extended Sandhills experience and not have to have a long return hike.

TIME TO REACH END POINT	WIND SPEEDS		
	0-10 mph	10-20 mph	20+ mph
38 hours	13 hours	N/A	
	A multi-day float allowing you to have a stress-free break from our modern landscape.	Take a full day and experience everything the Sandhills has to offer, while having an exhilarating float.	Not an option due to fan power that would be needed.

SUPPLIES



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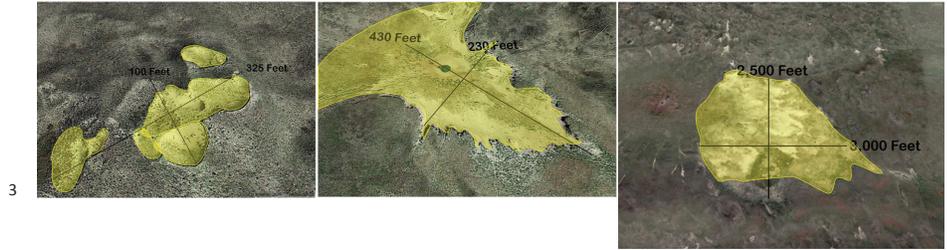
The commercial outfitter for the “Unbounded Architecture” journey would provide the bubble and all necessary survival supplies making the experience as mobile and person as desired. The supporting equipment would be transported in and out by vehicle or helicopter to insure minimal impact on the fragile landscape. The tethered journey would be opportunistically located to take advantage of the rolling landscape or migrating buffalo. The free floating option could be deployed with similar ease but based on wind speed and direction the backpacker, and the explorer would experience a new journey with each flight. The “Unbounded Architecture” is design to be a fully temporal experience. Each journey is unique to the day, time, seasonal change, and subtle changing landscape below and star-scape above.

ADAPTIVE CANVAS ON FRAGILE LAND: SANDHILLS, HERDING, AND ADAPTIVE CANVAS

SITE: SANDHILLS

The “Adaptive Canvas” project positioned the Sandhills as a continually moving and shifting landscape in which the wind is continually blowing sand at various cycles, causing creep, saltation, suspension, and ultimately blowouts. Blowouts are a condition unique to the vegetated Sandhills. They occur when partially vegetated sandy soils lose their vegetation and wind catches the loose soil and forms a depression. Blowouts can range in shape and size from hundreds to thousands of feet. (figure 3) As a blowout matures it becomes deeper and wider. The deeper the depression becomes the greater the wind vortex within the blowout. Blowouts will continue to grow unless the depression is, once again, stabilized by vegetation. This project seeks to pair the spatial condition of the shifting landscape with the architecture deployment of the “Adaptive Canvas.”

Figure 2: Necessary survival supplies, by Bradley Wissmueller.



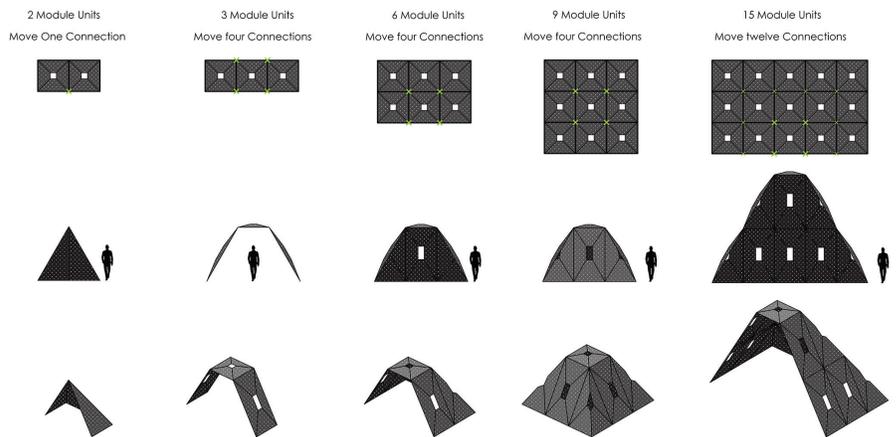
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RECREATIONAL ACTIVITY: HERDING

The Sandhills are home to multiple cattle herding outfits including one belonging to media mogul and philanthropist Ted Turner. Cattle help maintain an appropriate balance of Sandhills grasses. Similar to the shifting sand ranchers participate in an unpredictable activity: cattle ranching across the Sandhills.

