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# Children and Nature 2009

A REPORT ON THE MOVEMENT TO RECONNECT  
CHILDREN TO THE NATURAL WORLD

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**“Beyond programs and legislation, our ultimate goal is deep cultural change, connecting children to nature, so that they can be **happier, healthier and smarter.**”**

**Cheryl Charles**

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**September 2009**

**Developed in collaboration with**



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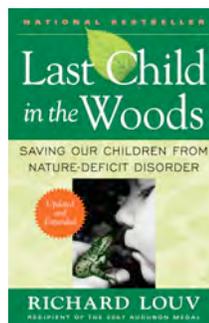


The Children & Nature Network (C&NN) was created to encourage and support the people and organizations working throughout the world to reconnect children with nature. C&NN provides access to the latest news and research in the field and support for an international peer-to-peer network of researchers and individuals, educators and organizations dedicated to children's health and well-being.



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Sections of this report have been adapted from *Last Child In The Woods: Saving Our Children from Nature-Deficit Disorder*, by Richard Louv. Copyright © 2008 by Richard Louv. Reprinted by permission of Algonquin Books of Chapel Hill.





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*“Nature-deficit disorder is not an official diagnosis but a way of viewing the problem, and describes the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. The disorder can be detected in individuals, families, and communities.”*

*— Richard Louv, Last Child in the Woods*

## INTRODUCTION

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This updated report on the movement to reconnect children and nature has been developed to serve as a tool for those who care deeply about the importance of reconnecting children with nature.

The document begins with a “Brief History of the Movement,” demonstrating how much momentum has been achieved and continues to grow—particularly since 2005, with the publication of and response to Richard Louv’s seventh book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*.

“The Importance of Children in Nature” makes the case for the many positive benefits to children from frequent experiences in the outdoors as a part of children’s everyday lives—fostering healthy, happy, smart, and well-adjusted children. Indicators of the deficit—and the need for building a movement to reconnect children and nature—are also provided.

“The Movement: Now and in the Future” addresses the direction of the movement, and the barriers to it, including the fear of stranger-danger and other exaggerated risks.

“Building New Initiatives through More Effective Communications” addresses the motivating interests and dominating values of many parents, including the concepts that will likely be most effective in reaching them in order to encourage them to open the doors for their children to play in the outdoors.

“Ideas for the Future” and “A Coming International Movement” are both precursors to changes on the horizon—with inspiration, vision, and a call to action.





*“A back-to-nature movement to reconnect children with the outdoors is burgeoning nationwide.”*

*— USA Today, Nov. 2006*

## A BRIEF HISTORY OF THE CHILDREN AND NATURE MOVEMENT

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On April 24, 2006, at the National Press Club in Washington, D.C., Richard Louv, author of *Last Child in the Woods*, published in 2005 and updated in 2008, called for a nationwide campaign to “Leave No Child Inside” and a movement to reconnect children and nature. The event, moderated by Children & Nature Network (C&NN) President and CEO Cheryl Charles, and sponsored by the Paul F. Brandwein Institute, had assembled more than 100 conservation, education and government organizations with a continuing commitment to reducing the nature deficit.

Today, more than three years after the Press Club event, public awareness is at an all-time high, and the issue continues to attract an increasing amount of media attention. Family nature clubs or their equivalent have sprung up across the country, from the Desert Rangers in Arizona, to the Happy Trails Family Nature Club in the Twin Cities area, to the Boca Raton Parents Group in Florida. In April 2009, hundreds of young people—from Los Angeles to Puerto Rico—came together to celebrate the official launch of the Children & Nature Network’s Natural Leaders Network™, a campaign to develop young leadership in the children and nature movement. These Natural Leaders participated in varied events during what has been designated Children and Nature Awareness Month—from a community garden project in New York to a beach clean up in Los Angeles. Some of these youth attended the Natural Leaders Network Summit at the Headlands Institute in June. Although *Last Child in the Woods* continues to be an effective catalyst and rallying cry, Richard Louv would be the first to say the message of his book is one that many, many people have worried about and worked to address for decades. Now, many outside the movement are listening, and inspired to join and take action.

Clearly, when, in November 2006, *USA Today* reported in a front-page story: “A back-to-nature movement to reconnect children with the outdoors is burgeoning nationwide,” it was on the mark. By June 2007, the movement had been reported in the pages of *The Economist*, and other European-based publications, and had reached the front page of the *Washington Post* more than once—most recently in August 2009. By the end of 2007, *USA Weekly* had published a cover story feature for its weekend supplement, reaching 47.5 million readers through 600 newspapers. More recently, on CBS’ *The Early Show*, a matter-of-fact acknowledgment of nature-deficit disorder, defining it as a term “popularized by Richard Louv,” led to a listing of the best towns in the West for families to enjoy nature experiences. Nature-deficit disorder continues to be a topic of public conversation in diverse media. To cite two recent examples: *New York Times* columnist Nicholas Kristof referred to *Last Child in the Woods* as he wrote about backpacking in the mountains with his children—his prescription for combating nature-deficit disorder (Aug. 1, 2009): “Let’s acknowledge that getting kids awed by nature is as important as getting them reading,” said the Pulitzer Prize-winning journalist. This and a follow-up column inspired hundreds of comments from readers. In a similar vein, novelist Michael Chabon’s (July 12, 2009) essay in the *New York Review of Books* is a paean to what he recalls as the “Wilderness of Childhood,” which is now a memory, for the most part. “...the primary reason for this curtailing of adventure, this closing off of Wilderness, is the increased anxiety we all feel over the abduction of children by strangers; we fear the wolves in the Wilderness,” Chabon writes, echoing a major theme in *Last Child in the Woods*. “What is



the impact of the closing down of the Wilderness on the development of children's imaginations?" He wonders: "This is what I worry about the most."

Thinking of children's imaginations: Gary Knell, president and CEO of Sesame Workshop, recently announced that the set of *Sesame Street* would include nature as an important element—this after 40 years as an influential television children's program that used a brick and asphalt setting.

The World Future Society was on target when it ranked nature-deficit disorder as the fifth-most-important trend (on a list of 10) that would shape 2007 and the years to come. Indeed, there also is a growing movement in the United Kingdom, with the National Trust organizing more than a thousand "wild Child" events to boost interest in nature, reports the *Times of London* (July 14, 2009). Meanwhile, *Last Child in the Woods*, updated for publication in Britain in the summer of 2009, has received wide media attention throughout the United Kingdom. Communications tools such as Web sites, texting, online communities of interest, blogs, electronic newsletters, and other forms of outreach and inclusion are all serving as powerful ways to nourish and support a sense of connectedness—this sense of being a part of something purposeful, inspiring, healthy, and commonsense—that is at the heart of this movement to reconnect children and nature.

To cite another example of how the trend has taken advances: In January 2009, Illinois Gov. Pat Quinn announced \$21.2 million in grants for parks throughout the state to "reduce nature-deficit disorder," and reopened seven state parks (while restoring 12 full-time jobs in the Illinois Department of Natural Resources), in effect aligning state goals with that of Illinois' Leave No Child Inside initiative. Chicago Wilderness, a coalition of more than 240 public and private organizations, launched that initiative in 2007. This is one of some 60 regional campaigns that have formed in the United States and Canada in the last three years. In addition, the National Park Service and the U.S. Forest Service have instituted additional programs to directly engage children, and many conservation groups with nationwide reach have put a great deal of energy and resources into finding new ways to get children outdoors.

In March 2009, the National Recreation and Park Association, an influential organization with a large membership and long history as a strong voice for parks and recreation, issued a white paper that called upon Congress to approve \$50 million for urban parks programs. That paper expressed concern for the severing of children from nature: "Children and Nature: Richard Louv's book *Last Child in the Woods* has spurred a growing national movement to reconnect children with nature. While children nationwide are increasingly disconnected from nature, the problem is especially acute in America's urban centers where open space and even green grass can be hard to find in many neighborhoods. Urban parks—from the smallest neighborhood park to the likes of Central Park—frequently provide the only opportunities for urban youth to experience, learn about, and appreciate nature."

This summer, President Obama visited Yellowstone National Park and Grand Canyon National Park with his family, learned fly-fishing, and spoke of the glories of the parks system. Also this summer, with camping in decline for a generation, the National Park Service waived entrance fees for 147 of its sites some weekends in July and August. But even before these positive moves, we are pleased to note, a number of parks had been experiencing an uptick in attendance; it is too soon to know for certain, but it appears many

of these visitors included families with children. There has been speculation in some accounts that the economy played a role, or that public awareness of nature-deficit disorder was a factor. As Richard Louv observes, in a cover story in the May 2009 Parks & Recreation magazine, many families are rediscovering both the joy and cost-effectiveness of getaways in nearby nature. He also points out that Michelle Obama's White House vegetable garden may encourage families to reconnect with nature through their own gardens. And, in hard times, Louv says, nature helps build social capital. "We need cohesive neighborhoods and supportive kinship networks more than ever." To be sure, Nature Rocks, C&NN's Family Nature Clubs, the Natural Leaders Network™ and grassroots organizations—all are growing and have received considerable media attention. As well, members of the Children & Nature Network's Speakers Bureau are addressing enthusiastic audiences around the country, and internationally. They are spreading seed.

For example, Marilyn Wyzga in New Hampshire heard Cheryl Charles' keynote on children and nature at the North American Association for Environmental Education annual conference in the fall of 2006. Wyzga, who is with the New Hampshire Fish and Game Department, went back to the state and said they needed to bring Charles to New Hampshire to keynote a summit on reconnecting children and nature. New Hampshire First Lady Susan Lynch, an M.D., got involved and challenged the group to find a way to reconnect children and nature, for their health and well-being. That first summit, with 100 people from all sectors and Charles giving the keynote address, was a stepping-stone to the New Hampshire Children in Nature Coalition, one of the most comprehensive statewide efforts to reconnect children and nature in the U.S. Richard Louv subsequently went to the state and further roused and built on the interest. Similarly, Charles keynoted a conference in Kansas in the fall of 2006, and that speech was a factor in building the steady momentum to create a statewide strategy to reconnect children and nature. Then-Gov. Kathleen Sebelius signed a statewide directive as one of her last acts as governor before becoming secretary of Health and Human Services in the Obama administration.

And in Little Rock, Arkansas, City Director Dr. Dean Kumpuris was inspired by *Last Child in the Woods*, and by a talk by Louv, so he spearheaded a campaign to raise funds for a makeover of a major park's playground so children could have an unstructured play environment with green spaces designed for exploration and discovery. The final phase of construction was realized in the summer of 2008.

Education in and about the environment is available from many sources, including school coursework and clubs, community conservation groups, and park and recreation centers. The National Environmental Education Foundation (NEEF) sponsors an annual Environmental Education Week and Public Lands Day, "thought to be the largest volunteer event getting Americans outdoors to work on cleanup, restoration, and related projects," states *Great Outdoors America The Report of the Outdoor Resources Review Group* (July 2009). "In concert with many federal, state and local agencies, participation has exploded, up from 5,000 volunteers in 1997 to 120,000 in 2008. Sharp increases in participation occurred when state and local parks were added as close-to-home venues for volunteers; 600 urban sites now take part in Public Lands Day."

ASCD, the professional educators' association, was founded in 1943. It reports having 175,000 members in 119 countries. In May 2009, their publication *Educational Leadership* featured an article citing the many important research studies available for review on the Children & Nature Network Web site, with the author concluding: "When the next wave of



environmental interest washes over our schools, as it inevitably will, this body of research will support the new ideas for truly fulfilling [William B.] Stapp's dream of environmental literacy. ...In response to Louv's book, more than 1,000 nonprofits with almost 50 million members have launched a variety of efforts loosely organized under the title *No Child Left Inside*."

The No Child Left Inside Coalition announced they had over 1,400 member organizations as of July 2009.

In the United Kingdom, several initiatives are setting good examples. As reported above, the National Trust organized more than a thousand "wild child" events to encourage interest in local wildlife. Their aim is "for families with children aged between 5 and 12 to get closer to nature, exploring, discovering and enjoying the wonders of the natural world. ..." It also compiled a list of "Ten things to do before you're 10," including going on an insect hunt and hosting a teddy bears' picnic. *Nature's Capital*, a report issued by the National Trust in March 2008, calls for local funding for "well-being prescriptions" to get people in nature. The charity Mind recommends "green exercise" to be considered as a clinically valid treatment, and the UK's growing Green Gym movement brings families together to exercise through nature restoration projects. This served as partial inspiration for C&NN's Nature Clubs for Families.

