Can Interpretive Spaces Rekindle the Bond Between Children and Nature?
“American Amazon,” an Urban Nature Center for the Mobile-Tensaw River Delta

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Abstract of Thesis

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Urgent action is needed to halt the destruction of natural ecosystems; however, American children increasingly grow up in urban environments, with little opportunity to develop their love and empathy for the natural world. Modern cities and suburbs also separate young people from the well-documented social, intellectual, and spiritual benefits of playing in nature. Interpretive exhibition spaces can be a powerful tool for building affinity and empathy for nature in children with limited access to wild spaces.

This paper proposes a standalone exhibition in downtown Birmingham, Alabama, which immerses young families in the wilderness of southern Alabama’s Mobile-Tensaw River Delta. Combining strategies from science centers, botanical gardens, and children’s museums, the exhibition will lead visitors through the diverse ecosystems of the Delta in a renovated “urban greenhouse” blending interior spaces with natural flora, fauna, and running water. Playful, open-ended exhibits will educate visitors on the ebb and flow of Delta life while providing opportunities for self-led exploration, discovery, and relaxation. “American Amazon” will rekindle Alabama families’ connection to their local wilderness, build support for the conservation of the Mobile-Tensaw Delta, and inspire young people to discover the richness of their local ecosystems.
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Chapter 1. Children and Nature in a Changing World

Children Need Nature - Nature Needs Children

Today’s young people will have crucial decisions to make about humanity’s response to climate change and ecological destruction. Nearly all environmentalist adults identify the “root” of their concern in an impactful childhood experience in nature (Louv, 149); however, American children are increasingly spending their formative years indoors and have little to no personal connection to wild places. This shift has profound consequences, not only for children’s attitude toward environmental conservation, but for the emotional and physical development of today’s young people.

It is projected that the current generation may be the first in the country’s history to live shorter, less healthy lives than their parents (Moore, iii). Unstructured outdoor play has profound benefits for stress reduction, metabolic health, and emotional regulation, but modern children spend little time outdoors; In his book Last Child in the Woods, psychologist Richard Louv identified “nature-deficit disorder” as a profound developmental problem in the lives of young people. The work of landscape architect Robin Moore at the Natural Learning Initiative has further expanded our understanding of children’s environmental needs.
American children today spend less than half as much time outdoors as their parents, with much of their day taken up by screen time and structured activities (Adams et al., 2014). This effect is especially pronounced for children in urban areas and for low-income families, who have the least access to local, safe, and engaging outdoor spaces (Louv, 120). The physical benefits of time spent in nature are undeniable; children with access to the outdoors are less likely to be obese or diabetic, suffer fewer allergies and asthma attacks, and are less likely to be nearsighted (Moore, 3). Moving to a new home near a green playspace increases motor coordination and overall physical activity in young children, especially girls, and improves social skills; unstructured, imaginative play allows social groups to freely form and develop (Louv, 104).

Wild places also provide children with profound emotional rewards, which are especially beneficial for the most vulnerable children. Environmental psychologists Rachel and Stephen Kaplan propose that nature play provides “restorative fascination”; after long periods of directed attention tasks like schoolwork or chores, children experience mental fatigue and need to “rest” with experiences of rich, engaging, and nondirected attention (Kaplan, 1995). Watching birds hunt for seeds, digging in a running stream, or rolling down a grassy hill are intense but relaxing experiences very different from watching a TV show or doing a math problem. Without these periods of rest, overtaxed attention systems can lead to anxiety problems or ADHD. Children with sedentary indoor lifestyles are at increased risk for mental illness, even in the absence of life traumas (Louv, 32). By contrast, nature provides comfort, solace and perspective for children facing adversity;
children with natural places near their homes are more resilient to life stresses like poverty and divorce, and the highest-risk children see the greatest benefits (Louv, 49).

As Americans gravitate to urban areas and our wild places dwindle, special attention must be paid to creating moments in the lives of young people that bring them into close contact with the wonder, serenity, thrill and complexity of the natural world. An effective intervention will not only provide a single, impactful moment in a child’s life; it will spark curiosity and confidence in children to seek out other opportunities to explore nature, and encourage the adults in their lives to prioritize nature in their children’s lives.

**Inspiration: The Mobile-Tensaw Delta**

Hidden in the southern tip of Alabama is an unparalleled natural landscape; one of America’s last intact wetland ecosystems. The Mobile-Tensaw Delta contains a wealth of plant and animal species found nowhere else on earth, whose biology may hold the key to tomorrow’s scientific breakthroughs. Apart from its economic utility, however, the Mobile-Tensaw Delta is underappreciated as a landscape of shocking beauty and strangeness unique to America.

The Delta extends from the “Ice-age” old-growth hardwood forests of the Red Hills in south-central Alabama, through networks of rivers, streams and oxbow lakes into a vast salt marsh on the shore of the Gulf Coast (the area has been comprehensively described
by Waselkov, Andrus and Plumb in their 2016 report for that National Parks Service). The landscape is constantly reshaped by flooding, fire, and changes in salinity; this dynamic equilibrium makes the Delta a global hotspot of biodiversity as living things evolve to suit the changing landscape. The uplands host more species of oaks, snakes, turtles, and wildflowers than anywhere else in America; the swamps and marshes have unparallelled populations of fresh- and saltwater fishes, as well as manatees, sea turtles, and migratory birds. Much of the Delta is impossible to pave or build upon, so it has stayed mostly pristine. Parts of the area are largely unexplored, and it’s likely that many species in the area have yet to be discovered.

Ecologist EO Wilson, one of the 20th century’s pioneering biologists, eloquently recalls his childhood adventures in Mobile as the root of his scientific curiosity and passion for conservation: “to a teenage boy exploring its edges during the early 1940s, the Mobile-Tensaw Delta was a stream-laced wilderness, an impenetrable jungle, and a great forest magical to the imagination … the Delta to me remains an American Amazon that few have entered and fewer still know and understand. Seventy years after my bicycle trips, very little has changed” (Wilson 2017). The Delta is remote, mysterious, teeming with life and full of hidden dangers; it is both a treasure to be protected and a vast frontier for future generations to explore. This exhibition will use the landscape and wildlife of the Delta to inspire and fascinate young visitors, while raising awareness and support for its conservation.
Exhibition Spaces: Bridging the Gap

Wilson’s memories of the Delta recall years of carefree exploration of a seemingly endless, untouched wilderness. This experience is valuable, but increasingly rare - nearly 60% of Alabama children are now growing up in urban areas (Public Health, 2007), and American children spend far less time outdoors than they did even a generation ago. Family tourism to the Delta is severely limited by distance, transit difficulties, and the inconvenience of heat, humidity, mosquitos, and the perceived danger of the area. Low traffic to the area has contributed to its low profile; few people, even in Alabama, are aware of the diversity and uniqueness of this region (Olson, 2016). However, the Delta has potential to be the public-facing “crown jewel” of Alabama’s wildlife conservation efforts, and to entice young people to explore other natural areas in the state.