PRODUCTION: ADAPTIVE CANVAS

Five feet by five feet adaptable square modular unit can double in size utilizing an extendable/collapsible structure that allows ranchers to create an interactive blanketing system. (figure 4) The modular system would allow for variation; by simply connecting or disconnecting modular pieces users can create a grid pattern that works for each situation. The “Adaptive Canvas” engages with a temporal landscape that is the continually shifting sands, the migratory buffalo, and ranchers of the Sandhills to provide an occupiable system in the vast openness. The system acts like an adaptable blanket with two primary yet temporal functions. First, when the module system lays flat or dormant, it protects the fragile land from destructive winds, specifically over Sandhill blowouts. This modular system is deployed similar to wooden stake or mesh system used on eroding beaches or desert landscapes. Ranchers could utilize this blanketing system in multiple locations to protect damaged land. Over time the canvas would attract and hold more sand particles minimizing the blowout cycle and expansion.

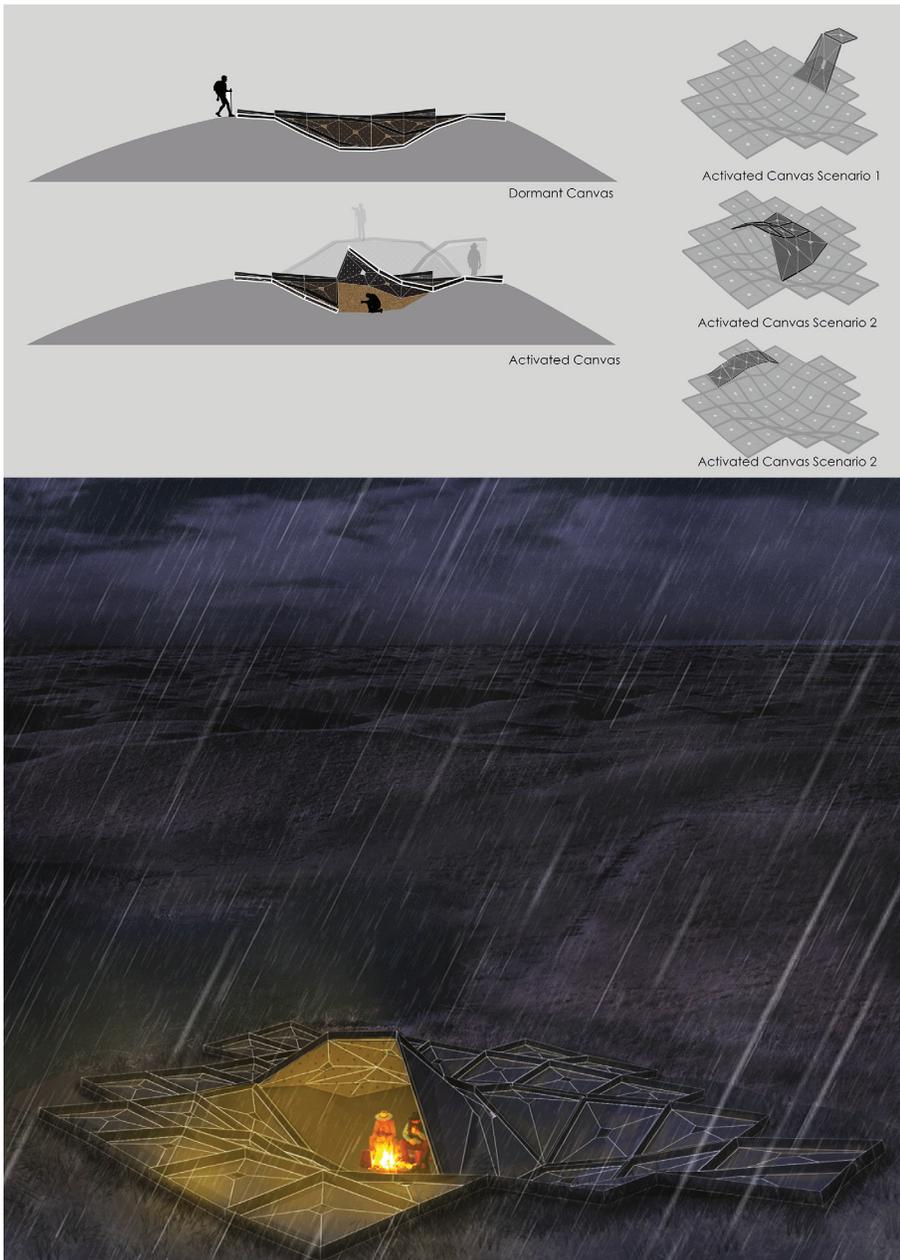


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Second, the ranchers utilize the system for personal protection and a user-defined space on the open prairie. To achieve this they simply disconnect a few joints and pop it up like a tent. (figure 5) Ranchers would strategically place these blanket systems in locations on their land determined by the cattle’s rotational grazing patterns. The modular system would give the ranchers shelter at each grazing location, allowing them to stay with their herd to monitor and control their cattle to more efficiently utilize the land. When the ranchers migrate to the next grazing location or return to the homestead the system retracts back down to protect the land. The interactive blanket is a subtle system that protects the land while being

Figure 3: : Sandhills blowouts, by Dexter Hansen.

Figure 4: Interactive Blanketing System, by Dexter Hansen.



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functional and adaptable for ranchers. If the rancher desires the larger unites can be brocken down folded up and transported allowing the rancher to user-define his or her rural form of nomadic architecture.

Both of these projective architectural scenarios addressed condition of vast openness in two separate was. The “Unbounded Architecture” scenario enhances the vast openness by isolating the user in the middle plane between earth and sky. The circular helium bubble amplifies the experience of isolation via the undisputed 360 spherical views. The “Adaptive Canvas” scenario engages the resultant factors of vast openness of migrations patterns and extreme environmental conditions. By strategically deploy a new system into the land this project hopes to create a responsive architecture responding to human and environmental needs. Both scenarios address the abundance of land and space provided through opportunistic interventions into the Sandhills.

Figure 5: User-Defined Space, by Dexter Hansen.

ENDNOTES

1. Rem Koolhaas, Architect Rem Koolhaas, October 19, 2011. Charlie Rose.