Clearly, people throughout the world are hearing the larger message from their news providers; it is touching their hearts, and they are taking action. The movement to reconnect children and nature is burgeoning worldwide. It continues to be largely self-organizing and spontaneously generating. It is a manifestation of a sweeping and compelling perceived need for systemic social change—where people everywhere are resonating with the importance of re-righting the balance between children and nature in their daily lives, to, in the words of Richard Louv, "heal the broken bond between children and nature."

## **FROM GRASSROOTS ACTION TO STATE AND NATIONAL LEGISLATION**

In April 2006, a handful of like-minded people formed the nonprofit Children & Nature Network (C&NN) to build and support this movement. At this writing, C&NN has identified and encouraged more than 60 city, state, provincial and regional campaigns, community-based, multi-sector collaboratives sometimes called Leave No Child Inside, that have formed or are being assembled—in the Adirondacks, Cincinnati, Cleveland, Chicago, the San Francisco Bay Area, Connecticut, Florida, Colorado, Georgia, New York, Texas, Wyoming, Michigan, Montana, Florida, Ontario, British Columbia, the Netherlands and elsewhere. For the most part, these campaigns, each with its own distinctive, regional characteristics, have emerged independently, with support from civil society and the business community, from political and religious leaders, liberals and conservatives.

Leadership has stepped forward in nearly every sector. Recall that in September 2006, the National Conservation Training Center and The Conservation Fund hosted the National Dialogue on Children and Nature in Shepherdstown, West Virginia. The conference drew more than 350 leaders from around the country, including educators, health care professionals, recreation companies, residential developers, urban planners, conservation agencies, and academics. In 2007, the U.S. Forest Service launched More Kids in the

Woods, funding local efforts to bring children outdoors. That same year, the U.S. Secretary of the Interior, Dirk Kempthorne, challenged Interior's 300 top managers to determine what their departments could do to turn the nature-deficit trend around. Sharing that spirit of cooperation, a pilot version of National Get Outdoors Day was launched in June 2008, to build on the success of More Kids in the Woods and other programs, and the second annual Get Outdoors Day (GO Day) in June 2009 sought to encourage outdoor fun and, hopefully, help reconnect youth to the outdoors. Partners included federal, state and local agencies, outdoor organizations and recreation businesses. At least ten governors have launched statewide conferences or campaigns, including Connecticut's pioneering program to encourage families to visit the underused state parks. Replicable in every state, Connecticut's effort was the first formal state-level program to call itself No Child Left Inside.

And now, the nature-deficit issue apparently has the president's attention. In May 2009, REI Chief Executive Sally Jewell met at the White House to discuss health care issues with President Barack Obama, and took the opportunity to hand the president two Passport to Adventure envelopes (the program aims to get kids ages 5 to 12 into nature), as well as a copy of *Last Child in the Woods*. According to an account published in the *Seattle Times*, Obama said, "I've heard of this book. This is good. Thank you." A month later, in a major speech (available online June 15, 2009), Obama talked about the health challenges facing America. He had this to say about outdoor play: "The second step that we can all agree on is to invest more in preventive care so that we can avoid illness and disease in the first place. That starts with each of us taking more responsibility for our health and the health of our children. It means quitting smoking, going in for that mammogram or colon cancer screening. It means going for a run or hitting the gym, and raising our children to step away from the video games and spend more time playing outside."

On the policymaking front, bills have passed, and New Mexico has become an emerging leader in the movement. In 2007, the New Mexico Legislature approved the Outdoor Classrooms Initiative, an effort to increase outdoor education in the state. New Mexico Lt. Gov. Diane Denish held a roundtable discussion in July 2009 to discuss the health implications of children's decreasing contact with the natural world. Representatives from the Sierra Club's Building Bridges to the Outdoors and The Wellness Coalition joined her. Colorado's Lt. Gov. Barbara O'Brien has also initiated a series of community-based town halls on the subject and in September 2009 addressed C&NN's Third Annual Grassroots Gathering of more than 120 community, state, provincial and regional leaders of the movement. In 2007, Washington Gov. Christine Gregoire signed into law the Leave No Child Inside Initiative, and legislation allocated \$1.5 million in 2008 to outdoor programs working with underserved children. (Unfortunately, significant budget cuts to state agencies have left the program unfunded for the 2009-11 budget cycle.) The No Oregon Child Left Inside (NOCLI) Coalition is working to pass state legislation in Oregon; Colorado is crafting a state environmental literacy plan, as are many other states in anticipation of funding from a federal No Child Left Inside (NCLI) Act. With plans in place, they can effectively articulate how they will provide quality programs that incorporate the natural world in their schools' curricula. In 2008, a House version of the NCLI bill passed, but did not advance to become law, so on Earth Day 2009, two new bills were introduced. Congressional committees are currently considering S. 866 and H.R. 2054, introduced, respectively, by Sen. Jack Reed (D-RI) and Rep. John Sarbanes (D-MD). Each is known as the No Child Left Inside Act of 2009.



Most of us realize the health of children is at stake, and so is the health of the Earth. Studies show that, almost to a person, conservationists or any adults with environmental awareness had some transcendent experience in nature when they were children.

Community is important, as well. As Cheryl Charles, president of the Children & Nature Network, related in her 2009 Paul F. Brandwein Lecture, in many ways, the single most important of the guides to building a movement to reconnect children and nature is the concept of community. “Key to any successful movement is creating and sustaining a powerful sense of community. People feel a part of something that matters, and are inspired, nourished and supported in the process. Communities in nature are living and non-living parts, all connected into a cohesive whole. Communities can grow and change, while providing a sense of place and comfort. All in all, the movement to reconnect children and nature stands on a belief that healthy children are the heart and foundation for healthy communities. All of the other natural guides—diversity, niche, cooperation, self-regulation, optimization and connectedness—fit together within the organizing principle of community. Communities begin with their individual members—in this case, in home and families, with friends and neighbors. To the extent that we consider this movement to reconnect children and nature to be place-based, and in our hearts, we will succeed in re-righting the natural balance for children in their daily lives.”

Much has been accomplished in the last year to strengthen community commitment to improve nature access for children. For example, thanks to a generous grant from the W.K. Kellogg Foundation, the lessons of the *C&NN Community Action Guide: Building the Children & Nature Movement from the Ground Up* are being implemented in three Michigan cities—Kalamazoo, Holland and, most recently, Detroit. Although nature deficit knows no geographic and cultural limits—it is affecting urban, suburban, and rural youth of all economic levels—it is disproportionately affecting low-income children of color, among the most vulnerable of society’s children.

Richard Louv and Cheryl Charles were among those stimulating a children and nature movement in Michigan prior to the program’s enactment, and they followed up with more visits to stimulate, support and encourage momentum through use of the *C&NN Community Action Guide*. Subsequently, the No Child Left Inside Task Force of Holland, Michigan worked to inform and engage the local medical community, childhood educators and caregivers—and hence the public at large. Similar activities are underway in Kalamazoo and are beginning in neighborhoods in Detroit. More progress: Not long ago, three experienced educators were doing surveys and site-visits to conduct assessments of the nature-based richness of Holland preschools; conducting interviews; providing workshops and resources, and demonstrating how to design nature-based activities for use in preschools and child care settings. The initial focus is on working with Head Start, Michigan Pathways Early Education, and Great Start.

Similar good things are under way in Kalamazoo. The Kalamazoo Nature Center (KNC) was approached by C&NN to organize and serve as the lead for the Kalamazoo children and nature initiative due to its outstanding leadership and staff, strong community ties, partnerships, and commitment to the No Child Left Inside movement through mission and programming. During a 10-month period from August 2008 through May 2009, KNC followed steps outlined in the *C&NN Community Action Guide* to engage community leaders in the Kalamazoo County in No Child Left Inside movement. Much has been accomplished in this first phase of activity; here are highlights of the achievements: The major pediatric

offices in Kalamazoo County are now prescribing daily time outside; Downtown Kalamazoo Incorporated (DKI) includes, in the city's 2009 Comprehensive Plan, strategies to develop more child and youth-friendly environments; Cable Access ran the Kalamazoo NCLI Initiative media conference throughout June 2009, showcasing Green Community Mapping project presentations; the principal of El Sol Elementary School, a targeted Title 1 school, has expressed interest in making El Sol Elementary a model for incorporation of natural areas, outdoor classrooms, and an after-hours community gathering place where none exists now.

There is much more to do in Michigan, and elsewhere, but the enthusiasm and abilities of committed groups and individuals are making a notable difference in how their community relates to the children and nature issue.

Bill Vanderberg, dean of students at Crenshaw High School in Los Angeles, was on television last May (2009), and the news was positive. He was speaking to reporters on *The Early Show* about the Eco Club, which he called an escape from "war zone-like conditions." The Eco Club offers his students an opportunity to go on weekly hikes, community service outings and annual backpacking trips to a national park. "I became involved because I simply wanted people to go out and play and do things every kid has the right to do," he said. As a bonus, student grades have improved. The club has given some students the chance to see unbridled nature for the first time.

Meanwhile, in the United States, nonprofit conservation leaders, witnessing the graying of their membership and recognizing the importance of creating a young constituency for the future, are working to re-right the balance and have increased their commitment. As reported earlier, in 2007 the Sierra Club's Building Bridges to the Outdoors project took 11,500 young people, many from inner-city neighborhoods, into the natural world. Each year, the Sierra Club's Inner City Outings program takes 12,000 urban youth from nearly 50 cities in the U.S. on safe wilderness excursions. Other conservation groups have moved quickly, too. The National Wildlife Federation rolled out the Green Hour, a national campaign to persuade parents to encourage their children to spend one hour a day in nature, and released a comprehensive *Children and the Outdoors State Policy Solutions Guide* in March 2009. John Flicker, president of the National Audubon Society, is campaigning for the creation of a family-focused nature center in every Congressional district in the nation. That interest is reflected in their Family Time Web link, which offers many tips for families venturing into nature. Some nature conservancy organizations are going beyond their traditional definition of conservation. The Trust for Public Land is placing increased emphasis on how they engage children through various programs to ensure that natural areas preserved today will continue to be protected by future generations. The Conservation Fund, another organization that has focused primarily on purchasing and protecting land, has contributed as well. You may recall that in 2007, the Fund's president, Larry Selzer, created the National Forum on Children and Nature, enlisting governors, mayors, cabinet secretaries, corporate CEOs, non-government organizations and the business community as participants to raise visibility for the importance of this issue. The National Forum later announced a Forum-endorsed list of more than 30 demonstration projects, ranging from Cornell University's The Birds & The Bees Challenge to Trees for the 21<sup>st</sup> Century.

One example of the private sector's interest was expressed in June 2007, when Clint Eastwood hosted an assembly of California's largest developers to consider ways to build residential developments—and to redevelop aging suburbs—into places that will connect children and adults to nature.



Support for the growing children and nature movement has ranged from the aforementioned Sierra Club to the 700 Club—including religious leaders, liberal and conservative, who understand that all spiritual life begins with a sense of wonder, and that one of the first windows to wonder is the natural world. “Christians should take the lead in re-connecting with nature and disconnecting from machines,” writes R. Albert Mohler Jr., president of the Southern Baptist Theological Seminary, the flagship school of the Southern Baptist Convention.

The health care industry has an opportunity to be perhaps the most important engine of this movement, particularly as the relationship between nature and children opens a wider cultural conversation about the connection between human health and the health of the natural world. While public-health experts have traditionally associated environmental health with the absence of toxic pollution, the definition fails to account for an equally valid consideration: how the environment can improve human health. In October 2007, *The Nation's Health*, the official newspaper of the American Public Health Association, made that clear:

*“The retreat indoors for many American children has environmental advocates worried that children ... might become adults for whom conserving the environment isn't a priority. For public health workers, the effects of sedentary indoor lifestyles are already evident among children: startling rates of obesity, the onset of one-time adult conditions such as diabetes and a shortened life expectancy. Thankfully, though, the movement to reconnect kids with nature has seen a rejuvenation in the last few years, and experts predict that good health will be a major motivator in bringing families back to nature.”*

Howard Frumkin, MD, MPH, DrPH, director of the Centers for Disease Control and Prevention's National Center for Environmental Health, points out that the scientific research on nature and good health is still emerging. In *The Nation's Health*, Frumkin said, “Who will be around in 50 years that will be seriously concerned about environmental conservation? Having resilient ecosystems is a necessity for human health and we as a society need to protect our ecosystems in ways that are sustainable and durable.” Yes, we need more research on the relationship between nature experiences and health, but, he adds, “We know enough to act.”