Low awareness of destination wilderness in Alabama has contributed to lack of nature exploration; it is one of the least-active states in the nation for outdoor recreation (Outdoor Industry, 2017). However, it is not enough to teach children about nature from afar; personal, impactful, memorable experiences form the backbone of environmental value systems into adulthood (Thomas, 1980). Urban and suburban “gateway places” like parks, gardens, and interpretive spaces can act as a crucial mediator to create these touchstone experiences with nature for children with little personal experience of wild places. On the one hand, they provide an accessible, convenient, and safe view into nature; they are engaging, “hyper-real,” adventurous, and educational; but they are also
an opportunity to experience genuine thrill, discovery, and closeness to wild things. A natural educational space is a chance to reach not only children but caregivers, to engage and empower whole families to spend more time outdoors; and by sparking a lifelong interest in the local wilderness, to build a generation of environmental stewards who will value and protect the wild places that fascinated them as children.
Chapter 2. Audience

The audience of this exhibition is 8- to 12-year old children in Birmingham, Alabama. Birmingham is the largest city in Alabama, a major city with sprawling suburbs two hours’ drive from Mobile. Children in Birmingham will have crucial state- and federal-level decisions to make about the future of the Delta. They are also growing up in a typical American urban/suburban environment, with limited access to wild places. There are few nature preserves nearby, especially for families relying on public transit, and Birmingham parks tend to be structured, lawnlike gathering places rather than naturalistic playspaces. This audience is thus at risk of growing up without early, impactful experiences with nature. An interpretive natural playspace in this community could provide not just science education, but a source of powerful memories of nature play which drive ecological consciousness into adulthood. Children used to playing indoors or in cul-de-sacs can watch turtles swimming for the first time, or immerse themselves in thick greenery during a game of hide-and-seek, and use these experiences as a stepping stone to use their own natural environment in new and imaginative ways.

8-12 year old children are old enough to begin exploring complex scientific concepts, but still engaged by physical activity and imaginative play. Much of the scholarship on the benefits of nature play has focused on preschool-aged children, but benefits extend well into adolescence (Moore, 22). Older children seek out opportunities to explore larger, wilder areas, and particularly to “get lost” and begin exploring the world independent of
their parents. Social connections are particularly important for older children, and they can work together in more sophisticated ways to solve problems. They enjoy opportunities to exercise their imaginations and to choose self-led activities like fort-building where they can experiment and stretch their skills. Once their interest is piqued, older children can develop encyclopedic knowledges of plants and animals that interest them and begin to act consciously to care for their environment.

Birmingham also suffers from urban blight, and despite renewal programs many neighborhoods lack safe and enriching places for children to spend time nature. Finally, Birmingham is the Alabama headquarters of The Nature Conservancy (TNC), a major environmental NGO with an ongoing interest in conserving the Mobile-Tensaw Delta. TNC would be a likely partner for funding and promoting the exhibition, which in turn could raise support specifically for TNC’s initiatives in Mobile.

**Audience Segments**

The goal of this exhibition is to reach children who do not already have a strong connection to the outdoors. Young people fascinated by nature will likely find the exhibition on their own; the target audience is “latent naturalists” who will learn to love the natural world when shown it in a new and compelling light.
Jefferson County schools have been criticized for poor outcomes and difficult learning environments with significant numbers of failing schools (Crain, 2018). It is essential that this exhibition be engaging for children without a special interest in science, and even children who struggle in school or dislike formal learning. In fact, studies have shown that time spent in nature reduces hyperactivity and attention-deficit symptoms in children and can improve school performance (Louv, 57); a welcoming and accessible learning environment is key for reaching children who may have most to gain from the exhibition.

Two main groups of young people have been identified as core audience segments: “active learners,” who enjoy adventure, physical activity, and peer socialization; and “quiet learners,” who enjoy reading, dreaming, and solitary time. The exhibition will engage “active learners” with opportunities for gross motor engagement, interactives where multiple visitors can work together to achieve a goal, and thrilling or exciting moments punctuating the exhibit experience. For example, a child raised on first-person shooters may enjoy the adrenaline rush of looking down from a precarious climbing structure, or unexpectedly coming face-to-face with a poisonous snake. “Quiet learners” may have experience with nature through books, pets, or television but are not used to exploring their surroundings. The exhibition will provide space for these visitors to explore at their own pace, discover secret and hidden treasures, and be rewarded for taking risks in a safe and supportive environment.
Chapter 3. Audience Engagement Strategies

Learning through Play

Middle-grade children are beginning to develop their skills of abstract thinking, decision-making, and independence; they look for chances to control their environment and act autonomously to develop expertise in skills that interest them (Moore, 23). School environments for older children, however, stress performance, obedience, and meeting quantitative goals; grades 4 through 8 are a critical period when some children disengage from schooling and lose motivation to learn, with lifelong consequences (Conkin). Compelling informal education can bridge this gap by giving 8- to 12-year-olds ways to engage with learning that interest, delight, and entertain them.

Children’s museums are developed on a foundation of “learning through play,” the assumption that young children’s play is a major means by which they develop skills, maturity, and experience with the world. Boston College psychologist Peter Gray proposes a five part definition of play (2013):

- Play is a self-chosen, self-directed activity
- Play values the means over the ends; the process of playing is more important than any concrete goal
- Play is governed by structures and rules created by the player, not imposed externally.
- Play has elements of imagination; it is somehow removed from everyday reality.
- Play involves a mindset that is active and alert but unstressed.

Young children’s exhibitions often incorporate play into their educational content; at the Minnesota Children’s Museum in St. Paul, children learn about physical forces by blasting whiffle balls through air cannons, or explore where food comes from by picking up a shovel and maintaining a fantasy garden (Minnesota, 2018). Science centers and natural history museums which cater to older children engage with denser, more complex educational content, but can incorporate the same philosophy to provide the types of play middle-grade children need and, often, lack in their educational lives.

