
Battling the Nature Deficit with Nature Play

An Interview with Richard Louv and Cheryl Charles

Richard Louv and Cheryl Charles research and write about play in natural settings. Louv, a journalist and recent visiting professor at Clemson University, is the author of eight books including the best-selling *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (2005) and *The Nature Principle* (2011). His regular column appeared in the *San Diego Union-Tribune* for more than twenty years. He has also written for the *New York Times* and *Times of London* and for *Outside* and *Parents* magazines. He has served on the editorial advisory board of *Parents* and received the Audubon Medal in 2008. Cheryl Charles is a conservationist and K–12 environmental-education specialist who helped launch the Leave No Child Inside initiative with Louv in 2006. A past member of the board of John Denver’s Windstar Foundation, Charles is cofounder and past CEO of the Windstar Land Conservancy and cofounder and CEO of the nonprofit Children and Nature Network. In this interview, Louv and Charles discuss the decline in outdoor play and the implications of this loss of familiarity with the natural world. They identify alarming physical, social, and psychological costs of alienation from nature but hold out hope that play will help reconnect children and families with their natural surroundings. **Key words:** Benefits of nature play; Children and Nature Network; nature-deficit disorder; nature play

American Journal of Play: Mr. Louv, what experiences prompted you to write *Last Child in the Woods*?

Richard Louv: I grew up in Missouri and Kansas and spent many hours with my dog in the woods at the edge of our housing developments. For whatever reason, I realized even then how important those experiences were. As an adult in the late 1980s, I interviewed nearly three thousand children and parents across the United States in urban, suburban, and rural areas while conducting research for a book titled *101 Things You Can Do for Our Children’s Future*, and the topic of children’s relationships with nature surfaced in conversations from classrooms to homes. I couldn’t help noticing the increasing divide between young people and the natural world, as well as the social, spiritual, psychological, and environmental implications of this

change. Plus, my own sons asked me about changes they had seen. Then, in the 1990s, overdue research emerged on the deficits and benefits of nature experience for children. All of this led to *Last Child in the Woods*, and then to *The Nature Principle*, which extends the concept of nature-deficit disorder to adults.

AJP: What questions from your sons most influenced your decision to write?

Louv: They were intensely interested in the kind of play I enjoyed as a boy—the freedom, the woods, the tree houses, and the forts. And, as I tell in the introduction to *Last Child*, one evening my younger son asked: “Dad, how come it was more fun when you were a kid?” While there’s much that is good about childhood today—some of it better than when I was a boy—the absence of nature experiences and freedom is striking. My wife and I made sure our kids had as much exposure to nature as we could give them, though it was often in a different form from what I experienced as a boy.

AJP: How do you define nature-deficit disorder? Do you intend it to suggest a physical or a psychiatric syndrome?

Louv: It is not a medical diagnosis but rather a term I use to describe what I believe are the human costs of alienation from nature. These include diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. Nature-deficit disorder damages children certainly, but I think of it as more a disorder of society, because it also shapes adults, families, whole communities, and the future of our stewardship of nature. Studies show that people who care deeply about the future of the environment almost always enjoyed transcendent experiences in nature when they were children. If nature experiences continue to fade from the current generation of young people, and the next, and the ones to follow, where will future stewards of the earth come from? This does not mean that children must have the exact childhood that prior generations had, but it does mean that nature experiences and independent play must be allowed or consciously woven into childhood as much as possible.

AJP: Dr. Charles, what initially sparked your interest in environmental education?

Cheryl Charles: I was raised in the southwestern United States and spent many hours alone. I spent even more time with friends and family, outdoors in a variety of settings—exploring arroyos, climbing trees, riding horses, making secret worlds under the shade of trees near running streams, and looking up at vivid blue skies through the brilliant green of cottonwoods. In addition to these direct personal experiences playing and learning in

nature, my family placed a tremendous emphasis on conservation and the importance of healthy ecosystems. So my interest in education and the environment is no surprise. My great grandfather Tom Charles was a remarkable guy. In 1907 he moved his family to southern New Mexico by train and wagon and eventually became a successful business person, attorney, author, farmer, and conservationist. Early on, the beauty, ecology, economic potential, and opportunities for outdoor family play in the White Sands inspired him, and he was instrumental in getting the area designated a national monument in 1933. His stories and my own experiences led me to think about and work on ways to connect children and youth with nature in their everyday lives. I have worried for decades about the changes I have seen in childhood in this country and the growing disconnect that Rich describes as nature-deficit disorder.