2. "Microcities," Center for Architecture, Urbanism, Infrastructure: CAUI, accessed September 16, 2015, <http://caui.princeton.edu/>
3. The geographical location of this area, is also opportunistic, which is proven by large corporations and government agencies. It should also be noted that this opportunistic view has changed over the years from garden, breadbasket, heartland, corn belt, to cattle county. But cities throughout the region are rebranding their image to support a changing economy. Telecommunication giants such as Paypal, LinkedIn, TD Ameritrade, Google, and Yahoo are locating new building and data centers just outside of Omaha, NE. The landscape resources of the region have been changing in the face of the information age and will continue to have an impact on the landscape and architecture of the region. Throughout history the central Great Plains, Nebraska in particular, has been strategically optimized for condition related to scarcity and more recently abundance. The perception of scarcity provides incentives related to climatic conditions, human risk factors, and proximately to larger markets. Examples include U.S. Strategic Air Command and Offutt Air Base outside of Omaha, where then President Bush conducted one of the first major strategy sessions in response to the September 11 attacks from a bunker. The communication abilities, location, and overall security made it a very desirable location for the president. The spatial condition of scarcity that spawned these government agencies to locate in the Great Plains opportunistically spawned major call centers to be headquartered near Omaha from the 1960s through the early 2000s. More recently technology companies are feeling making the shift to Omaha the "Top Ten Best American Cities to Work in Tech." (smartasset, 09.02.15)
4. "Undisciplined," Lola Sheppard and Mason White, Harvard Graduate School of Design, accessed September 16, 2015, <https://www.youtube.com/watch?v=m6LNRxgICs0>
5. Luis Callejas, Introduction: or a Project for Reclaiming an Archipelago," in *Islands & Atolls*, ed. Luis Callejas and LCLA Office. (New York: Princeton Architectural Press, 2013), 4-5.

CONCLUSION

The design-research studio explored new trajectories of spatial design in extreme environments often untested by our disciplines. Throughout history humanities relationship to the Great Plains has been categorized as: desert, garden, breadbasket, heartland, and fly-over country. What will the next generation bring to the Great Plains condition? The above projects critically repurposed disciplinary tools of architecture towards impacting the inhabitation of this unique landscape.⁵ Operating in the historically temporal and current day undescribed fields of the Great Plains provided contemporary opportunities for architectural proposals that respond to the local and territorial environment. Although complicated by its own regional histories the Great Plains is a unique case study for the disciplines of architecture and landscape architecture to provide alternative practices in extreme environments and new ways of thinking about occupying vast openness.

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