## **THE SPECIAL POWER OF THIS MOVEMENT**

The movement to reconnect children and nature is fueled by individual, organizational and economic self-interest, to a great extent, but it is also built on what Charles calls the ecology of hope. When, in 2006, ecoAmerica, a conservation marketing group, commissioned SRI International to conduct a comprehensive survey of Americans' environmental values related to everything from health, animals, and global warming to taxes, and more, ecoAmerica president Robert Perkowitz reported, “It was very enlightening for us to discover that the biggest shared concern about nature is really kids' alienation from it.”

To quote Charles: “Hope is derived from the exercise of will. Success in exercising will, on whatever scale, develops a sense of efficacy—that is, a perceived belief that I or you can make a difference. Combine the exercise of will with the experience of efficacy and hope is the result. To a large extent, today's children live within a culture of depression, not an

ecology of hope.” She continues, “For young children, efficacy and hope are nourished by playing in wild and semi-wild places outdoors—turning over a rock and feeling connected to all of life; climbing a tree and feeling a surge of confidence and exhilaration, peace and perspective; having an adult share a place so special that the child feels valued and develops a lifelong connection to the power and the beauty of the natural world.”

Many doors to the natural world are opening. For example, The Kesho Trust’s Nature Child Reunion initiative, originally based in Sidney, British Columbia, began as a cooperative effort to foster a closer connection between children and the natural world. The initiative’s 2009 Regional Children, Family & Nature Forum, held in Victoria, B.C., brought a number of groups together in a new Child & Nature Alliance, formed officially in 2009 ([www.childnature.ca](http://www.childnature.ca)). Also based in B.C., the Robert Bateman Get to Know Program, launched in 2000, addresses the disconnect between youth and the natural world. More than 290,000 students in more than 29,000 schools across Canada have used the program. In 2009, Robert Bateman’s Get to Know Program is being launched in the United States.

There is much to do to move this movement from an emerging force to a permanent shift in which a healthy, natural balance is restored in children’s lives. Each one of us can help, one child and one young person at a time. We have, all of us, an immense and important set of opportunities to help “move this movement.” We can work to change policies and practices, attitudes and behaviors. Most important, we can all help to build the necessary awareness that will result in parents, grandparents, teachers and whole communities making the changes in everyday life that will serve to reinstate children’s rights to a healthy childhood.

The hardest tasks remain: to continue to build and nurture the network of local, city, regional, state, national and international campaigns; to continue to bring leaders of these campaigns together, often, so that they learn from each other; to further harness the power of the Internet to collect and distribute the growing body of studies on children and nature, best-practices, and news; to guarantee continued media attention and public awareness about the need to heal the broken bond between children and nature; and to marshal even more of the powerful institutions and resources needed to sustain the movement. As we move forward, we anticipate more and better research from the academic and practitioner worlds. We need greater commitment from the corporate sector, from health-care professionals, from law enforcement, from public agencies, communities, families and individuals. We must identify and nurture additional leaders in inner-city neighborhoods, and work to eliminate those barriers to nature within those and all neighborhoods.

One of the most important challenges for this movement will be to recruit a new generation of “Natural Leaders<sup>™</sup>” — children, teen-agers, college students and other young people whose commitment to the Earth grows from personal experience in wild places in their own neighborhoods, woods, fields, arroyos, mountains and oceans.





*“Concerns about long-term consequences— affecting emotional well-being, physical health, learning abilities, environmental consciousness— have spawned a national movement to ‘leave no child inside.’ In recent months, it has been the focus of Capitol Hill hearings, state legislative action, grassroots projects, a U.S. Forest Service initiative to get more children into the woods and a national effort to promote a ‘green hour’ in each day.*

*— Washington Post, June, 2007*

## THE IMPORTANCE OF CHILDREN IN NATURE: WHY CHILDREN NEED NATURE AND NATURE NEEDS CHILDREN

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*I like to play indoors better 'cause that's where all the electrical outlets are.*

*a fourth-grader in San Diego, in Last Child in the Woods*

Most children and youth today have little direct experience in the outdoors as a part of their daily lives. While there are always exceptions, for the most part, children today are rarely engaged in unstructured and imaginative play of their choosing in rich and diverse nature-based settings. A growing body of research suggests that this disconnection, this nature-deficit disorder, may be associated with an epidemic of childhood obesity, childhood diabetes, behavior disorders, depression and a diminished sense of place and community. Heightened health problems, higher stress, higher aggression, reduced cognitive and creative capacities, lower school achievement, blighted sense of efficacy, and diminished productivity are among the possible associated negative impacts. All children need leisurely, un-scripted, genuinely playful, and exploratory hours in their own backyards, neighborhoods, and in varied natural environments for their optimal development.

While the most vulnerable children are at risk from a complex assortment of immensely difficult challenges—including life circumstances often characterized by violence, poor diets, poverty, and fragmented families—one of the most basic and healing ways to increase children's healthy, peaceful, positive development is to provide them with the opportunity for a direct connection with the natural environment in the outdoors. The benefits from the child and nature connection are many. A variety of researchers indicate that children's cognitive flexibility and creativity are enhanced if they have the experience in childhood to problem-solve in natural settings. Beyond cognition, there are mental health benefits—ranging from higher self-esteem to reduced characteristics of attention-deficit disorder, more self-discipline, higher school achievement, a greater sense of efficacy, and less stress.

As we know, among the issues affecting children's disconnect from the opportunity to play in natural areas outdoors are: access and proximity; safety; family recognition of the importance of nature play; and community support.

Observation and common sense indicate children today spend little time outside, especially free time engaged in play in natural settings. When it comes to independent play in unstructured time of a child's choosing, some research indicates that as few as 3 percent of children have that opportunity to any significant degree today. If they are outdoors, the experience is more likely to be in organized sports and on playground equipment grounded in asphalt with little natural variety in the setting.

Many are shuttled from school to church to soccer to dance class to day camp. With all good intentions on the part of parents and caregivers, most children today are being given



a virtual, often vicarious, electronic, passive and cocooned experience of childhood. If not in highly organized and structured after-school programs, children and youth are often under what Richard Louv calls “virtual house arrest,” beyond locked doors, glued to the blue screens as a *de facto* child care program instead of being in the outdoors. We think that things are dramatically out of balance for today’s children.

Again, there are many reasons—adults’ fear for their children’s safety, fear of “stranger danger.” A study in 2004 found that 82 percent of mothers with children between the ages of 3 and 12 cited crime and safety concerns as one of the primary reasons they do not allow their children to play outdoors.

Fear of liability and restrictive covenants, including rules against building tree houses, are signs of the time. There is even a growing movement in the United States to prevent children from running and playing on the school grounds, including during recess. And a significant percentage of U.S. schools are reported to have eliminated or reduced recess, to be considering doing so. When they are outdoors, it is often on asphalt playgrounds, where there has been a dramatic increase in bullying and physical scuff-ups (which are minimized or eliminated, by the way, when outdoor play is more frequent and when the playground has natural and varied play elements).

As stated earlier, children need leisurely, unscripted, genuinely playful and exploratory hours to find the wonders in their own backyards and neighborhoods. This is fundamental to their healthy cognitive, social, and physical development.

As important as unstructured play in natural outdoor settings is—and it is dramatically missing from most of today’s children’s lives—so too are the opportunities for direct learning in the outdoors as a fundamental and foundational part of school curricula. The best way to make learning meaningful is to do so in context—in children’s whole lives and in their nearby surroundings. That includes schools, homes, neighborhoods and all the places where children live and play. They learn, they gain confidence, and they develop a sense of place—all of which combine to create self-confident, competent, capable, and caring adults.

A few decades ago, anywhere from 75 percent or more of children either walked or rode a bicycle to school. Today that number is fewer than one in five.

A host of lifestyle changes in the past 20 to 30 years has contributed to a sedentary society of youth. In the United States, according to a study conducted by the Kaiser Family Foundation, children and youth from 8 to 18 are spending as much as 60 hours a week involved in electronic media. A longitudinal study released in 2008 by the National Institutes of Health in the United States reports a significant decline in moderate to vigorous physical activity and exercise on the part of children as they get older, dropping from about three hours a day among nine year olds to about 50 minutes a day among 15-year-olds during the week, and less than 35 minutes a day on weekends. The 15-year-olds were even more sedentary on the weekends—not during the week.

Lack of exercise and an extremely sedentary lifestyle on the part of many children and teens has contributed to an epidemic of obesity. In the 1960s, about 4 percent of children were considered medically obese or significantly overweight. Today, the national average in the United States is running at about 16 to 20 percent, and is significantly

higher within some communities. These problems, of course, are not confined to this country, although obesity rates for children have tripled in the United States since 1980, according to the Centers for Disease Control and Prevention.

There is a stunning increase in symptoms of attention-deficit and hyperactivity disorders in children. One result is that this is reported to be the most medicated generation in human history. And, in a heart-breaking report, the medical community indicates that this may be the first generation not to live as long as their parents.

The 2008 Recreation Participation Report, based on a survey of more than 60,000 Americans, found a one-year decline of more than 11 percent in the participation of outdoor activities among youngsters ages 6 to 17. In suburban Fort Collins, Colorado, teachers shake their heads in dismay when they describe the many students who have never been to the mountains, visible year-round on the western horizon. And in Holland, Michigan, some young people who come to the Outdoor Discovery Center for education-based outings in the outdoors have collapsed into tears because they are afraid of the woods, and they cannot walk more than a few hundred yards before they are exhausted by the expenditure of physical energy.

Part of re-establishing a healthy balance for children, their families, and the environment, is to identify, synthesize and communicate the evidence about the benefits to children from having a connection to nature. The Children & Nature Network is continuing to assemble and feature research on the consequences of “nature deficit” as well as the benefits to be gained by changing this pattern. For C&NN’s annotated research bibliographies with links to original research, see [www.childrenandnature.org](http://www.childrenandnature.org).

Among researchers, interest in the relationship of nature experience to human health, cognition, creativity and well-being is growing, but the research remains limited—and much of it has been conducted within the past few decades. Therefore, some cautionary notes: Findings on outdoor play often mingle types of activities, such as bicycle riding in the neighborhood, with findings more specific to the nature experience. There is a need for more rigorous, controlled studies in order to make confident statements about correlation, cause and effect. However, when recent studies are considered together, they do lead to strong hypotheses about the importance of direct experience in nature as a fundamental part of children’s healthy development and overall well-being.

Growing interest in this arena also suggests the need to conceptually expand areas of study for future research. For example, we still would like to see economic studies of the regional and national impact of the nature deficit, combining such measures as potential health savings, better school performance, enhanced real estate values and the financial impact of expanded nature recreation for children and young people. An urban region tackling such a task might then set an example for other regions by producing an annual report card on the total benefits and deficits of the human-nature connection within the community. This is one example of the kind of research which is needed.