AJP: How did you become involved with the late singer John Denver's Windstar Foundation, and how did your experience with it shape your views about the benefits of play in nature?

Charles: My husband and I met John in the late 1970s when he was the number one recording artist in the world. He shared our concerns and commitments, and we formed a strong professional and personal friendship and family bond, which we maintained through the decades. We played and worked together on a host of Windstar projects related to children, the environment, and the health of communities—including what John called “choices for the future.”

We went together to Congress for John to testify in support of the Environmental Education Act, and he walked in wearing his trademark boots and carrying his guitar. He sang a few songs as part of his testimony. They were a great help to the cause. He was immensely talented, authentically irrepresible, and great at playing, especially in nature. Some of his most formative experiences as a child were playing outdoors, and his vision for Windstar grew out of them. Working with John reinforced and added to my own experiences from childhood.

AJP: What particular circumstances led you to cofound the Children and Nature Network, and what is its mission?

Charles: I was one of a group of people brought together by the Paul F-Brandwein Institute to plan a conference held at the National Conservation Training Center in Shepherdstown, West Virginia, in November 2005. We were worried about a variety of issues—including the trend of children and

youth learning about nature in the abstract. That concerned us for many reasons, including how the earth's precious natural resources would fare if most children were not growing up to love and learn from the land directly. What, we worried, would be the likelihood of their living and caring for it as adults? In addition to moderating the conference, I was commissioned to develop a white paper for all participants to read in advance. In doing the research for that paper, I found Richard's book, *Last Child in the Woods*, which had just been published. I read it cover to cover, marked it up, and sent Rich an email. Fortunately, he answered it. We then invited him to give a keynote at the conference, he accepted, and that is where we began our conversation about the need for something like the Children and Nature Network. Rich had been talking with others as well, and by April 2006, a small group of us established the network to build a worldwide movement to reconnect children and nature.

AJP: Mr. Louv, nature is vast, but your view is intensely personal. Do you see nature as an entity unto itself or as a reflection of our perceptions? How do you define it?

Louv: For the most part, we have left the definition of nature up to philosophers and poets. Science has a hard time defining nature, but here's how I see it. Human beings exist in nature anywhere they experience meaningful kinship with other species. By this description, a natural environment may be found in a wilderness or in a city. We know this nature when we see it.

AJP: Dr. Charles, do you have a similar view? Is nature where you find it?

Charles: Yes. Nature is all around us. Our network promotes the idea of "nearby nature." People can do the simplest things to reap nature's benefits each day, including bringing natural elements into their homes, schools, and offices. It isn't necessary to hop in a car and head for the wilderness to experience the beauty and wonder of nature's gifts. Realizing that one can find nature nearby is a wonderful, inspirational, and often life-changing concept.

AJP: So, then, nature also includes backyards?

Louv: Yes, and we'd like to see families create more natural play spaces there. We think it is important for children and families to find, appreciate, and experience nature in their daily lives. We need more of this.

Charles: Nature includes a host of other nearby places too. Nature can be found in the cracks in sidewalks where a flower blooms, in the moss on a rock, and in the songs and sights of birds in nearly any setting. We need to think flexibly and creatively about recognizing nature all around us and about creating natural elements where few exist in our lives.

AJP: Mr. Louv, in addition to gaining sensitivity to the importance of the environment, as you and Dr. Charles have discussed, why else should children play in nature?

Louv: The evidence strongly suggests that playing in the natural world increases physical competency linked to mental acuity. It increases the ability to see patterns where others see chaos. And it offers new disciplines to collect, perceive, and apply knowledge. Make-believe play in the natural world not only stimulates the senses, but also builds good sense. Several studies show that children who play in natural settings appear to be more cooperative and more likely to create their own games than those who play on flat turf or asphalt playgrounds. Most of all, nature experiences—particularly when they're part of independent play—contribute to a sense of wonder and awe. That's the greatest gift we can give our children. The last time I checked, *Grand Theft Auto* didn't create a sense of wonder and awe.