Older children play just as much as younger, but their play increases in range and sophistication; they can still enjoy and benefit from the complete range of play activities (see a list of play types from the Playwork Primer in the appendices). Older children also have particular needs in their play, as described by Hilary Conkin’s “Toward More Playful Learning” (2014). Middle schoolers need positive social interactions, with peers and adults; freedom to explore within structure and clear limits; adventurous physical activity; creative expression; experiences of competence and achievement; and a meaningful participation in the life of their community. “American Amazon” will tailor
exhibit spaces to the needs of middle-grade children’s play, engaging visitors in ways that traditional science centers and formal schooling may not:

**Manipulable environments.** Older children increasingly want to control their surroundings and change them to suit their needs; hands-on large-scale exhibits allow children can move set pieces, alter appearances, or change environmental conditions.

**Open-ended exhibits.** The exhibits will refocus from small interactives with a set goal to larger, playful exhibit spaces, where visitors can experiment, test, and discover new opportunities in a context with multiple possible outcomes.

**Physical activity.** Older children need to stretch themselves physically as they learn. Elevated exhibit spaces, hard-to access nooks and crannies, and unwieldy set pieces will challenge visitors to achieve rewarding experiences.

**Team-based activities.** Older children have complex social lives and are learning how to negotiate life in a group. Some interactives will require visitors to work together to fulfill some objectives, joining visitor groups and encouraging negotiation, goal-setting and shared imaginative play.

**Role play.** Embodying other people holds its fascination as children begin to empathize with others and imagine possibilities for their future selves. Exhibits will take the
perspective of a Delta resident and encourage visitors to act out the realities of life in a remote and wild landscape.

**Alert but unstressed.** The “restorative fascination” of time spent in nature will be replicated in interstitial areas of the museum. Small opportunities for observation or discovery keep visitors engaged throughout exhibit hall, without demanding quick motion from one activity to the next.

**Adventure and Risk**

Children learn through doing, and children’s exhibitions can produce a uniquely evocative and lasting impact by opening the space to rambunctious, self-directed exploration and discovery. The experience of climbing slightly higher than you feel comfortable, encountering an animal up close, or having an intense experience of sound or sensation can all be valuable teachers; “risky play” for children encourages them to value their own capabilities and stretch their skills without fear (Sandseter, 2011). “American Amazon” will be a sandbox, not a lesson plan, providing diverse moments of potential discovery rather than prescribing an experience to the visitor.

The exhibition will draw from the tradition of “adventure playgrounds,” children’s spaces developed in Europe after the Second World War when children often took refuge in bombed-out and destroyed areas of the city to play. Adventure playgrounds provide open
areas of junk, trinkets, tools, toys, and various loose parts for children to manipulate; the goal is to provide diverse possibilities for play, and then give visitors freedom to explore and reform the environment to suit their needs. Seemingly “dangerous” activities like climbing, using hand tools, and playing with sharp or heavy objects are allowed so that children can stretch their skills. Interestingly, one of the motivations of the first adventure playgrounds was to address the deficiency in urban London children’s environments by recreating the freedom of a rural upbringing; “an urban countryside, where children can experience all sorts of play that they might have only with great difficulty in the city … If children have no access to trees, then work with them to build something they can climb” (Wilson 2009, 5).

Adventure and natural playgrounds seek to create an environment where children are empowered to manipulate their environment and take reasonable risks, while still keeping the space safe and welcoming. Crucial to this adventurous, but safe, environment is the role of the playworker: adults trained to stay in the space and facilitate children’s play. Playworkers provide props and tools, lend a hand when needed, and stop seriously dangerous behavior, but otherwise allow children’s play to take them wherever they want to go. (Further resources on the role of playworkers can be found in the Appendices).

Freedom to play is especially important in light of socioeconomic and racial disparities in how children’s play is criminalized, both in America generally and Birmingham in particular (Leech, 2009); African-American children’s unstructured play is seen as less
innocent, and more threatening, than white children’s’, and harmless activities can lead to disciplinary consequences or even police intervention (Ulen, 2016). Because outdoor play is often active, unstructured, and takes place in areas not designated for play, this can be a significant barrier for children of color to enjoy the benefits of nature play. On the other hand, children who express themselves enthusiastically often find learning in nature comes more naturally than in the classroom; self-expression, exploration, and social risk-taking are valuable skills when exploring a natural environment (Moore, 7).

Playworkers in “American Amazon” will be trained in intervention strategies which encourage active and carefree play in the space, redirecting destructive or dangerous play when necessary, while also encouraging visitors to engage and explore the space. Guidelines for non-interventive supervision can be found at play:groundNYC, an urban adventure playground staffed by playworkers which provides resources to similar organizations starting out (play:groundNYC, 2017).

**School Groups**

“American Amazon” will incorporate programs for elementary school groups, an underserved population in Birmingham (Census, 2017) and an opportunity to reach children whose parents may not have time or ability to take them to educational exhibits. The content of the exhibition and associated educator materials will address Grades 5-6 Next Generation Science Standards topics including crosscutting themes of “cause and

The physical space of the exhibition, which encourages movement, nonlinear flow, and wandering “off the beaten path”, raises challenges for educators who struggle with organization during field trips. Playworkers stationed in the exhibition hall will be trained specifically to facilitate group visits with demonstrations, to assist in headcounts, and to move groups from one exhibit area to the next. Hidden or secondary pathways (which provide mystery and intrigue during normal open hours) will be blockable with moving exhibit elements, so that during group visits students can be contained in one area and then guided through the main portal into the next area. A classroom at the entrance to the exhibition and a large open area in each subsection of the exhibit will give educators space to gather their groups for lessons and headcounts.

Caregivers

Although the exhibition is intended primarily for young people, parents and other caregivers are a crucial target audience for interpretive materials and the built environment. Adults can either model exploration, inquisitiveness, and engagement for their children, or discourage them from connecting with the space by modeling boredom or punishing adventurousness. While “rules” signage for children will be as limited as possible, friendly and encouraging signage throughout the space will explain to adults
what is allowed in the space and reassure them that, for example, children walking on grassy areas or walking in water is allowed and encouraged.

Comfortable seating on high ground in each subsection will give adults a chance to relax while supervising their children, while children have a chance to set out on their own, get “lost,” and interact with other young visitors. More content-heavy text panels at adult height will be available in some areas to help caregivers engage in their child’s learning; children can fully enjoy the exhibit without reading the panel, but an adult can use the information in the panel to extend their child’s learning by explaining or helping explore the space.