## RESEARCH-BASED INDICATORS OF THE DECLINE OF CHILDREN'S PHYSICAL ACTIVITY OUTDOORS AND RELATED CONCERNS

- Children today spend less time playing outdoors. A Hofstra University survey of 800 mothers with children between the ages of 3 and 12 found that: 85 percent of the mothers agreed that today's children play outdoors less often than children did just a few years ago; 70 percent of the mothers reported playing outdoors every day when they were young, compared with only 31 percent of their children. Also, 56 percent of mothers reported that, when they were children, they remained outdoors for three hours at a time or longer, compared with only 22 percent of their children (Clements, 2004).
- From 1997 to 2003, there was a decline of 50 percent in the proportion of children 9 to 12 who spent time in such outside activities as hiking, walking, fishing, beach play, and gardening, according to a study by Sandra Hofferth at the University of Maryland. Also, Hofferth reports that children's free play and discretionary time declined more than seven hours a week from 1981 to 1997 and an additional two hours from 1997 to 2003, a total of nine hours less a week of time over a 25-year period (Hofferth and Sandberg, 2001; Hofferth and Curtin, 2006).
- Children at eight years old can identify 25 percent more Pokemon characters than wildlife species (Balmfold, Clegg, Coulson and Taylor, 2002). The nature-knowledge gap extends into the teen and college years. A researcher in England tested nearly 800 advanced level biology students (secondary school students in the United Kingdom who are generally 16 to 17 years of age) on their ability to identify 10 common wildflowers that were illustrated in color on a sheet of paper. The vast majority of these advanced biology students (86 percent) could not name more than three common wildflowers, and none could name all 10. In a recent study, BBC Wildlife Magazine asked 700 children between the ages of 9 and 11 from 17 schools in Bristol (United Kingdom) to identify a number of local wild species. While 70 percent of children could correctly identify blackberry and magpie, only 8 percent could identify goldfinch and 12 percent a primrose.
- Children between the ages of six months and six years spend an average of 1.5 hours a day with electronic media, and youths between the ages of 8 and 18 spend an average of 6.5 hours a day with electronic media—that's more than 45 hours a week (Kaiser Family Foundation, 2005 and 2006). In a Kaiser Family Foundation study published in *Pediatrics* in 2007, E.A. Vandewater and colleagues found that only 32 percent of 0- to 2-year-olds met the Academy of Pediatrics (AAP) recommendation of no television viewing (Vandewater et al., 2007).
- Today's children have a more restricted range in which they can play freely, have fewer playmates, and their friends are less diverse (Karsten, 2005). The percentage of children who live within a mile of school and who walk or bike to school has declined nearly 25 percent in the past 30 years. Today, barely 21 percent of children live within one mile of their school (Centers for Disease Control and Prevention, 2006). In another survey, 71 percent of adults report that

they walked or rode a bike to school when they were children, but only 22 percent of children do so today (Beldon, Russonello and Stewart Research and Communications, 2003). Children predominantly play at home, with their activities monitored and controlled by adults, compared to children a generation ago. Only 3 percent of today's children have a high degree of mobility and freedom in how and where they play (Tandy, 1999). According to Stephen Kellert, professor of social ecology at Yale, experience in a surrounding home territory, especially in nearby nature, is linked to shaping children's cognitive maturation, including the developed abilities of analysis, synthesis and evaluation (Kellert, 2005).

- The percentage of children who met the recommended activity guidelines of 60 minutes of moderate to vigorous physical activity (MVPA) per day decreased significantly with age, a recent study found. While almost all 9- and 11-year-old children met the guidelines, only 31 percent of 15-year-olds met the guidelines on weekdays and only 17 percent of 15-year-olds met the guidelines on weekends. Researchers found that boys tended to be more active than girls and that girls fell below the recommended activity guidelines at a younger age than boys—13.1 years versus 14.7 for weekdays and 12.6 years versus 13.4 for the weekends (Nader et al., 2008).
- Obesity in children has increased from about 4 percent in the 1960s to close to 20 percent in 2004. Approximately 60 percent of obese children ages five to ten have at least one cardiovascular disease risk factor, while the *Journal of the American Medical Association* reported an upward trend in high blood pressure in children ages eight to eighteen (Centers for Disease Control and Prevention, 2006; and Muntner, He, Cutler, Wildman, Whelton, JAMA, 2004). Research has not been conducted on the specific association between nature play and obesity in children, but we do know that children are more physically active when they are outside—a boon at a time of sedentary lifestyles and epidemic overweight (Klesges et al., 1990; Baranowski et al., 1993; Sallis et al., 1993).
- As part of a recent National Health and Nutrition Examination Survey, height and weight measurements, as well as basic demographic information, were obtained for over 8,000 children and adolescents. Researchers then calculated each participant's Body mass index (BMI) and categorized it according to the Centers for Disease Control growth charts. In analyzing data for 2003-06, C.L. Ogden and colleagues found 11.3 percent of children and adolescents were at or above the 97th percentile of BMI, 16.3% had a BMI at or above the 95th percentile, and 31.9% had a BMI at or above the 85th percentile.
- Overweight and obesity among American children has reached epidemic proportions. More than 9 million youth between the ages of six and nineteen years are considered overweight, and more than 80 percent of overweight adolescents will go on to become obese adults. Research has indicated a wide range of factors believed to contribute to obesity among children, but of growing concern is the potential contribution made by children's media use (Amy B. Jordan and Thomas N. Robinson, *The ANNALS of the American Academy of Political and Social Science*, Vol. 615, No. 1, 119-132 2008).



- According to the Surgeon General, only a quarter of American adults report that they participate in physical activity at levels recommended by health experts, and nearly 30 percent report no regular physical activity during leisure hours.
- Worldwide, there is a high prevalence of vitamin D deficiency among infants, children, and adolescents. Deficiency of vitamin D—the so-called sunshine vitamin—is a risk factor for rickets and may be a risk factor for development of a number of chronic diseases, such as cardiovascular diseases, autoimmune conditions and cancer. Identification, treatment, and prevention of vitamin D deficiency in childhood may therefore have profound health effects throughout the life span (Huh & Gordon, 2008).
- Playday, an annual celebration of children’s right to play, commissioned a series of four studies in the United Kingdom (UK) related to children’s play in streets and areas near their homes. Among their findings: “While it can be difficult to compare adult memories of childhood to children’s current day experiences, the survey found that 71 percent of adults reported playing near their home everyday when they were a child as compared to just 21 percent of children today.” About a quarter of the children and young people in the survey reported that traffic prevents them from playing close to home, and that adults consider traffic “stranger danger.” The street is the second-most-common place to play outside the home, after parks. Also, 51 percent of children ages 7 to 12 reported that they are not allowed to climb a tree without an adult present, and 42 percent said they are not allowed to play in local parks without an adult. Some 77 percent of the more than 1,000 children interviewed reported they would like more opportunities to take risks while playing, and 90 percent of children reported this type of adventurous play makes them feel happy (the 2007 studies are online at C&NN, linked via Playday.org.uk).
- Why are children spending less time outside? One study found that 94 percent of parents surveyed said that safety is their biggest concern when making decisions about whether to allow their children to engage in free play in the out-of-doors. (Bagley, Ball and Salmon, 2006). Similarly, of 800 mothers surveyed by a Hofstra University researcher, in the study mentioned earlier, 82 percent cited crime and safety concerns as one of the primary reasons they do not allow their children to play outdoors. But 85 percent of the mothers identified their child’s television viewing and computer game playing as the number one reason, and 77 percent cited inadequate time to spend outdoors with their children (Clements, 2004).
- In case anyone might consider nature deficit to be an isolated phenomenon, an article this year in the *American Journal of Play* reports the results of a survey of mothers of 2,400 children in 16 countries. The percentages of mothers who said that their children often explored nature were lowest in Brazil (18 per cent), Indonesia (7 per cent) and China (5 per cent).

These studies, and more, are best understood when contrasted with the positive benefits of nature engagement. The physical benefits are obvious—more outdoor play, of any kind, will help prevent child obesity. In fact, the role of nature experiences is underappreciated, but that could change quickly as current approaches to child obesity do not appear to be adequate.

Other benefits are subtler and no less important: the psychological, cognitive and creative gifts that nature experience offers children. Children are likely to be smarter, more cooperative, happier and healthier when they have frequent and varied opportunities for free and unstructured play in the outdoors. Green plants and play yards can reduce children's stress. Free play in natural areas enhances children's cognitive flexibility, problem-solving ability, creativity, self-esteem, and self-discipline. Students score higher on standardized tests when natural environments are integral to schools' curricula. Effects of attention-deficit (hyperactivity) disorder are reduced when children have regular access to the outdoors. "Natural spaces and materials stimulate children's limitless imaginations and serve as the medium of inventiveness and creativity," says Robin Moore, an international authority on the design of environments for children's play, learning, and education.

## **RESEARCH-BASED INDICATORS OF THE BENEFITS FROM NATURE EXPERIENCES**

- Health care providers are beginning to recognize the therapeutic attributes of nature, for attention disorders and depression in adults and children. For example, a UK study released in April 2007 shows the benefits of "green treatment," or ecotherapy—including walks in the woods and gardening. According to the study, 71 percent of people with mental health disorders reported that taking a walk decreased their depression and tension. Mind, the UK's leading mental health charity, called for a shift to such treatments, augmenting traditional therapies. "Mind sees ecotherapy as an important part of the future for mental health. It's a credible, clinically-valid treatment option and needs to be prescribed by GPs, especially when for many people access to treatments other than antidepressants is extremely limited," said Mind's chief executive Paul Farmer. While most research in this arena has been done on adults, a growing body of evidence suggests the positive power of nature engagement during the most vulnerable years of human development.
- Nature contact yields surprisingly broad benefits. This contact may occur on a very small scale—plants in the workplace (Heerwagen et al., 1995) or trees outside the apartment building—or it may occur on a larger scale, in a nearby park, a riparian corridor in a city, or a wilderness area.
- In two recent nationwide surveys in Holland, people who lived within one to three kilometers of green space reported significantly better health than those without such access, after researchers controlled for socioeconomic status, age, and other factors (de Vries et al., 2003; Maas et al., 2006).
- In inner-city housing projects in Chicago, investigators found that the presence of trees outside apartment buildings predicted less procrastination, better coping skills, and less severe assessment of their problems among women (Kuo, 2001), greater self-discipline among girls (Taylor et al., 2002), reduced crime (Kuo and Sullivan, 2001), and less violence and better social relationships (Kuo and Sullivan, 2001). Similarly, green plants and natural vistas were linked with reduced stress among highly-stressed children in rural areas, with the results the most significant where there are the greatest number of plants, green views and



access to natural play areas (Wells and Evans, 2003). The prevalence of childhood asthma in the U.S. has increased dramatically in the past 20 years and is particularly high in poor urban communities. While the exact cause for this increase remains unknown, environment and lifestyle changes are believed to be possible contributors. While additional research is needed to better understand the effects of trees on the prevalence of childhood asthma, researchers have found that a higher density of street trees was associated with a lower prevalence of childhood asthma (Lovasi et al., 2008).

- Some of the most recent studies and reports pertain to children at play. Playtime — especially unstructured, imaginative, exploratory play — has long been recognized as an essential component of wholesome child development (Burdette and Whitaker, 2005; Ginsburg et al., 2007). Unstructured play, indoors or outdoors, allows children to initiate activity rather than waiting for an adult to direct them, while using problem-solving skills, their imagination, negotiating skills with peers, etc.—all of which is very beneficial to children’s learning and development. The outdoors, especially diverse natural environments with varied plants and landscapes, invites children to act on their natural curiosity and, with the endless range of things to explore and question, provides a uniquely engaging environment for unstructured play. Among the added benefits, children’s natural curiosity leads to scientific learning—not only specific details of nature, but scientific method. For example, the outdoors invites questions such as, "What's that green stuff growing on the trees? It looks like it's always on the same side of the trees; why is that?"
- A University of Iowa study, published in 2009, found being active at age 5 provides physical benefits later in childhood even if the child is not as active when older. Researchers dubbed this the “banking” effect, and said further investigation is needed to determine whether this positive outcome was related to how fat cells develop, or to an improved insulin response, or if metabolic changes brought continuing protection even as the active child got less exercise. The study was published in the *American Journal of Preventative Medicine*. One of the researchers, professor Kathleen Janz, offered this advice: “Avoid long periods—more than 60 minutes—of sedentary activity, insist that schools provide morning and afternoon recesses and whenever possible get kids outside. Kids who meet the CDC activity recommendations tend to be kids who spend a fair amount of time outdoors enjoying unstructured play. In the end, it doesn't take that much extra physical activity to see a measurable outcome. Even 10 extra minutes a day makes a difference in protecting against excessive fat gains.”
- Proximity to, views of, and daily exposure to natural settings has been associated with children’s ability to focus and enhances cognitive abilities (Wells, 2000). Children who experience school grounds with diverse natural settings tend to be more physically active, more aware of nutrition and more civil to one another (Bell and Dymont, 2006). Based on surveys of teachers in schools that had schoolyards with both green areas and manufactured play areas, children were rated as more physically active, more aware of nutrition, more likely to engage in more creative forms of play, and they also played more cooperatively (Bell and Dymont, 2006). In another study, 90 percent of respondents—of nearly 150 parents, teachers and principals surveyed—reported that student enthusiasm and

engagement in learning increased on green school grounds as compared to teaching indoors, and 70 percent reported that their motivation for teaching increased on green school grounds as opposed to teaching indoors (Dyment, 2005).