AJP: How does play in nature differ from play in other settings?

Louv: Play in nature differs mainly in respect to freedom and independence. Without independent play, the critical cognitive skill called executive function is at risk. Executive function is a complex process, but at its core is the ability to exert self-control—to control and direct emotion and behavior. Children develop executive function in large part through make-believe play. The function is aptly named: when you make up your own world, you're the executive. In 2001 researchers replicated a study on self-regulation done in the 1940s. Elena Bodrova, a psychologist at Mid-continent Research for Education and Learning, has provided a widely quoted explanation of the findings of the new study: "Today's 5-year-olds were acting at the level of 3-year-olds 60 years ago, and today's 7-year-olds were barely approaching the level of a 5-year-old 60 years ago." So the results were very sad. A child's executive function, as it turns out, is a better predictor of success in school than IQ. The decline in children's independent playtime—as childhood has become increasingly regulated by adults—parallels the human disconnection with nature.

AJP: How much prompting do children need when they're turned loose in the backyard or at the beach or a campground? Should play in nature always be free play?

Louv: We have observed that when most children today get a chance to play independently in a natural setting, they resist it for a while—electronic withdrawal is real—but it doesn't usually take long for them to become

children again; natural play seems to return to them like riding a bike does for those of us who learned when we were young but haven't ridden in years. Independent play in natural settings is wonderful for children. But ironically, because of the fear of strangers—and also of traffic—that so many parents feel, in order for many children to have a semblance of unstructured experience in nature, we're probably going to have to organize a lot of that experience. And we'll need to do that with a sense of humor and openness. We're not talking about parents or teachers hovering over children in the woods with nature flash cards.

Beth Almeras, otherwise known as The Grass Stain Guru, writes a terrific blog. She is the education and outreach director for the Head Start Body Start National Center for Physical Development and Outdoor Play, and she has promoted independent nature play for some time. One of her guest bloggers, Michele Whiteaker, has written, "I hate to admit it, but fear and anxiety are definitely factors." Even if many of our fears are based on media hype, parental fear is real. It should be respected, not dismissed. But we also need to make sure that children have as much play in the natural world as possible and that it is as independent as possible. Some parents will be comfortable encouraging their kids to roam freely, but the truth is that most won't. Almeras and Whiteaker offer a novel approach. Whiteaker writes, "In the range from helicopter to neglect—I probably fall a bit more toward helicopter. In fact, I call myself a hummingbird parent. I tend to stay physically distant to let them explore and problem solve, but zoom in at moments when safety is an issue (which isn't very often)." Almeras also stands back and makes space for independent play. Although the play is not as free as she experienced as a child, it is important nonetheless.

AJP: Dr. Charles, do kids know how to play freely?

Charles: Recently I spoke at a conference of school nurses, and when I asked what changes they had seen over the past twenty or thirty years, they said that children don't know how to play anymore. Later, I asked the same question of veteran teachers, and they said children have little creativity and don't have confidence in their imagination. Certainly there are exceptions, but this is a trend that has escalated in the past ten years. One of the most powerful remedies is independent play in nature—alone and with other children. Not all play outdoors in nature needs to be unstructured, but regular opportunities and experiences for children to be in charge of

their own explorations tend to nourish their creativity, self-confidence, problem solving, and other important attributes.

AJP: Is play outdoors in natural settings more beneficial than play on playgrounds or workouts in gymnasiums?

Louv: We mentioned studies that show children are more likely to create their own games in natural play spaces than on traditional flat playgrounds. Some of the research, which may apply to children's play, has been conducted with adults. Researchers in Sweden have found that joggers who exercise in a natural green setting with trees, foliage, and landscape views feel more restored and less anxious, angry, or depressed than others who burn the same amount of calories jogging in an urban setting. Researchers at the Centre for Environment and Society at the University of Essex found similar results. This is some of the research I report on in *The Nature Principle*. I should add that when we're looking at the impact of nature experiences on children, we should also consider them in the context of the other body of knowledge, which is about its impact on adults.