**Community Engagement**

The opening of the exhibition will coordinate with ongoing efforts in Birmingham and the Druid Hills neighborhood to develop sustainable community spaces. The selected site includes a large grassy area, which will be expanded by changes to the building footprint. This area can be ceded to the Druid Hills neighborhood council, which has expressed interest in developing areas for community gathering and attracting more young families to move into the area. By collaborating between community partners and landscape architects trained in outdoor learning environments, this space can be developed into a public area that meets the needs of the neighborhood while incorporating Mobile native
plants, water play features, and a rich environment for local children (particularly those younger than the exhibition audience) to explore.

The exhibition will pursue a partnership with the Birmingham headquarters of The Nature Conservancy, the largest environmental nonprofit working on conserving the Mobile-Tensaw Delta. TNC may contribute to the content of lead-in and lead-out exhibit areas highlighting local conservation efforts. In addition, exhibition space and classrooms can be used in support of TNC’s urban greening program in Birmingham, which trains young people to convert blighted properties into green spaces valuable for native wildlife and wastewater management (Nature Conservancy, 2018). Sponsored lots planted with native greenery can act as both advertisements for the exhibition and foundation support for the local community.
Chapter 4. Site

The exhibition will be installed in a currently vacant commercial building in the Druid Hills neighborhood of downtown Birmingham. This unassuming space, close to downtown attractions, can be transformed on the interior to create a surprising and delightful transition between the urban surroundings and the Delta wilderness.¹

The proposed location is a short walk from Birmingham’s main downtown district, with attractions such as the Birmingham Museum of Art, public library, and McWayne Science Center nearby. The Uptown entertainment district is a growing attraction for shopping and sightseeing, both for metro Birmingham and suburban Jefferson County residents. To the north of the site is the neighborhood of Druid Hills, a quiet residential area. Druid Hills community members value the safety and beauty of their neighborhood, but are concerned about urban blight, limited amenities, and the lack of young families moving into the area (Prickett, 2017). The proposed exhibition could benefit this community as well as Birmingham at large, by providing a public green space outside the exhibition hall, by promoting the area to young families bringing their children to visit,

¹ This building was formerly the headquarters of the Birmingham Salvation Army until its closure in 2016; it is currently slated for demolition (Edgemon, 2018). The building is currently owned by the Birmingham-Jefferson Civic Center Authority, which administers the Birmingham-Jefferson Convention Complex across the street. The BJCC is a sports, entertainment, exhibition and convention center anchoring the Uptown Entertainment District with shopping and dining nearby. The BJCCA is a branch of the Birmingham city government, and their civic mission could likely be extended to leasing unused space to an educational and recreational opportunity like the proposed exhibition.
and by assisting with community greening through partnerships with The Nature Conservancy’s Conservation Scouts program (Mittermeier, 2017).

The exhibition is heavily focused on nature, wild spaces, and contact with dirt, water, plants and animals. However, the same factors that limit Alabama families’ experience with the outdoors are a problem here; the extreme heat, humidity, and insect pests of the Gulf area make nature exploration daunting for many families. The building shell of this site is an opportunity to create a hybrid indoor-outdoor space, adding skylights and windows to the existing outer walls to create an “urban greenhouse” where plants can grow while climate control systems maintain a welcoming environment year-round. The existing roof will be removed, and 8- to 12-foot brick exterior walls will be augmented with modern glass warehouse windows and skylights to maximize natural light. The overall effect will blend with the Birmingham industrial architecture from the outside, but once inside the shell of the building can fade back and create the illusion of an expansive organic space. High-set windows will let in sky and trees but avoid city views where possible, using frosting or matte backgrounds where needed to create a sense of instant transportation away from the urban environment. In areas addressing densely forested areas of the Delta, hanging acoustic clouds with transparent fabric can filter light and sound to “close in” parts of the gallery for an evocative effect.

The exterior of the building will be renovated with colorful nature murals, but also with landscaping and plantings that bring some of the feel of the exhibition into the entry and
street view of the building. Most visitors are expected to arrive from the south side of the building, either walking from the bus stop and downtown or arriving by car in the south side parking lot. A permeable gravel parking lot with green swales and native vegetation will control stormwater runoff and welcome visitors into the space. The large lawn behind the exhibition space is beyond the scope of this proposal; however, the additional 20,000 square feet of green area on the lot would be ideal for a small community park with a lawn, curving pathways, rich vegetation and pollinator plants for Druid Hills residents to enjoy year round.
“Our Delta” aims to communicate the core idea that “the Delta is a wild and wonderful ecosystem like nothing else on earth, where the lives of plants, animals, and people are all tied to the changing landscape.” Signage and exhibit materials will provide prompts, stories, and facts for interested visitors, as well as denser categorical content (for example, lists of poisonous and nonpoisonous snakes) for children interested in categorical knowledge. The exhibition will not, however, attempt to provide an authoritative education about Delta ecology. It is an often-forgotten fact that exhibitions are not particularly efficient at communicating large volumes of information (Skramstad, 123). The strength of interpretive spaces is their ability to immerse, to evoke, and to inspire; and particularly in the case of natural environments, an emotional experience with nature may have a more lasting impact than dozens of lessons. (The aviary of the Philadelphia Zoo, where visitors buy cups of sugar water to hand-feed crowds of tropical birds, is an example of a content-poor but unforgettable exhibition experience which has influenced generations of young visitors.) The experiential content of the exhibition will communicate three main concepts about the Delta, which also inform the interpretive strategies used in each exhibit:

“American Amazon.” The Delta is a wild, diverse, and unique place in the world, with fantastic animals and plants found nowhere else on earth. Visitors will get the sense of exploring an unknown place, of “trailblazing” outside the defined paths of the exhibition,
and of some level of risk-taking and danger in a new environment. Exhibits will communicate the diversity of species in the Delta and the vast, uncharted, and adventurous ambiance of the area. Larger-scale “field guide” content will give visitors the option to compare and identify many types of related species, for example wildflowers or snakes.

“Ebb and Flow.” The richness of the Delta ecosystems is due to the interplay of several ecological features - variations in temperature, rainfall, likelihood of flooding, and periodic fires turn small areas into a wealth of micro-environments where different species thrive. Delta residents have adapted to seasonal and periodic changes in their environment, creating a system that is constantly changing but also surprisingly resilient. Ecosystem-level changes will be communicated through memorable interactive moments, using light, sound, water and wind cues to create a full-body experience. In particular, visitors will encounter surprising moments of flooding, simulated wildfire, and periodic rainfall.