- Swedish researchers reported that children at “all-weather schools” who played outside every day regardless of weather conditions had better motor coordination and more ability to concentrate. Physical health is also affected. A nationwide survey in Sweden indicated that children who spent at least six hours a week outside had fewer absences due to illness. The Swedish National Institute of Public Health notes research suggesting that, “children who are out in the natural environment are healthier than children who are mostly indoors and do not have access to the nature environment in the pre-school yard.”
- “The most important forms of participation in outdoor recreation are those that become routine and regular, part of one’s lifestyle. The greatest health benefits are associated with close-to-home outdoor recreation. Proximity, in other words, is a critical variable determining rates of participation, and this should serve as a wake-up call for public officials and urban planners to ensure that parks and open space are woven into a community’s fabric, an essential ingredient in community livability. Until recently, there was not a recognized base of rigorous scientific research linking parks, outdoor activities, and recreation to better health outcomes. Consequently, the words ‘recreation’ and ‘outdoor resources’ provided little traction or political salience in setting priorities for improving health. The link between lack of physical activity and obesity has now been documented and provides a compelling case, during the ongoing national debate on health care reform, for promoting greater outdoor activity as a cost-effective, preventive approach to better health.” (*Great Outdoors America: The Report of the Outdoor Resources Review Group*, July 2009.)
- Nature experience has been linked to better performance by children in school. Sponsored by many state departments of education, a 1998 study documented the enhanced school achievement of youth who experience school curricula in which the environment is the principal organizer. This study was followed by two related studies, conducted by the U.S.’s State Education and Environment Roundtable, both of which produced results consistent with this original study (Lieberman and Hoody, 1998, 2000). More recently, factoring out other variables, studies of students in California and nationwide showed that schools that used outdoor classrooms and other forms of nature-based experiential education were associated with significant student gains in social studies, science, language arts, and math. One recent study found that students in outdoor science programs improved their science testing scores by 27 percent (American Institutes for Research, 2005).
- Children with attention-deficit disorder are described by their parents as showing fewer ADD symptoms and being better able to focus immediately following outdoor activities such as camping and fishing, compared to indoor activities such as doing homework and playing video games. According to researchers at the University of Illinois, the greener a child’s everyday environment, the more manageable their symptoms of attention-deficit disorder (Faber Taylor et al.,



2001; Kuo and Faber Taylor, 2004). Building on this research, Faber Taylor and Kuo investigated the impacts of three different outdoor environments on the attention of seventeen 7- to 12-year-old children diagnosed with ADHD. After completing a series of puzzles that required focused attention, each child, over the course of three different weeks, participated in a 20 minute guided walk in three different outdoor settings (an urban park, a downtown area, and a residential area). After each guided walk, children completed a concentration test and answered several questions about their walking experience. The researchers found that children concentrated better after walking in a park setting as compared to either a downtown or residential setting, and that the effect of walking in a park on concentration helped close the gap between children with ADHD and those without ADHD—with regard to the concentration measure used—and that the effect was similar to that of two common types of ADHD medication. In addition, the authors found that children rated their experiences more positively in the park setting than in the other two settings (Kuo and Faber Taylor, 2008).

- Adults, as well as children, benefit from “recess” in natural settings, which has implications for the health of parents, teachers, and children. Environmental psychologists Rachel and Stephen Kaplan have linked contact with nature to restored attention, the promotion of recovery from mental fatigue, and enhanced mental focus. They attribute these beneficial qualities to the sense of fascination, of being immersed “in a whole other world,” and to other restorative influences of the natural world (Kaplan & Kaplan, 1989; Kaplan, 1995).
- Researchers in England (Pretty et al., 2005) and Sweden (Bodin and Hartig, 2003) have found that joggers who exercise in a natural green setting with trees, foliage, and landscape views, feel more restored, and less anxious, angry, and depressed, than people who burn the same amount of calories in gyms or other built settings. Research is continuing into what is called “green exercise.”
- In recent decades, myopia or nearsightedness has become increasingly common in young children. While the causes of myopia remain unknown, environmental factors, such as reading that requires children to focus at a close distance, are thought to play an important role. Researcher K.A. Rose and colleagues found that higher levels of total time spent outdoors were associated with a lower prevalence of myopia among 12-year-olds. The authors also found that 12-year-olds with the highest levels of near work activity and lowest levels of outdoor activity were two to three times more likely than their peers to develop myopia, whereas 12-year-olds with the lowest levels of near work activity and highest levels of outdoor activity were less likely than their peers to develop myopia. The authors determined that participation in sports did not seem to be a significant factor in explaining this protective effect (Rose et al., 2008).
- Studies of medical treatment suggest that nearby nature offers healing properties in hospital settings, with implications for both adults and children. An early study, in 1984, showed that patients in rooms with tree views had shorter hospitalizations (on average, by almost one full day), less need for pain medications, and fewer negative comments in the nurses’ notes, compared to patients with brick views (Ulrich, 1984). In another study, patients undergoing

bronchoscopy were randomly assigned to receive either sedation, or sedation plus nature contact—in this case a mural of a mountain stream in a spring meadow, and a continuous tape of complementary nature sounds (e.g., water in a stream or birds chirping). The patients with nature contact had substantially better pain control (Diette et al., 2003).

- One line of evidence comes from wilderness experiences—from organized programs such as the National Outdoor Leadership School and Outward Bound, and from less formal hiking and camping trips. Sometimes these are used therapeutically for psychological disorders (Eikenaes et al., 2006; Bettman, 2007), developmental and cognitive disabilities (Berger, 2006), cancer (Epstein 2004), and other conditions (Easley et al., 1990). But healthy people seem to benefit as well. For example, inner-city children show increases in self-esteem and well-being after spending the summer in rural camps (Readdick and Schaller, 2005). Adults who participate in wilderness excursions describe “an increased sense of aliveness, well-being, and energy,” and note that the experience helps them make healthier lifestyle choices afterwards (Greenway, 1995).
- Finally, here is a suggestion for researchers: One benefit of nature experience has received scant attention, yet it is one of the most stirring: family bonding. “Research has not looked specifically at a link between outdoor experience and quality of parent-child attachment, and certainly parents can be sensitive and responsive to their babies and young children indoors or out,” says Martha Farrell Erickson, Ph.D., a developmental psychologist who serves on the C&NN board. Erickson retired in 2008 from the University of Minnesota, where she was founding director of the Children, Youth & Family Consortium. “But, in many ways, the natural world seems to invite and facilitate parent-child connection and sensitive interactions. ...By following a prescription for more nature experience together, families will discover a win/win situation in which both children and adults benefit as individuals, even as they are strengthening those important family bonds that all children (and adults) need.”

## **RESEARCH-BASED INDICATORS OF BENEFITS TO THE EARTH FROM CHILDREN’S OUTDOOR EXPERIENCES**

- Positive direct experience in the outdoors and being taken outdoors by someone close to the child—a parent, grandparent, or other trusted guardian—are the two factors that most contribute to individuals choosing to take action to benefit the environment as adults (Chawla, 2006).
- In 1978, Thomas Tanner, professor of environmental studies at Iowa State University, conducted a classic study of environmentalists' formative experiences, what it was in their lives that had steered them to environmental activism. “Far and away the most frequently cited influence was childhood experience of natural, rural, or other relatively pristine habitats.” For most of these individuals, the natural habitats were accessible for unstructured play and discovery nearly every day when they were children. Since then, studies in England, Germany, Switzerland, Greece, Solvenia, Austria, Canada, El Salvador,



South Africa, Norway and the United States have confirmed and broadened Tanner's findings (Tanner, 1978).

- In 2008, researchers published the results of two surveys conducted in Central Scotland and the East Midlands of England that investigated factors contributing to adult outdoor use of and attitudes toward natural spaces near their homes. Using a variety of statistical techniques, the authors examined which factors best explained the frequency with which adults visited natural spaces and found that frequency of childhood visits to natural spaces and distance from home to those spaces were the most important factors. These results indicate that people who have had frequent childhood experiences in natural spaces are more likely to visit such places as adults. Researchers also found that people who have had frequent childhood experiences in natural places tend to feel more comfortable visiting these places alone and have a more positive attitude towards these spaces as adults (Thompson et al., 2008).
- In 2006, Cornell University researchers Nancy Wells and Kristi Lekies went beyond studying the childhood influences of environmentalists; they looked at a broad sample of urban adults, ages 18 to 90. The study indicated that the most direct route to adult concern and behavior related to the environment is participating in such “wild nature activities” as playing independently in the woods, hiking, and fishing before the age of 11 (Wells and Lekies, 2006). Children do need mentors, however. In other surveys of environmental leaders, according to University of Colorado environmental psychologist Louise Chawla, most attributed their commitment to a combination of two sources in childhood or adolescence: many hours spent outdoors in “keenly remembered” wild or semi-wild places, and a mentoring adult who taught respect for nature (Chawla, 2006).
- Some leaders and analysts within the outdoor industry point to dwindling interest among young people as one reason that sales of fishing and hunting licenses are plummeting in nearly every state. The Outdoor Industry Association, similarly concerned, reports that overall retail sales went down 9 percent over a one-year period ending July 2009. Although the federal stimulus package for public lands and parks helped provide a boost, park officials are also concerned. Summer 2009 figures notwithstanding, since 1988, per capita visits to U.S. national parks have declined. The National Park Service reports there were 4.4 million tent campers in the parks in 1992, and fewer than 3 million in 2008. There were more backcountry campers last year than the year before, but nowhere near the numbers seen in the 1990s. University of Illinois researchers Oliver Pergams and Patricia Zaradic note that in 2003 the average person spent 327 more hours per year with entertainment media than in 1987. They found that a number of entertainment media variables, as well as inflation-adjusted oil prices, explained almost all of the decline in national park visits. While this study only looked at association between factors, and not causation, it is an important first step in beginning to understand why U.S. national park attendance has declined or remained flat, and what this might mean for children's exposure to nature—and for future political support of our wilderness parks (Pergams and Zaradic, 2006). In a follow-up study, the researchers examined 16 large national and international nature-related visitor and activity data sets, including visitation to

Japanese national parks, recreational visits to U.S. parks, and total number of U.S. hunting and fishing licenses. They found that nature-based recreation peaked between 1981 and 1991, and has been declining at a rate of between 1 and 1.3 percent per year since this peak, for a total decline of 18-25 percent to date. The similarities among these measures suggest a general decline in visits to natural areas in the U.S. and potentially in other countries, such as Japan. The authors found that the most popular nature-based recreation activity in the U.S. is camping, followed by fishing and hunting, all of which show a declining trend. Pergams and Zaradic found only one countertrend to nature use decline: a slight increase in hiking and backpacking. While the causes for this over-arching decline require further investigation, this study demonstrates a fundamental shift away from visits to natural areas, with potentially important implications for health, well-being, and conservation (Pergams and Zaradic, 2008).





*“A movement moves.” – Rev. Dr. Gerald L. Durley*

## THE MOVEMENT, NOW AND IN THE FUTURE

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The central goal of the children and nature movement is to help shape a society in which the public once again considers it to be normal and expected for children to be outside and playing in natural areas. Achieving this goal will require change at all levels: personal, political, institutional and ultimately cultural. While parents and other caregivers are the first responders, we need a deeper understanding of the barriers between children, parents and nature—barriers shared by urban, suburban and rural regions, but also the barriers that are more specific to geography, ethnicity and economic background. Among the common barriers: lack of access to natural areas, both nearby and distant; urban design; electronic distractions; time pressures; overbearing rules and regulations; and fear of strangers or nature itself. To the list of barriers, we must also add what scholar Peter H. Kahn, Jr., has called environmental generational amnesia. Kahn is referring to the experience of generations with environmental degradation—that is, each generation takes the natural environment they experienced in childhood as the norm, so an increasingly degraded environment becomes the new norm for each. That concept can be expanded beyond the characteristics of an increasingly degraded outdoor environment to include a generational amnesia that is marked by massive growth of nature-deficit disorder in generations of children. Even now, many members of the new generation of young parents did not, when they were children, enjoy the experiences in nature of previous generations. Even when these young parents recognize the health and learning benefits of nature play and want to make sure their children have that experience—they don't know where to start.

Of all of these barriers, fear of stranger-danger is the most insidious barrier that the children and nature movement must confront. But how real are the reasons for that fear?

- There is always a delay in reporting study findings by the agencies that track crimes, so caution is advised in interpretation, but public fear of stranger abductions does seem to outdistance the risk.
- Child abductions by strangers are, in fact, rare. By a wide margin, family members, not strangers, are the most common abductors. Nationwide, between 200 and 300 children were abducted by strangers in 1988, compared to 115 children in 1999, according to the National Incidence Study on Missing, Abducted, Runaway, and Thrownaway Children in America, released in 2002.
- By 2005, the rates of violent crimes against young people had fallen to well below 1975 levels, according to the 2007 Duke University Child and Well-Being Index. The authors of the report state: “The most disturbing finding” of the Index is not violence or abductions, but “that children's health has sunk to its lowest point in the 30-year history of the Index, driven largely by an alarming rise in the number of children who are obese and a smaller decline in child mortality rates than achieved in recent years.”
- This is not to say that risk from strangers is nonexistent. One abduction is too many. Some neighborhoods are truly dangerous, particularly in inner cities, and that reality must be addressed before full access to nearby nature is possible. But



the general risk must be weighed against the enormous health risks of childhood obesity and other factors associated with a sedentary lifestyle.