AJP: Can organized outdoor sports help children connect with nature?

Louv: That would depend on the nature of the outdoor sport. Geocaching—a high-tech outdoor treasure hunt—might help; soccer might not. Outdoor play of any sort can be good, including outdoor sports, but the quality of experiences with nature depends on how direct it is. Are kids getting their hands wet and their feet muddy? Are they experiencing nature directly?

AJP: When is nature play most critical in children's lives?

Charles: Nature play is critical through all of the phases of childhood. For the youngest children, beginning with infants, nature stimulates the imagination and provides a basis for recognizing patterns. Toddlers and young children learn empathy and bonding with other life-forms through nature play. The middle years provide opportunities to take appropriate risks, expand the play territory, and learn critical skills. Teens build on these earlier experiences. Nature-based play tends to be most memorable when there is what Juan Martinez, director of the natural leaders program at our Children and Nature Network, calls "play, serve, and celebrate." Teens find great inspiration and satisfaction in working to care for the earth while also caring for themselves and others.

AJP: Dr. Charles, you have characterized childhood today as "virtual, vicarious, electronic, passive, and cocooned." Would you explain what you mean by those terms?

Charles: “Virtual” speaks to the fifty hours a week on average, as reported by the Kaiser Family Foundation, that children and youth spend with electronic media—and away from direct experiences in nature-based settings. “Vicarious” means that rather than those direct experiences, children are enjoying nature through others’ eyes—whether on television, computers, or other electronic media. When a child sits for hours and hours facing a screen, typically without conversation or interaction with people or nature, it is a passive and sedentary existence. It is not conducive to healthy development overall. And the concept of “cocoon” speaks to well-intentioned parents who tend to be overly protective, keeping children in the house or other indoor settings and minimizing their opportunities to take appropriate risks and to benefit from the many positive gifts of experiences in nature outdoors.

Louv: Allow me to interject here that we’re not antitechnology, but we are pro-balance. As I say in *The Nature Principle*, the more high tech we become, the more nature we need. Time in nature can help kids gain confidence in themselves; hyperactive children become calmer and better able to focus. Studies of creativity show that kids who play in natural or naturalized play areas are far more likely to invent their own games and far more likely to play cooperatively. Children who have nature-play experiences also test much higher in science. We have learned that children who evolve as leaders in flat, hard-surfaced play areas tend to be the strongest, while the leaders who evolve from play in natural areas tend to be the smartest. It just doesn’t make sense to suppress a child’s inborn urge to play. It is better to use play to develop diverse mental and physical skills.

AJP: The benefits you cite are wide ranging. Do you see nature as a type of cure-all for kids’ needs?

Louv: Nature play is obviously not a cure-all, but it is an enormous help, especially for kids who are stressed by circumstances beyond their control. The great worth of outdoor experiences is that kids, especially in their formative years, focus on the elements that have always united humankind: driving rain, hard wind, warm sun, and deep and dark forests—and the awe and amazement that our earth inspires. Contact with nature allows children to see they are part of a larger world that includes them.

AJP: Are urban children significantly more disconnected from nature than suburban and rural children? And what effect is alienation from nature having on children and society in general?

Charles: The evidence suggests that children are increasingly disconnected from nature in all settings—urban, suburban, and rural—worldwide, and the consequences affect all income groups.

Louv: Obviously in some urban neighborhoods—not all—violence, economics, and a lack of access to nearby nature are very real barriers. So in this sense, many city children have extra challenges connecting with nature. But suburban and rural children also experience barriers. For example, in many affluent suburban neighborhoods, life is controlled to a disturbing extent by the regulatory covenants and restrictions common in planned communities. Just try to put up a basketball hoop, let alone let your kids build a tree house or fort. One woman I met said her community association outlawed children drawing on sidewalks with chalk. Recently in Florida, a neighborhood association literally tried to ban children’s outdoor play. These examples would be funny if they weren’t so tragic and so much more common than we would like to believe. Also, childhood obesity appears to be growing even faster in rural areas than in urban neighborhoods. This suggests that rural America has changed dramatically in terms of what children and young people do each day.

AJP: Does disappearing green space correlate with increasing social disintegration?