“Our Delta.” Humans and animals have called the Delta home for thousands of years and have found ways to live together harmoniously. The exhibition will personalize the experiences of animals and people with spaces that encourage visitors to see the Delta from different perspectives. Areas of dense greenery will shrink visitors down to empathize with smaller creatures; manmade structures like boats and hunting blinds will encourage children to act out the lives of “swamp people” who live close to the land. The
exhibition will present sustainable hunting, fishing, and food gathering practices as a means of connecting with nature and preserving it for future generations.

The exhibition carries a conservation message, and hopes to inspire young people to act to protect the environment in the future. However, it will not highlight “negative messaging” about the damage done to the Delta, potential threats to its survival, and the urgent need to change our relationship to nature. Young people without a strong connection to nature may now encounter it first through these troubling messages about environmental destruction, and educators have suggested that this strategy may backfire; young people may build a concept of nature as already destroyed, doomed, or polluted, rather than fostering the healthy joy and wonder in their local ecosystems that later makes these messages so impactful (Louv, 133). “American Amazon” will inspire children to study, explore, and idealize the Mobile-Tensaw Delta, so they grow into adults who are spurred to action to protect and defend it.
Chapter 6. Interpretive Strategy

Where the Wild Things Are. “American Amazon” is inspired by the narrative of Maurice Sendak’s classic children’s book, where a bored and disempowered young boy, “sent to bed without supper,” uses his imagination to escape his bedroom into a magical forest full of monsters. Max transports himself from his everyday life to an unknown place full of fascinating, magical, and slightly scary creatures, where he tames the monsters and leads his new friends on a wild rumpus as their king. After a while, however, he begins to miss his normal life and sails back to his room, where he finds a hot supper and a newfound appreciation for home.

Visitors to this exhibition will feel transported from the environment of urban Birmingham into a far-away wilderness, but one that retains familiar elements of the Alabama countryside. Beginning and ending with more traditional museum environments, the space will be transformed with whimsical interior architecture, dense plantings, and immersive exhibit elements to create an impression of travelling miles from home. Through the architecture of the space and the interactions with exhibit elements, the exhibit experience will empower child visitors the way Max is empowered in the island of the wild things. Children will have the power to lift heavy logs, cross treacherous streams, grow flowers, change the weather, and take on the roles of animals and people very unlike them. The overall impression will be of visiting a “hyper-real” and slightly surreal Delta landscape where the visitor has magical powers to discover and
transform the environment. Emphasized is the wildness of the landscape; its uncharted, mysterious nature; and the adventurous potential of every twist and turn. Returning to Birmingham and the community greenspace in the back lawn, children will have a profound sense of the possibility for magic hiding in even their local wilderness and of their ability to discover it on their own.

**Rewarding Exploration.** Middle-grade children enjoy opportunities to stretch themselves, to be independent, and to go beyond prescribed limits to explore on their own. Traditional nature exhibits can struggle with this because of the need to separate children from live animals or delicate greenery; clearly marked paths and off-limits areas are important for operation but lose some of the magic of exploring a real wild place where nothing is forbidden. As much as possible, the spaces in this exhibition will be hands-on and accessible. Visitors can wade through flooded walkways, explore the back end of a front-facing exhibit, or forge their way into densely vegetated areas; in fact, the structure of the exhibit will reward daring with unlabeled discoveries peppered into the space for visitors to find on their own. To drive this message home, the initial entrance to the exhibit hall will confront visitors with a wall of planted greenery; as the gallery floor ends and the mulched planter bed takes over, visitors will be forced to make the decision to “leave the museum” and engage with the space as interactive, immersive, and free.

“American Amazon” will use secondary pathways and concealed exhibit elements to build in multiple levels of visitor experience. In outdoor playgrounds, children often
ignore the metal structures provided and gravitate to the woods, rocky borders, or tall grass at the edges; this feature of outdoor play will be honored in an exhibit space where the margins of each space are as rich with possibility as the keystone exhibits. Pushing away palm fronds may reveal a window into a living anthill, or a hollow filled with wildflower forms. Varying levels of subtle signage will hint at these discoveries, encouraging visitors to look on their own for new things to discover. For many children, nature represents not just an adventure playground but an opportunity for escape, solitude, and reflection (Moore, 13; Wilson, 2009). The exhibition space will also include places to hide, get lost, and feel completely surrounded by natural sights and sounds.

**Close Encounters.** The Delta is shaped by an interplay of massive forces which act over large spans of time and space. A creek that floods with saltwater every few weeks is very different from one two feet uphill that floods only during hurricanes, so new species of salamanders evolve to fill each niche; fire may clear out the underbrush only once every few years, but its impact is always felt in the communities of plants covering the forest floor.

In communicating complex, abstract concepts of ecology to young people, it’s important to keep in mind the ways that children learn and the lessons they are prepared to absorb. Children’s exhibits must be sensitive to the capabilities and interests of their users; abstract concepts like culture, evolution, or gravity are difficult to explain with words, but
easy for children to grasp when they experience them through personal identification and experimentation (Ringel, 2005).

“American Amazon” will not seek to explain these concepts systematically, but will create the visceral presence of environmental forces in the space through immersive moments of fire, water, flood and evolution. By manipulating lights and sounds, the temperature of exhibit areas, and mist towers or flowing water, visitors may suddenly happen across an impactful moment where ecological forces manifest suddenly in their exploration of the space. Through an empowered view of the landscape where they can manipulate, say, the height of water in a stream and the flowers that bloom nearby, children will come away with an emotional understanding of how natural systems develop.

**Embodied Experience.**

Imaginative play is a hallmark of childhood, and even older children gain perspective on other lives by taking on their roles in pretend play (Conklin, 2014). The Delta is a remote and uncharted wilderness where creatures lead often mysterious lives; however, it has always been home to “swamp people” who live close to the land and know their surroundings intimately. The history of humans in the Delta stretches from pre-Columbian mound cities who farmed riverbed oysters, to fishing and hunting encampments peppering the marshes today (a fun and colorful narrative of this lifestyle
can be found in Mobile native Watt Key’s memoir *Among the Swamp People*). Children in the exhibition will have opportunities to see the Delta through the eyes of these people, and of the animals who share the space with them. Interactives exploring hunting and fishing techniques, foraging for food, and wilderness survival strategies like the identification of poisonous snakes will cast visitors as survivalists experiencing the Delta firsthand. Ecological exhibits will contribute to this feeling of embodiment with “God’s-eye view” interactives allowing children to manipulate the landscape and environmental conditions themselves.