While our generalized feelings of fear about stranger danger may be exaggerated by constant media coverage of a relatively few crimes, societal fear is not going to go away. Therefore, parents will need safety reassurance from the institutions and organizations that help parents, grandparents and other guardians give children the gift of nature. And society will need to offer these organizations and institutions more support. Fear and generational amnesia are the primary reasons that the organizations and institutions that help parents make that connection—home builders, camping organizations, environment and outdoor education programs, voluntary wildlife habitat restoration projects, Scouts, nature centers, schools with outdoor class rooms, nature-based corporate day care centers and more—will increasingly be seen as vital to the development of well-rounded children. One benefit that habitat restoration offers children is that it encourages them to associate nature not only with play, but with the restorative quality of work itself.

One of the simplest ways to address this issue—ensuring the safety of our children in the outdoors—is to take them outdoors ourselves. Among the most highly regarded and eloquent researchers on this topic, Louise Chawla, an environmental psychologist at the University of Colorado, argues in a recently updated landmark research, originally conducted in the 1990s: “The very fact that a parent or grandparent chose to take the child with them to a place where they themselves found fascination and pleasure, to share what engaged them there, suggests not only care for the natural world, but, equally, care for the child. Given the important role of adults in taking children into the outdoors, Chawla is specific about the attributes of the experiences those adult mentors provide. She states, the “adults gave attention to their surroundings in four ways—care for the land as a limited resource essential for family identity and well-being; a disapproval of destructive practices; simple pleasure at being out in nature; and a fascination with the details of other living things and elements of the earth and sky.” Modeling those attributes while in the presence of the child brings a host of life-forming results, from enhancing the child’s self esteem to cultivating a commitment within the child to caring for nature as an adult.

Every sector of society has a stake in the outcome of this issue, and varied private sector companies, government agencies and non-governmental organizations, coming from a wide range of perspectives, are starting to engage in finding and applying solutions. Each of these organizations is a potential ally for advocates who need to develop partnerships to extend their ability to reach different target audiences. These groups come from many sectors. These organizations already have relationships with these different groups of parents. Many have considerable communications expertise and marketing budgets that they are willing to deploy on behalf of civic causes. These partners can be engaged in wide range of activities, including the development and distribution of communications materials, and co-developing and co-funding new programs which get children outside.

## **PRINCIPLES AND GOALS**

Leaders of the children and nature movement recognize that the old norms of the 1950s are not returning anytime soon. Because of societal fear, parents can no longer be expected to tell their children, “Go play outside and don’t come home until the street lights come on.” At least not in most neighborhoods. Therefore, many children’s connection to nature will

take new forms, and new societal norms will emerge. To move forward, the children and nature movement is developing an evolving set of principles:

- Parents and other guardians, as well as educators, health care professionals and other individuals responsible for the welfare of children, must know about the health, emotional and cognitive benefits of nature for children.
- Parents and other positive adults must be *intentional* about taking children into nature; we cannot assume that the young will do this on their own—and, unlike the attitudes of previous generations, the prevailing concern about safety will require far more adult presence.
- We must engage every sector of society, among them: parents, grandparents, and extended family members; developers, planners and architects; health care professionals; educators; farmers and ranchers; conservationists; government; businesses and more.
- The benefits of the nature experience for children and families must be part of the international, national and community debates about the future of health care and public health, education, economics, and the health of natural ecosystems.
- While action is needed by governments and specific institutions, the most powerful engines for change are multi-cultural, multi-sector, multi-disciplinary campaigns at the regional, state, local, neighborhood and household levels. (This is, after all, a place-based issue.)
- We must identify focal points for the movement: nature centers; schools, PTAs and other parent groups; business; nearby nature, parks, and wilderness; national and international engines of the movement; national conservation organizations; national conferences; and a host of unlikely and non-obvious allies.
- One size does not fit all. Each region and community has its own challenges and opportunities, ecologically, socially and economically. However, these national regional, state, provincial and community campaigns and movements can and should learn from each other. Mechanisms must be created to encourage that communication.
- While seeking cultural change, we must attend to design; for example, we must challenge current assumptions about urban and suburban planning and architecture. We must emphasize the value of nearby nature within urban regions, as well as more distant wilderness.
- Effective use of technology must make the latest information about best practices as well as the most recent research about the relationships between children and nature available to anyone, anytime, anywhere in the world—from parents and their children, to businesses, to movement organizers, to educators and health care providers, and to policymakers in every field.
- Successful communications will recognize the universal though fragile *current* appeal of the child-nature connection, while also appreciating the diversity of



family backgrounds and neighborhoods. Institutions, organizations and individuals—especially those that have been working on this issue for many years — must be supported with better funding and moral support. The best way to accomplish this will be to bring new players to the table, broadening the funding base and increasing the number of informed allies.

- We must begin where children, youth and parents are—physically, emotionally, socially, culturally, politically, and economically—as opposed to where the programs are. Creating cultural change works best when partnerships are established with young people and adults who are not now engaged in policy debates.
- Beyond programs and legislation, our ultimate goal is deep cultural change, connecting children to nature, so that they can be happier, healthier and smarter.



*“The movement to reconnect children to the natural world has arisen quickly, spontaneously, and across the usual social, political, and economic dividing lines.”*

*— ORION magazine, March/April 2007*

## BUILDING NEW INITIATIVES THROUGH MORE EFFECTIVE COMMUNICATIONS

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***In an era of public discord, the issue of children and nature has a peculiarly unifying effect on people, regardless of politics or religion. The challenge gets people—who may disagree on many other issues—through the same door and to the same table.***

The growing disconnect between children and nature is a concern that resonates across all demographic and cultural segments of our societies. In an era of public discord, the issue of children and nature has a peculiarly unifying effect on people, regardless of politics or religion—it’s a “doorway” to which we can all relate. In addition, the great majority of parents and other caregivers love their children and want them to lead happy, healthy, and successful lives. So, on one level, the message that getting children outside is a prerequisite for happy, healthy children is universal, and the broad emotional resonance of the issue is a powerful tool that we have at our disposal. However, the forces documented earlier in this report that have created the shift away from nature are no less powerful; and, although the desire to improve children’s health and well-being through a greater connection to nature might be universal, parents are far from homogenous in their values and daily concerns.

Elevating the status of natural play will require a transformation in attitudes and behaviors among many parents and caregivers. Creating such a fundamental change requires that the issue be made personally important to them. Parents work from a metaphorical (and often literal) list of goals that they feel they must achieve in order to be good parents. This perceived list can be called: “What I *must* do to be a good parent.” A second metaphorical list exists: “What I would *like* to do to be a good parent.” Nature experiences, if valued at all, usually appear on the second list, as an extra-curricular activity, as a “nice to do” item. To stimulate sustainable cultural change, a children and nature movement must move nature experiences to the first list, as a top-tier issue that’s closely connected to parents’ individual core values, daily priorities and child-rearing philosophies.

Achieving this will require, in part, communications that break through a daily bombardment of messages that currently shape attitudes and behaviors. These communications must be made relevant in the context of parents’ current values and daily concerns. Since these vary so widely among different kinds of families, the movement needs to tailor messages to narrower groups of parents who share common characteristics. Consumer marketers call this approach “segmentation.”

Parents differ across many dimensions—from basic demographics (income, education, age and ethnicity), to geography, to more fundamental differences in their values and motivations. Effective communication therefore requires that advocates be able to identify distinct sub-groups of parents and how the message can be made most relevant and appealing to each of them. ecoAmerica’s 2006 American Environmental Values Survey mapped how different segments of the American public connect (or don’t connect) to nature.



The research project provided us with insights which allow us to construct four distinct groups of parents when it comes to thinking about how to get children to spend more time playing in nature:

- *Receptive Parents*
- *Busy Parents*
- *Active Parents*
- *Struggling Parents*

## RECEPTIVE PARENTS

- **Who they are:** *Receptive Parents* are pre-disposed to understand and accept the thesis of *Last Child in the Woods*. These parents are well-educated, upper income, active, socially conscious, and self-confident. These receptive parents are successful—whether as businesspeople, non-profit managers or in other civic realms. They believe they can impact the world around them, and do, through involvement in business, civic or religious activities. This group of parents represents about 15 percent of the parents in the US, and they are often very involved in their children’s schools and activities. They are concentrated in major metropolitan areas.
- **This constituency is capable of understanding the causes and effects of complex problems.** They are already actively involved in their children’s education, and actively seek information on how to be better parents through online and offline newspaper and magazine articles, lectures, and television programming. These parents are leaders, and are receptive to being recruited as activists. These *Receptive Parents* are primarily — but not solely — responsible for making *Last Child in the Woods* so successful, by buying the book, attending lectures on the topic and starting the grassroots campaigns that have sprung up around the country to address nature-deficit disorder in a systematic way.
- **What messages will connect:** *Last Child in the Woods* argues that nature can be an important source of health and well-being for children. The strong case that promoting increased interaction with nature fosters children’s emotional, intellectual and physical development resonates with *Receptive Parents*. Messages should have a factual, informed flavor.
- **How to reach them:** *Receptive Parents* are already actively seeking strategies to promote their children’s development from a variety of sources, and will take the time to absorb fairly detailed presentations of complex ideas. Since these parents are already “in the market” for these ideas, direct messaging on the developmental benefits and consequences of exposure to nature (or the lack thereof) will be effective. *Receptive Parents* can be reached through a variety of delivery channels, including magazine articles, books, lectures, outreach through existing environmental groups, and outreach through pediatricians and other medical professionals.

## BUSY PARENTS

- **Who they are:** *Busy Parents* are primarily motivated by achieving “success” as our mass media culture defines it. These parents want their children to do well not only because they love them, but also because their achievement reflects back on the parents themselves. These parents are stretching themselves to the limit, trying to realize the American Dream – juggling stressful work lives, childcare and community responsibilities. They don’t typically have a strong emotional connection to nature often, because nature does not further their goals. This category, mostly made up of suburbanites, constitutes about 25 percent of parents.
- *Busy Parents* are brand and style conscious, and highly aspirational (they want to be like successful people). They are reluctant to adopt new behaviors until they see them modeled by people they admire. They’re socially moderate, valuing structure, predictability and stability over risk, intimacy and self-disclosure. They are members of the PTA, the Junior League, business organizations, and local religious congregations. They value “safe” activities for their children, and these kids are among the most highly scheduled of all groups.
- **Messages that connect:** *Busy Parents* are focused on getting their families ahead. Consequently, they’ll be more responsive to messages about the practical benefits of unstructured natural play, and how it develops the skills that children will need to succeed in school and later in life. Messages that emphasize the consequences of nature-deficit disorder in hampering concentration in school, and in slowing the development of the skills that children will need to excel in the knowledge-based 21st century economy, will be most effective.
- Because these families’ lives are so highly scheduled and full, nature might be part of their family togetherness time, but nature is not the focus. *Busy Parents*, for example, are often involved in power boating because it provides family time. Consequently, messages that emphasize that getting out into nature can create some quality family time are also likely to resonate if the focus is on family togetherness and popular activities.
- **How to reach them:** With *Busy Parents*, an indirect approach is more likely to be effective than a direct one. Seeing “successful” people they admire modeling the behavior themselves will be much more powerful than a book or a lecture. A multi-step process is needed to reach these parents. The first step is to raise awareness of the existence of nature-deficit disorder, and its consequences. The second step would be to highlight how “successful parents” are addressing the problem. This can be followed by a push to get *Busy Parents* to allow their children to participate in activities organized by local grassroots groups.
- *Busy Parents* are best reached through short-format materials that can be distributed by doctors’ offices, PTAs, local business groups and congregations, and in short articles in parenting magazines and web sites. They are most affected by things they hear from peers they respect. Often, *Receptive Parents* will be able to persuade *Busy Parents* better than messaging from groups.