Louv: We believe so. Several studies have shown that civility increases and violence decreases when neighborhoods or play areas are greened.

AJP: In your view, what factors in the American experience have contributed most to current deficits in nature play?

Louv: Poor urban design, traffic, parental priorities, and societal fears are key factors. For several decades, our society has been sending a clear message to kids and parents. Our institutions, urban and suburban designs, and cultural attitudes consciously or unconsciously associate nature with doom while disassociating the outdoors from joy and solitude. These lessons are delivered in schools, through families, and even by organizations devoted to the outdoors, and they have been codified into the legal and regulatory structures of many communities. Most housing tracts constructed in the past two or three decades are controlled by strict covenants that discourage or exclude the kind of outdoor play many of us enjoyed as children. On top of all this, cable news and other outlets give unrelenting coverage to a handful of tragic child abductions, thereby conditioning parents to believe that child snatchers lurk behind every tree. Conditioned fear spreads, despite the fact that child abductions by strangers are, in fact, increasingly rare.

By a wide margin, family members, not strangers, are the most common kidnappers. I'm not saying there's not danger out there, but we do need to think in terms of comparative risk. Yes, there are risks outdoors, but there are huge psychological, physical, and spiritual risks in raising children under protective house arrest. Child obesity is just one of them. Children who learn to deal with small risks when they're young deal more effectively with truly big risks when they're older.

AJP: Tell us more about the research documenting the benefits of going outdoors to play.

Louv: An expanding body of research suggests that children and young people who regularly experience nature play are healthier, happier, and test better in school. Fascinating studies by the Human-Environment Research Laboratory at the University of Illinois at Urbana-Champaign show that direct exposure to nature relieves the symptoms of attention-deficit disorders. By comparison, activities indoors, such as watching television, or activities outdoors in paved, nongreen areas, leave these children functioning worse. Recent research of children, young people, and adults also suggests that exposure to nature improves children's cognitive abilities and their resistance to negative stresses and depression. Environmental psychologists reported in 2003 that a room with just a view of nature helps protect children against stress and that the protective impact of nearby nature is strongest for the most vulnerable children—those experiencing the highest levels of stressful life events. Other studies indicate that nature offers powerful therapy for such maladies as obesity and depression. Still other evidence suggests that creativity is stimulated by childhood experiences in nature and that greener neighborhoods are associated with lower child obesity. Much more research needs to be done, but as Howard Frumkin, dean of the School of Public Health at the University of Washington often says, we need more research on the impact of nature experiences on children and adults, "but we know enough to act." We also have millennia of human experience, centuries of observation by philosophers and poets, and other sources of knowledge and wisdom. This thinking, too, is important to consider.

AJP: How does outdoor play feed children's natural curiosity?

Louv: I think immediately of two of our favorite colleagues. Robin C. Moore, an international authority on natural design for play and learning and head of the Natural Learning Initiative in North Carolina, writes that children

have limitless imaginations and that natural spaces and natural materials stimulate them and provide avenues for inventiveness and creativity. Martha Farrell Erickson, a developmental psychologist recently retired from the University of Minnesota, where she was founding director of the Children, Youth, and Family Consortium, has written not only about the impact of outdoor play on curiosity but on parent-child attachment, and she has shown how these are related. She reports that the sights, sounds, and smells of the natural world fire young children's curiosity and lead to active exploration. Her research also found that when parents and children are outdoors, the adults find it easier to follow their kids' leads, respond to their interests, participate and delight in what they discover and in their experiences, and form secure attachments with them. In a paper for the Children and Nature Network, where she is now chair of the board of directors, Erickson wrote that many a parent has discovered that going outdoors in the warm sun and a gentle breeze is an almost surefire way to soothe a cranky infant and have a special time for quiet connection.

AJP: Why hasn't the drive for increased rigor in our schools included increased interest in teaching natural history?