The incorporation of hunting and fishing into an exhibition with a conservation message may be counterintuitive to some. However, catching animals for food and sport is an important aspect of how Americans interact with the outdoors. In Alabama specifically, the Forever Wild Land Trust is funded almost entirely through proceeds from hunting and fishing visitors, and these activities are allowed in all protected areas following common-sense guidelines. Many young people have profound outdoor experiences in this context, and develop a sense of environmental stewardship through responsible husbandry, rather than leaving the landscape untouched. Richard Louv recommends “destructive” activities like fishing, picking flowers, and fort-building as valuable ways for humans to become close to nature; this proximity, within responsible limits, builds care and connection with the wilderness one explores.
Living Landscapes. The interior space of the exhibition will be transformed into a hybrid landscape of interior and wild elements, blending the feel of a science center and a botanical garden. Beginning and ending with more traditional indoor spaces, the landscaping elements will emerge organically from the built space as the forest in Where the Wild Things Are manifests in Max’s bedroom. Parts of the exhibit hall will be mostly interior with small, composed natural elements; in other areas, the building shell will drop away completely to create small areas of complete immersion in a natural space.

Landscaping components will include Delta vegetation (cypresses, oaks, palmettoes, Spanish moss), rock formations, grassy swales, and marsh grasslands, as well as running water formations. Areas of the space may appear overgrown, foreboding, or impassable, evoking the vastness and danger of the Delta itself. This leaves open the possibility for nonliteral and lyrical landscapes that communicate information about the ecology of the Delta; inspired by land artists like Andy Goldsworthy and Robert Smithson, surreal landforms can draw visitors in to impactful experiences of surprise and recognition. The natural forms of the City Museum of St Louis and the psychedelic dreamscapes of Meow Wolf’s House of Eternal Return are also impactful examples of interior spaces where surreal natural forms burst out in playful, interactive ways.
Beyond the physicality of the space, built and natural elements will be chosen to create and overall sense of a half-interior, half-exterior space that evokes the same comfort and fascination as a wild environment. Environmental design firm Terrapin Bright Green has identified core features of “biophilic design” which trigger the innate human affinity with natural spaces. The full list is available in the Appendices; in particular, the exhibition will take care to address air movement (wind), scents, lighting variation, and ambient sound in ways that, while not literally recreating an outdoor environment, create a naturalistic ambiance for the visitors to explore.

Running Water. The Mobile-Tensaw Delta is profoundly shaped by the network of rivers and streams that suffuse it. Water levels, salinity changes, currents, and rainfall combine to support the incredible diversity and richness of the landscape, all pulled by the tides of the Gulf Coast. This exhibition will keep water at the forefront of the visitor experience with a network of water features running throughout the space. In several exhibit areas, small streams or creek beds will let children splash, create dams, and explore cycles of flooding and drought. A dramatic weather interactive and steam towers will “rain” down water onto children for a full-body experience and immersive soundscape. The culmination of the exhibition hall will be a completely flooded area of swamp and marshland, where children use stepping stones and walkways to cross a treacherous cypress bog before emerging into an peaceful open bay of salt marsh, ringed by vegetation under the open Alabama sky.
Concealment and Discovery. The exhibition is built around encouraging children to explore the unknown, look deeper into the familiar, and find joy and wonder in a landscape they have little experience with. The space of the exhibition will be structured around repeated experiences of concealment, exploration, and discovery, rewarding visitors who seek out experiences with moments of surprise and delight throughout their journey. Visitors should come away with the sense that they have traveled hundreds of miles through the Delta wilderness, spending time in many unique niches within the larger whole. Large open galleries are most convenient for supervision of small children, so the experience will be structured around three main exhibit halls. Between each hall, however, a smaller enclosed room will create a moment of narrowing-in, an impactful pivot experience, and a surprising opening-out into a quite different landscape. The visitor path is inspired by the layout of Chinese gardens, which link small natural vignettes to create a multiplicity of potential paths and experiences within a relatively small space bounded by walls and centered on water (Yu et al., 2015).

Because children will visit the space with the adults in their lives, care must be taken to create a wild and diverse exhibit space without making it impossible for adults to keep track of their children. However, children love the feeling of “getting lost” in an environment and wandering free of adult supervision to have independent adventures. Low dividers and partial sightlines will be manipulated to create spaces where a child can pass through multiple exhibit areas while a stationary adult can watch them from afar. “Lookout” seating areas will be judiciously placed, both to give adults an easy vantage
point on their children, and to encourage them to sit back while younger visitors can “wander off” on their own.

**Whimsical South.** The built aspects of the landscape should feel fun, energetic, and slightly surreal, but still reconnect visitors to the essentially Alabama nature of the landscape they explore. As the landscape emerges from the interior space, the design motifs will also morph and expand to create a more colorful, surreal and exciting feel than the unassuming entrance to the space. Vernacular forms of exterior and interior architecture in the South are full of whimsical, ornate, and playful forms which can be manipulated to this goal.

Creole and Cajun architectural styles from the Gulf Coast are a particular inspiration; they incorporate intricate trims in botanical shapes, tactile walls from *poteaux en terre* or cob construction, and bright, playful colors inside and out. Afro-Caribbean building styles also incorporate bright colors and whimsical detailing which will be incorporated into graphics, space dividers, signage and exhibit pedestals. The overall effect should be fun and novel but not wholly new to visitors. Many North Alabama residents are recent arrivals from the depopulating rural South, and architectural elements should recall a childhood in Mobile or a grandparent’s house in ways that ground the fantastical exhibit experience in the local landscape and culture. Inspiration will also be drawn from Southern folk art, which also utilizes bright colors, simple forms, and a blend of natural
and graphic elements (the works of Anthony Tavis and the Gee’s Bend quilting style are two stunning examples of Alabama folk art in this vein).