## ACTIVE PARENTS

- Who they are: *Active Parents* have strong emotional connections to nature. This often is manifest in an individualistic way as “conservationism,” or in connection to individual sports. They grew up hunting and fishing, biking or kayaking and outdoor recreation is still an important part of their family life. These parents are strongly self-reliant and faithful. Some are struggling economically. They are patriotic but libertarian – they are suspicious of both government and big business. Many of these parents do not have college educations.
- Messages that connect: *Active Parents* can be most effectively reached through emotional appeals rather than intellectual arguments about costs and benefits. These parents feel pressured by structural changes in modern American life – there are large economic forces (like the shift of manufacturing jobs overseas) working against them that they can’t control.
- They are concerned about losing access to nature for their children. They see the traditions that they grew up with, often centered around the outdoors, being threatened by today’s culture, and they see this as a loss for their children. They are concerned that the outdoor activities which played a central role in their family life when they were growing up are being lost to future generations, because children are more interested in the instant gratification of playing videogames than going outside. *Active Parents* often see nature as an integral part of moral education, through the idea of stewardship. For these parents, reconnecting children and nature can be framed as a fundamentally conservative message – trying to preserve a way of life that is under siege.
- How to reach them: *Active Parents* are not particularly information seeking. Generally speaking, person-to-person outreach will be more effective than media outreach. Using trusted and familiar messengers and institutions such as schools, congregations, doctors and local hunting and fishing clubs will be most effective.

## STRUGGLING PARENTS

- Who they are: These parents are motivated by the same things as *Busy Parents*, but are much less likely to achieve the kind of success that they want. They are hampered by their education and economic circumstances, and also by their own self confidence. As a result, they often are struggling economically and feel that the deck is stacked against them. They want the better things in life, but don’t see a way to get them. These parents are pessimistic and too-often withdrawn from their children’s lives.
- Messages that connect: Since *Struggling Parents* are not actively engaged in their children’s lives, they are not good targets for messaging.

- How to reach them: Advocates need to reach out directly to children through participation in structured activities rather than through communications outreach. In these cases, it's important to engage children in expert-led activities that are fun, social, and that give them a progressive sense of learning and empowerment. These activities can be organized through schools and civic groups that are reaching out to improve lower income children's lives (camps, boys and girls clubs, religious groups, social service organizations).





*The decline in children's experience of nature will not change until a fundamental shift occurs in the attitudes and practices of developers, designers, educators, political leaders, and ordinary citizens. The enormous challenge facing us is how to minimize and mitigate the adverse environmental impacts of the modern built environment and how to provide more positive opportunities for contact with nature among children and adults as an integral part of everyday life.*

*– Dr. Stephen R. Kellert, Building for Life*

## IDEAS FOR THE FUTURE: HOW WE CAN TRANSFORM OUR COMMUNITIES

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There is no “one right way” to participate in the movement to reconnect children and nature. There are a variety of approaches. Even so, there are some “lessons learned,” best practices and approaches that tend to be more successful than others. And new ideas are being tried or proposed.

- **Face the fear.** In most neighborhoods, the perception of stranger danger is greater than the reality. The movement can help parents and other caregivers to teach children to watch for behaviors, not necessarily strangers. According to family psychologist John Rosemond, “telling a child to stay away from strangers is relatively ineffective. ‘Stranger’ is not a concept young children understand easily. Instead, children ought to be taught to be on the lookout for specific threatening behaviors and situations.” This view is supported by the U.S. Department of Justice.
- **Support and expand Scouting organizations, 4-H and other traditional programs—** particularly when they create new efforts to connect children with nature. For example, in 2006, Camp Fire USA, Central Ohio Council, launched “Vision 20/10: Reuniting Children and Nature” to bring “10,000 kids into the woods by 2010.”
- **Support local nature centers and nature preserves.** Help get children involved in wildlife habitat restoration programs. Habitat restoration helps children associate nature with the restorative quality of nature work. Those working in botanical gardens, zoos, natural history museums and children’s museums: Become convening centers for regional children and nature campaigns, in addition to taking direct action.
- **Green your city.** Push for better urban planning in developing and redeveloping areas, including tree planting, more natural parks, walkable neighborhoods and public transportation so that urban children and families can easily reach nature areas. Developers and builders: Create green communities, or better yet, redevelop decaying neighborhoods with green oases that connect children and adults to nature.
- **In your neighborhood or development, challenge conventional covenants and restrictions** that discourage or prohibit natural play. Rewrite the rules to encourage it. Allow kids to build forts and tree houses or plant gardens. Make sure they have access to nearby nature.
- **Naturalize old and new urban parks.** During the last two decades, natural-play-area designers have become skilled at creating living landscapes for parks with high foot traffic. Such natural play areas can be distributed throughout every city. Reinvent the vacant lot. Developers often leave set-aside land — slices of property not large enough to be playing fields, not conveniently enough located to be pocket parks, but just fine as islands of wildness. These and other urban and suburban plots can be transformed into “wild zones” or adventure playgrounds. Work with conservancy groups to establish what might be called “nearby-nature trusts.”
- **In your community, promote the annual Take Your Child Outside Week** (see <http://www.takeachildoutside.org/>) every week.



- Break down the silos: promote dialogue among people from different ethnic cultures, as well as those individuals who work separately and speak different professional languages, such as pediatricians and landscape architects; public health professionals and park and recreation officials; bike and pedestrian advocates; and arborists, hunters, anglers, residential developers and environmentalists. Engage faith-based communities.
- Join C&NN's Nature Clubs for Families initiative, with sponsoring support from REI, designed to inspire and support families to come together outdoors for everyone's health and well-being. See *C&NN's Nature Clubs for Families Tool Kit: Do It Yourself! Do It Now*. This resource is a friendly tool with ideas, anecdotes and resources for planning fun and healthy family outings with other families in your community—once a week, once a month, and in all the seasons.

## WHAT CONSERVATION GROUPS CAN DO

The movement can build on the growing desire of conservation organizations to expand their focus from pollution and other negative impacts of humans, to the restorative qualities of nature for children and adults. By focusing more on the health imperative, particularly the health and well-being of children, they can build their base and effectiveness.

- Reach out to traditionally underserved populations, in order to reach parents and children, in inner-cities, areas of rural poverty, and other areas. For example, in April 2007, the Sierra Club, working with the National Military Family Association, announced Operation Purple, which offers free summer camps to thousands of children of deployed military families. Some nature conservancy organizations are going beyond their traditional definition of conservation.
- Step into new arenas. A new environmental marketing organization, integral to this report, is ecoAmerica, and it is targeting children and nature, in part, as a way to expand the current membership base (which is both aging and shrinking). As mentioned earlier, the Conservation Fund, in an effort to develop a constituency for this issue beyond traditional conservation circles, extended its role beyond nature preservation to create the National Forum on Children and Nature, enlisting governors, mayors, cabinet secretaries, corporate CEOs and non-government organizations to help raise national awareness about the problems facing our children, and to help place in the spotlight the role that nature can play in addressing those problems. These people and organizations realize that the human child in nature may also be an endangered species—and the most important indicator of future sustainability.
- Connect with the land. The children and nature issue can also provide added political reach and effectiveness to efforts to protect natural habitats now and in the future. The Trust for Public Land is placing increased emphasis on engaging children with nature, to ensure that natural areas preserved today will continue to be protected by future generations. For example, proponents of a new San Diego Regional Canyonlands Park, which would protect the city's unique web of urban canyons, have adjusted their efforts to address these younger constituents. "In addition to the other arguments to do this, such as protecting wildlife," says Eric Bowlby, Sierra Club Canyons Campaign coordinator, "we've been talking about the health and educational benefits of these canyons to kids. People who may not care about endangered species do care about their kids' health." For conservationists, it

could be a small step from initiatives like these to the idea of dedicating a portion of any proposed open space to children and families in the surrounding area. The acreage could include nature centers, which ideally would provide outdoor-oriented preschools and other offerings.

- Focus on the present and the future. Also, as part of this movement, conservation organizations could help create a new generation of leadership by engaging young people who would become leaders by first being immersed—and helping other young people become engaged—in direct, nature experience. In this way, a new constituency for the environment would be nurtured, one that would be rooted in a personal experience in nature, rather than in only an abstract, intellectualized relationship. With this in mind, the Sierra Club and the Children & Nature Network have created and launched the “Natural Leaders Network™,” with founding partners, the Sierra Club and The North Face.

## WHAT EDUCATORS CAN DO

Some educators see that the Leave No Child Inside movement could become one of the best ways to challenge other entrenched concepts—for example, the current, test-centric definition of education reform. Research shows schools that use outdoor classrooms, among other techniques, produce student gains in test scores and grade-point averages; and enhanced skills in problem-solving, critical thinking and decision-making. In addition, time in natural surroundings stimulates children’s creativity—and reduces teacher burnout. As the movement progresses, it can encourage educators, as well as students, to:

- Support educators that are currently, against great odds, sponsoring nature clubs, nature classroom activities, and nature field trips. Engage them also as participants in the movement.
- Support existing and new nature-themed schools, such as the Schlitz Audubon Nature Center Preschool, where, as the *Milwaukee Journal Sentinel* reported in April 2006, “a 3-year-old can identify a cedar tree and a maple—even if she can’t tell you what color pants she’s wearing. And a 4-year-old can tell the difference between squirrel and rabbit tracks—even if he can’t yet read any of the writing on a map. Young children learn through the sounds, scents, and seasons of the outdoors.” Taking cues from the preschool’s success in engaging children, an increasing number of nature centers are looking to add preschool programs not only to meet the demand for early childhood education but also to “create outdoor enthusiasts at a young age,” the *Journal Sentinel* reported. And their success points to a doorway to the larger challenge—to better care for the health of the Earth.
- Green the schoolyards and the K-12 curricula: The U.S. Fish and Wildlife Service’s Schoolyard Habitat program offers one way to do this. They can also tap the many available resources to help, including Project Learning Tree and Project WILD, which tie nature-based concepts to all major school subjects, requirements and skill areas.
- Work for reform of the No Child Left Behind Act, at the national, state and local levels. Support environmental education in the classroom and outdoor experiential learning outside the school.



- Follow Norway’s lead, and establish farms and ranches as “the new schoolyards,” and thereby create a new source of income for farm culture, teach kids about the sources of their food, and give them hands-on, practical experience that will provide lasting benefit.
- Return natural history to higher education. Work to require universities to teach the fundamentals of natural history, which have been eliminated from the curricula of many research universities. Also, fund more research on topics involving the relationship between children and nature, and engage students in that research. Place greater emphasis on conservation as a career path. Conservation organizations are experiencing a “brain drain” as baby boomers continue to retire; this presents career opportunities that students may not have considered. Students can also be encouraged to make the children and nature issue part of their chosen path in any profession, such as teaching or urban design.
- Spread the word: offer presentations to school boards, parent-teacher associations and similar groups, making the case for the educational benefits of nature experience for children and young people.
- Join C&NN’s new Natural Teachers Network™, designed to support, encourage and inspire all teachers to open the door to the first classroom, the natural world.

## **WHAT BUSINESSES, THE LEGAL PROFESSION, AND HEALTH CARE PROVIDERS CAN DO**

Farsighted members of the business community are awakening to the link between this issue and future economic health; they can become central partners in the movement.

- Engage the outdoor industry as conveners and financial sponsors of the movement. The Outdoor Industry Association (OIA), which represents hundreds of companies selling everything from backpacks to kayaks, reports good sales of upscale products—and now realizes that sales of traditional entry-level gear are nearly dead in the water. Discouraged by the trend, some companies have dropped their entry-level product lines. The rapid increase in child inactivity and obesity has “sent a big message to the industry that we need to do something to reverse this trend,” according to Michelle Barnes, OIA’s vice president for marketing. In Canada, the Mountain Equipment Co-op, with several million members, is considering a proposal to provide free rentals of outdoor equipment to children across Canada.
- Challenge developers. Some are already attracted to the movement as a source of new ideas for new markets. The *Sacramento Bee* reported in July 2006 that Sacramento’s biggest developer, Angelo Tsakopoulos and his daughter Eleni Tsakopoulos-Kounalakis, who together run AKT Development, “have become enthusiastic promoters” of *Last Child in the Woods*, which they say has inspired them to pursue new designs for residential development that will connect children and families to nature. Rather than excusing more sprawl with a green patina, the movement could encourage the green redevelopment of portions of strip-mall America into Dutch-style eco-communities, where nature would be an essential strand in the fabric of the urban neighborhood. There is increasing attention within the architecture, engineering, planning and development communities on incorporating both green engineering and principles of biophilic design into what Yale scholar, Stephen Kellert, calls “restorative environmental design.”