Louv: When it comes to science learning, taking advantage of the world outdoors is especially important, but it's often neglected. Recently at Central North Carolina University, I met with a dozen biology professors deeply concerned about the dramatic deterioration of student knowledge of what's out there. They said students can tell you all about the Amazon rain forest, but nothing about the plants and animals of the neighborhoods where they live. Paul K. Dayton, a professor of oceanography in the Scripps Marine Life Research Group at Scripps Institution of Oceanography, is a harsh critic of trends in higher education, which sets the priorities for primary and secondary education. He points out that higher education has moved away from traditional biology and instead emphasizes the kind of molecular sciences and bioengineering that leads to products research universities can patent and sell to companies—which have boards of directors that often include the researchers who created the product, often at public expense. Dayton states that in a few years there won't be anyone left to identify major groups of marine organisms. And two Oregon State University researchers, writing recently in *American Scientist*, make the case that there is increasing evidence that most science is learned outside of school. They don't specifically mention the disconnect of children from

nature, but they validate the importance of after-school professionals and especially summer learning, and we believe nature play should be a part of such instruction. One encouraging effort currently underway to revive the study of natural history is the Natural Histories Project, which involves, among others, noted paleobotanist Estella Leopold, daughter of famed ecologist and environmentalist Aldo Leopold.

AJP: As a practical matter, can schools be persuaded to increase opportunities for nature play, and if so, how?

Charles: Yes, if communities, parents, and teachers lend support. We need to increase opportunities for both nature-based play and nature-based learning in schools, on school grounds, and in neighborhoods surrounding schools. There is ample evidence that when children and youth experience structured and unstructured learning within a school's curriculum and, beyond that, unstructured play in nature-based settings, a host of benefits results—increased achievement on standardized measures, less bullying, more positive teacher attitudes, and more cooperation and creativity among students, to name a few.

Louv: Despite the widespread prejudice against nature play, many schools are expanding opportunities for it. We've seen what we believe is an increase in nature-based preschools, for example, as well as nature-focused high schools. We've also seen an increase in school gardens and green schoolyards. We don't know the extent to which this is happening, but we do know that First Lady Michelle Obama's emphasis on gardening has helped. In the ideal scenario, new schools should be designed with nature in mind, and old schools should be refitted with play areas that incorporate nature. Another approach encourages the use of nature preserves by environment-based schools or the inclusion of established farms and ranches as part of these new schoolyards. Norway's departments of education and agriculture support partnerships between educators and farmers to revamp school curricula and to provide more direct outdoor experience and participation in practical tasks. And Canadian researchers have found that teachers express renewed enthusiasm for teaching when they have time outdoors. In an era of increased teacher burnout, the impact of green schools and outdoor education on teachers should not be underestimated.

AJP: How can busy adults find the time to encourage their children in nature play and to play in nature themselves? And what hope do you have that

individuals, communities, and society in general will value nature play and participate in it?

Louv: We always find time for the things we value most. One factor will be whether adults become more aware of how good nature experiences are for them, as well as for their children. I must say, I am hopeful. One day in Seattle, a woman literally grabbed my lapels and said, “Listen to me, adults have nature-deficit disorder too.” She was right, of course. I’ve heard many adults speak with this kind of heartfelt emotion, even anger, about this separation and also about their own sense of loss. Every day, our relationship with nature, or the lack of it, influences our lives. This has always been true, but in the twenty-first century, our survival—or *thrival*—will require a transformative framework for this relationship, a reunion of humans with the rest of nature, and a new nature movement that includes but goes beyond traditional environmentalism. Finding time for nature shouldn’t be seen as another stress producer, but rather as the antidote to stress. Now and in the future, rather than relying on nostalgic memory of the way things used to be, we need to develop new ways for families to connect to nature. Multifamily outings are one of these. For example, parents join family nature clubs across the country to encourage one another to gather for outdoor activities. These clubs, along with nature centers and other organized programs, help parents and kids reduce their anxiety about venturing into the outdoors. Anyone who wants to learn more about family nature clubs, including how to start one, can get a kit through the website of the Children and Nature Network.

Charles: We hope that nature play becomes a way of life again, a right and rite of childhood. This will require a shift in people’s perceptions of the importance of nature play—and a host of ways to actively participate, from a simple walk in the neighborhood, to a service project, to planting and maintaining a community garden. People of all ages will realize the benefits for everyone’s health and well-being, including a sense of peace, prosperity, beauty, and happiness.