Typography and signage will continue this motif with energetic and colorful graphic design. Natural shapes overlaid in rich jewel tones contrast to the planted elements while recalling both the Delta sunset and Alabama folk art palettes. Transitions from white-backed to black-backed signage signal movement from open/playful exhibit areas to enclosed/adventurous ones. Exhibit text will serve as prompts, wayfinding, and optional in-depth information rather than blocks of educational information. This effect can also be scaled down to flag secondary and hidden exhibit elements, where colorful banners, symbols, or color-coding without text can indicate an interesting finding while leaving the content for visitors to uncover.
Chapter 8. Intended Impact

“American Amazon” will create a joyful, memorable, and impactful journey through the wild and wonderful landscape of the Delta, leaving visitors with a new appreciation for the little-know ecosystem and kindling their interest in exploring wild places. For children with little personal connection to nature, this exhibition hopes to go even further; “American Amazon” may be their first major moment of wonder at the possibility of nature exploration, and will open the door to interest in playing outdoors, learning about local wildlife, and exploring the possibilities of the green spaces in their lives. Caretakers visiting the space will also be given skills and confidence to explore the outdoors with their children; though many families will never visit the Delta, a family experience of fording a stream, identifying wildflowers, or watching fish hunt water striders in a pond may draw parents back outdoors to prioritize time in nature as a family.

For the exhibitions community, “American Amazon” hopes to be a new model for science education for older children that prioritizes the transformative power of play. Blending strategies from children’s museums, science centers, zoos and botanical gardens, the exhibition will provide new ways for children to engage with the natural world outside the increasingly narrow lens of formal science education. The exhibition will also continue the ongoing trend of recognizing exhibitions’ transformative potential, not just as content communicators, but impactful inspirational spaces that communicate a lasting emotional message to the audience. Traditional science exhibitions can effectively
describe the inhabitants and landscapes of a wild place; in the age of climate change, we increasingly need spaces that bring the essence of the biophilic impulse to disconnected urban residents to rebuild our innate connection to our planet.

The short-term success of the exhibition can be measured in visitorship and visitor surveys; in the development and success of the associated community greenspace; and in engagement with Birmingham parks programs and associated outreach through The Nature Conservancy’s blighted lawn program. On a longer timescale, the hope is for this exhibition to be a small part of the necessary rebuilding of American children’s connection, care, and love for America’s wild spaces, encouraging the next generation to act locally and globally to combat threats to the natural world.


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Appendix A. Supplementary Content

The 14 Patterns of Biophilic Design. From Terrapin Bright Green, 2014.

“Nature in the Space:


Non-Visual Connection with Nature. Auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate and positive reference to nature, living systems or natural processes.

Non-Rhythmic Sensory Stimuli. Stochastic and ephemeral connections with nature that may be analyzed statistically but may not be predicted precisely.

Thermal & Airflow Variability. Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments.

Presence of Water. A condition that enhances the experience of a place through seeing, hearing or touching water.
Dynamic & Diffuse Light. Leverages varying intensities of light and shadow that change over time to create conditions that occur in nature.

Connection with Natural Systems. Awareness of natural processes, especially seasonal and temporal changes characteristic of a healthy ecosystem.

Natural Analogues:

Biomorphic Forms & Patterns. Symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature.

Material Connection with Nature. Materials and elements from nature that, through minimal processing, reflect the local ecology or geology and create a distinct sense of place.

Complexity & Order. Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature.

Nature of the Space:

Prospect. An unimpeded view over a distance, for surveillance and planning.
Refuge. A place for withdrawal from environmental conditions or the main flow of activity, in which the individual is protected from behind and overhead.

Mystery. The promise of more information, achieved through partially obscured views or other sensory devices that entice the individual to travel deeper into the environment.

Risk/Peril. An identifiable threat coupled with a reliable safeguard.”


Note that these best practice indicators are intended for daycares and formal education spaces; some elements are not applicable to the exhibition setting.

1. There are 10 or more play and learning settings.
2. There is a looping, curvy, primary pathway for circulation and wheeled-toy use.
3. There is a grassy area for games, activities, and events for 25 or more children.
4. There are sufficient shade structures in addition to trees.
5. There is a variety of natural, loose materials present and accessible for children to play with them.
6. There are sufficient, different types of wheeled toys, portable play equipment, and play materials accessible for children to play with them.
7. There are sufficient gross motor activities supported by the OLE.

8. There are sufficient trees.

9. There is a proportion of trees that are edible fruiting species.

10. There are sufficient shrubs (including fruiting shrubs and vines).

11. There is a designated vegetable garden with sufficient produce for snacking and/or meals.

12. There is an outdoor classroom/program base/storage available.”


“1. All children and young people need to play. The impulse to play is innate. Play is a biological, psychological, and social necessity, and is fundamental to the healthy development and well being of individuals and communities.

2. Play is a process that is freely chosen, personally directed, and intrinsically motivated. That is, children and young people determine and control the content and intent of their play by following their own instincts, ideas, and interests, in their own way, for their own reasons.

3. The prime focus and essence of playwork is to support and facilitate the play process and this should inform the development of play policy, strategy, training, and education.
4. For playworkers, the play process takes precedence and playworkers act as advocates for play when engaging with adult-led agendas.

5. The role of the playworker is to support all children and young people in the creation of a space in which they can play.

6. The playworker’s response to children and young people playing is based on a sound up-to-date knowledge of the play process, and reflective practice.

7. Playworkers recognize their own impact on the playspace and also the impact of children and young people’s play on the playworker.

8. Playworkers choose an intervention style that enables children and young people to extend their play. All playworker intervention must balance risk with the developmental benefit and well being of children.”

**Bob Hughes’ 16 types of play.** From *Playwork Primer.*

“

*Symbolic play*—when a stick becomes a horse

*Rough and tumble play*—play fighting

*Socio-dramatic play*—social drama
Social play—playing with rules and societal structures

Creative play—construction and creation

Communications play—e.g., words, jokes, acting, body and sign languages, facial expressions

Dramatic play—performing or playing with situations that are not personal or domestic, e.g., playing “Harry Potter” or doing a “Harry Potter play”

Deep play—risky experiences that confront fear

Exploratory play—manipulating, experimenting

Fantasy play—rearranges the world in the child’s fantastical way

Imaginative play—pretending

Locomotor play—chase, swinging, climbing, playing with the movements of your body

Mastery play—lighting fires, digging holes, games of elemental control

Object play—playing with objects and exploring their uses and potential

Recapitulative play—carrying forward the evolutionary deeds of becoming a human being, e.g., dressing up with paints and masks, damming streams, growing food

Role play—exploring other ways of being, pretending to drive a bus or be a policeman or use a telephone.”
Appendix B. Exhibition Benchmarking

**Connected Worlds**

New York Hall of Science
Queens, NY
Permanent Exhibition
Est. 2015
2,300 sq. ft

NYSCI’s cutting-edge Connected Worlds exhibit immerses visitors in a surreal world where they have the power to balance and disrupt connected ecosystems. Visitors’ gestures influence projected images on the walls and floor, manipulating the flow of water and the growth of fantastical plants and animals.

Six interconnected environments share resources like water and weather, and creatures travel from ecosystem to ecosystem during their lifespans. A 38-foot waterfall and central reservoir provide water for all six spaces. Visitors can plant seeds, create rain, and dam rivers to create short-and longterm consequences for the ecosystems, teaching them about dynamic equilibrium, feedback loops, and the interconnectedness of all living things.

**Empowering the Visitor.** The exhibit is so immersive because it gives visitors - even children - the ability to manipulate and change their environment.
**Working Together.** Aspects of the exhibit work best when multiple people work together, encouraging strangers to team up to get things done.

**Get Moving.** Although the exhibition is tech-based, it requires users to engage their bodies - sit and stand, wave their arms, walk around the space, and pick up and carry large exhibit elements.

**Stewardship.** The carefully balanced miniature world powerfully communicates one core concept - everything in the space is dependent on everything else, and humans have the power to balance or disrupt that system with their actions.
Nature Lab

Natural History Museum of Los Angeles County

Los Angeles, CA

Permanent Exhibition

Est. 2013

6500 sq. ft.

The Lab at the Natural History Museum of Los Angeles County explores the ecosystem of an urban area to help visitors understand the plants and animals near them. The exhibition uses live specimens, interactive experiments, and colorful comic illustrations to see familiar creatures in a new light. Animals like opossums, turtles, and rats become the stars of an accessible all-ages science exploration, and visitors leave with new appreciation for the creatures sharing their city.

**Our Wildlife.** The exhibit text stresses the local and familiar nature of the animals displayed, but encourages visitors to look deeper and find new interest in animals like spiders and raccoons. Tie-ins help visitors bring their learning back to their neighborhoods.

**Concrete Jungle.** The spare, windowless exhibit space evokes the outdoors with fresh green graphics, live and preserved specimens, and blocky modernist cases - integrating city and natural elements without feeling disjointed.
**Study Space.** The exhibition has many areas where visitors can look at a variety of similar specimens, exploring similarities and differences.

**Citizen Science.** Exhibits and online extensions encourage visitors to contribute to NHM’s learning with photos, observations, and meetups to study LA County wildlife.
Teardrop Park

NYC Parks and Recreation

Manhattan, NY

Est. 2004

87,000 Sq. ft

Designed by Michael van Valkenburgh, Teardrop Park fills two acres in downtown Manhattan’s Battery Park. The park is inspired by the landscape of the Hudson River Valley and the need to provide natural spaces for children raised in urban environments. Teardrop Park’s activity areas flow freely with the wild landscape and were specifically designed as play spaces for young children. The centerpiece of the park is a rocky grotto with water fountains where children play in summer, reachable by looping walkways with dense vegetation for relaxation and privacy. Tall trees, grade changes and rock formation create the feeling of a hidden oasis despite its small footprint, with a grassy gathering place at one end of the park.

**Metaphorical Landscape.** The park evokes the landscape of upstate New York with repeating elements like shale rock, but in imaginative ways providing lots of affordances for play and relaxation.

**Child-Centered Design.** The park was created with young children in mind, but the beautiful landscape and open-ended spaces are functional for visitors of all ages.
**Condensed Environment.** Small activity areas within the park have a unique feel and affordances. The park creates an immersive environment in a small footprint by using hills, wall dividers, vegetation, and twisting pathways to separate each area.

**Sensory Opportunities.** The most popular areas of the park are the water play and sand play areas. The large curving wall creates a memorable sense of smallness in the visitor.
**Interpretive Arroyo**

Kidspace Museum

Pasadena, CA

Est. 2016

12,000 sq. ft.

The outdoor exhibit of KidSpace Children’s Museum incorporates play and learning into a naturalistic landscape modeled on Southern California’s Arroyo Seco. Winding pathways bring children past native wildflowers, water features, and a pond with turtles and rushes; throughout the space, ponds, pools, streams and rocky riverbeds are available for children to splash and play. A canyon wall with periodic rain showers can provide extra excitement. A sand-and-water build area lets children influence the flow of water by building canals and dams, learning about how rivers create landscapes. At the entrance of the area, the Hawk’s Nest lifts visitors above the walkway to look out on the landscape below.

**Local Wilderness.** The exhibit text and website focus on the Arroyo as a local landscape that will be familiar to visitors, and as “our own” native ecosystem.

**Hands-On Landscapes.** Nearly everything in the space is intended for interaction, including the running water, dirt areas and trees. Flow between pathways and exhibits signals to visitors which areas are hands-on.
**Diversity of Activities.** The exhibit is focused on environmental learning, but includes opportunities for music, physical activity, construction, and quiet time.

**Age Extensions.** Exhibits for younger visitors (the sand pit) and older (the climbing wall and hawk’s nest) keep visitors of different levels interested.

**Learning Through Doing.** Activities in the exhibit don’t focus directly on science education, but incorporate building, crafting, music and activity into a natural arroyo landscape.
Sustainability Treehouse

Boy Scouts of America

Glen Jean, WV

Est. 2013

3,350 sq. ft.

A multilevel outdoor exhibition in the woods of West Virginia holds lessons on outdoor adventure and environmental stewardship. The Sustainability Treehouse is the visitor center of the Summit Bechtel Reserve. The treehouse incorporates gathering spaces and information about the reserve, as well as interpretive exhibits explaining sustainability technologies and the importance of conservation. Visually striking demonstrations represent concepts of interconnectedness and conservation. The three levels of the treehouse bring visitors into contact with the forest floor, canopy, and sky.

**Visual Metaphors.** The complex concepts of sustainability and interconnectedness are communicated with evocative nonliteral exhibits - like a sculptural wall of tin cups which pour water into each other to illustrate the trickle-down effect of water use.

**Walking the Walk.** The sustainability story of the exhibition is backed up by the structure of the stie, from locally sourced lumber to visible water collection and green energy systems.
**Safe Thrills.** The height, twisting walkway, and scenic vistas of the space evoke the feeling of wilderness exploration.

**Treetop Community.** The visitor center doubles as an event and gathering place, so the exhibition space itself incorporates attractive and educational spaces for larger groups to gather.