- Engage the business community. In general, the business community can be asked to support regional and national campaigns to connect children to nature. They can help their communities in more targeted efforts, such as funding bus services for under-budgeted school field trips. They can sponsor outdoor classrooms for schools. They can underwrite nature centers and nature programs for vulnerable children, and join with land trust organizations to protect open space—and build family nature centers on that land. Businesses can also become financial sponsors of non-profit groups that work directly to connect children and parents to nature.
- Bring families to business and business to families. For their own employees, businesses can sponsor on-site nature-based child-care centers, as well as nature retreats for employees and their families. Businesses can also help to fund research, e.g., to gather knowledge on how best to create child/nature friendly homes and neighborhoods. Such research could focus on the relationship between nature experience and worker productivity, health, reduced absenteeism, and so forth.
- Challenge the legal profession. Through public education and changes in the justice system, the legal industry can promote the concept of comparative risk as a legal and social standard. Yes, there are risks outside our homes. But there are also risks in raising children under virtual protective house arrest: threats to their independent judgment and value of place, to their ability to feel awe and wonder, to their sense of stewardship for the Earth—and, most immediately, threats to their psychological and physical health. The legal profession could create public risk commissions to examine areas of our lives that have been radically changed by litigation, including the experience of nature. It could also create a Leave No Child Inside Legal Defense Fund nationally or in your community. With contributions from the legal profession and other interested parties, establish a fund that would, using *pro bono* attorneys, help families and organizations fight egregious lawsuits restricting children's play in nature, and bring media attention to the issues.
- Encourage health care providers to establish children's contact with nature as a leading public health issue. Howard Frumkin, director of the National Center for Environmental Health, points out that future research about the positive health effects of nature should be conducted in collaboration with architects, urban planners, park designers, and landscape architects. "Perhaps we will advise patients to take a few days in the country, to spend time gardening," he wrote in a 2001 American Journal of Preventive Medicine article, "or [we will] build hospitals in scenic locations, or plant gardens in rehabilitation centers. Perhaps the . . . organizations that pay for health care will come to fund such interventions, especially if they prove to rival pharmaceuticals in cost and efficacy."
- Advocate for free, nature-based outdoor play. In the debate over child obesity and other health problems associated with a sedentary lifestyle, health care researchers, practitioners and public health officials should place as much emphasis on free outdoor play, especially in natural surroundings, as they now place on children's organized sports. At the national level, health-care associations should support nature therapy as an addition to the traditional approaches to attention-deficit disorders and childhood depression. In 2007, Mind (National Association for Mental Health), the leading mental-health charity in Great Britain, advised the use of "green therapy"—from gardening to walking in the countryside—instead of relying solely on pharmaceuticals to treat depression and anxiety.



- Nationally or regionally, create a “Grow Outside!” campaign. Pediatricians and other health professionals could use office posters, pamphlets, and personal persuasion to promote the physical and mental health benefits of nature play. This effort might be modeled on the national physical-fitness campaign launched by President John F. Kennedy. They could call the campaign “Grow Outside!” A similar approach, “Green Check Ups,” is proposed by the National Wildlife Federation: “State Health and Natural Resource Departments can follow the lead of the American Academy of Pediatrics and ask doctors to recommend regular outdoor time as part of a wellness check for children.”

## WHAT GOVERNMENT CAN DO

Government has a unique opportunity in coming years. It cannot reverse the nature deficit alone—nor does it have to. But it can be a stronger partner with the public movement. Government, with its influence over parks, open space and how we shape cities, education and health care, has a crucial role to play.

- **Governors and mayors:** Help launch Leave No Child Inside campaigns in your states and cities; support regional, state and national efforts. Support your own versions of the Children’s Outdoor Bill of Rights, as signed by Gov. Arnold Schwarzenegger in 2007, and proclaimed by Maryland Gov. Martin O’Malley in 2009.
- **Expand or replicate successful state and national programs,** from Texas’ “Life is Better Outside” campaign to Connecticut’s “No Child Left Inside” program to get families into underused state parks. In 2006, under the leadership of Governor Rell and Gina McCarthy, Connecticut’s Commissioner of Environmental Protection who is now in a senior role with the Obama administration, that state launched a pioneering program to encourage families to use the underutilized state parks. Replicable in every state, McCarthy’s effort was the first formal program to call itself No Child Left Inside. Nisqually National Wildlife Refuge in Washington State successfully brings hundreds of schoolchildren to the Refuge and combines school lessons with tree plantings for habitat restoration. These efforts connect children to nature and give them a sense of hope and personal responsibility. In a similar move, the U.S. Forest Service has launched More Kids in the Woods, which funds local efforts to get children outdoors. The State of New Mexico is looking at how farms and ranches can become the new schoolyards, and in 2008, Kansas State Parks Director Jerry Hover joined with others to adopt the Kansas Children’s Outdoor Bill of Rights.
- **Local and regional government executives:** Review zoning barriers to nature; support environmental and outdoor education in municipal and state parks and recreation centers; convene meetings of developers, health and childhood experts, landscape architects, and outdoor play experts to review future development and redevelopment policies. View the nature-human connection as a public health and education issue, and support public investments in research to deepen our understanding of the issue and its practical applications.
- **Establish ways to measure the economic importance of nature,** including but going beyond traditional measures of recreational activities (fishing, hunting, boating, hiking), and also beyond concern about the negative impacts of environmental toxins, to include the positive economic impact on the public’s mental and physical health, education, and jobs, existing and potential. Working with researchers, civic organizations and advocacy groups,

establish baseline measurements of the nature deficit, so that progress can be measured and reported. Include annual progress measurements in new or existing reports on children's health and educational status.

- Support policies that increase the supply of naturalists and interpreters at our parks and other public nature settings. These professionals will become even more important as children experience less nature in their own neighborhoods. Government conservation agencies could also build a strong national conservation corps to actively recruit young people from diverse backgrounds into the conservation professions. At the federal and state levels, park systems could replicate Connecticut's "No Child Left Inside" program, which has so successfully repopulated that state's parks with families—or establish innovative nature attractions, such as the simple "canopy walk" created by biologist Meg Lowman in Florida, which doubled the attendance of one state park. In June 2009, Interior Secretary Ken Salazar established an Office of Youth in National Resources at the Department of the Interior, saying "this summer alone we will have 15,000 young people from all walks of life who will be part of the work of the department." In addition, the Association of Fish and Wildlife Agencies presented recommendations to President Obama before he was sworn into office that listed children and nature as No. 2 in their roster of five Priorities of a National Agenda for State Fish and Wildlife Agencies.
- Educators: Future education reform should return nature to our schools by encouraging field trips, natural playgrounds, outdoor classrooms, and broad support for outdoor and environmental education. They can support outdoor education and recreation grant programs for underserved children, and more funds for classroom environmental education and outdoor education.
- Legislators: Introduce bills to establish nature education partnerships among parks and schools, educators and farmers. And they can support policies that strengthen land trust law, keep farming families on their land, and decrease property owners' liability when they allow children to play on open land. Federal and state conservation agencies can loosen current restrictions of the use of government funds for outreach efforts. "Here we sit with the mandate of managing the resource for future generations," one state official said recently. "The legislature wants us to manage habitat and wildlife but minimizes support for the other, critical half of the equation, managing the people surrounding and influencing that habitat."
- Build collaborations between the Departments of Interior, Education, Agriculture, and Health and Human Services that focus on children and nature, a challenge that affects them all, and can best be addressed through multiple disciplines.
- Encourage and work with a national Leave No Child Inside movement. By doing so, government agencies can seek philanthropic partners beyond traditional government sources of conservation dollars; for example, foundations concerned about child obesity, education philanthropies promoting experiential learning, or civic organizations that see the link between land and community.





*The real measure of our success will not be in the number of programs created or bills passed, but in the creation of a new cultural atmosphere, in everyday life, that will make such decisions second nature – in every family, every school and every neighborhood.*

*– Richard Louv, Last Child in the Woods*

## A COMING INTERNATIONAL MOVEMENT

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The disconnect between children and nature is also gaining greater attention in countries throughout the world. Among them, the Netherlands, where the Dutch government paid for the translation of *Last Child in the Woods*, and conservation and environmental education leaders—in cooperation with the Minister of Agriculture, Nature and Food Safety—have launched a petition drive to ask Parliament to support major efforts to reduce the nature deficit. *Last Child in the Woods* has been translated into more than 10 languages, to date. Cheryl Charles continues to speak about the importance of this issue at national and international conferences, including TblisiPlus30 held in Ahmedabad, India in 2007, and the World Conservation Union's World Congress in Barcelona in October of 2008, where she moderated a panel discussion focused on strategies for solving nature-deficit disorder, and helped to ensure that the children and nature issue will remain a focus of the International Union for the Conservation of Nature in the future.

The international coverage is substantial and growing. This is a worldwide phenomenon, on a planet where nearly 60 percent of the population now lives in urban areas. Children everywhere are hooked into the electronic umbilica and separated from regular, daily connections with natural environments where free play is an opportunity and a foundation for a healthy lifestyle. People everywhere recognize that this trend toward disconnection—this nature-deficit disorder—must be addressed and reversed.

Around the world, the window of opportunity available to confront both climate change and the nature deficit is approximately the same. Unless we act quickly, one issue will be determined by the chemical imbalance in our atmosphere, the other by an imbalance in the human heart.



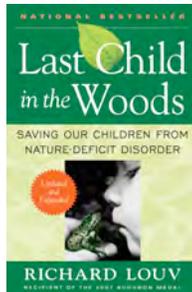


*I think that the best hope for our species lies in learning new patterns of attention to each other and to the biosphere, patterns that grow out of curiosity and respect and allow for wonder and learning.*

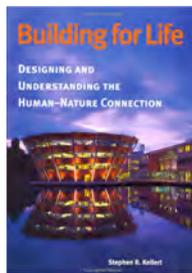
*– Mary Catherine Bateson, Willing to Learn*

## BOOKS AND ADDITIONAL RESOURCES

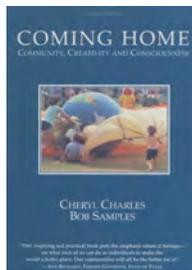
### A SAMPLE OF RELATED BOOKS BY C&NN BOARD MEMBERS



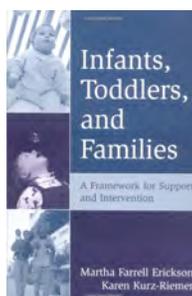
*Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, by Richard Louv. Chapel Hill: Algonquin, 2008, 2005.  
For information on ordering multiple copies of *Last Child in the Woods* and the supplementary *Field Guild to Last Child in the Woods* (April, 2008), contact Ina Stern, Algonquin Books at [ina@algonquin.com](mailto:ina@algonquin.com) or 919-967-0108 X18.



*Building for Life: Designing and Understanding the Human-Nature Connection*, by Stephen R. Kellert. Washington, D.C.: Island Press, 2005.



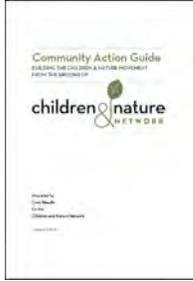
*Coming Home: Community, Creativity and Consciousness*, by Cheryl Charles and Bob Samples. Fawnskin, CA: Personhood Press, 2004.



*Infants, Toddlers, and Families: A Framework for Support and Intervention*, by Martha Farrell Erickson and Karen Kurz-Riemer. New York: The Guilford Press, 1999.



## ADDITIONAL RESOURCES



### *The Children & Nature Network Community Action Guide: Building the Children & Nature Movement from the Ground Up*

Prepared for C&NN by noted civic leader and regionalist John Parr and the non-profit organization he co-founded, Civic Results, this Guide is a useful tool to help build the children and nature movement at the local and regional level. The Guide describes an action-oriented process to design and implement initiatives, and is based on models that work and lessons learned in other civic initiatives in the United States and Canada. Available for download at <http://www.childrenandnature.org>.

### *Children & Nature Network Annotated Bibliographies of Research and Studies*

*Volume 1, February 2007*, by Cheryl Charles

*Volume 2, June 2007*, by Alicia Senauer

*Volume 3, September 2008*, by Alicia Senauer

*Volume 4, September 2009*, by Alicia Senauer Loge

The Children & Nature Network has developed four sets of abstracts of premier research studies, with links to original research, focused on the growing gap between children and nature, and the increasing scientific knowledge about the importance of nature experiences to healthy child development. Available for download at [www.childrenandnature.org/research/](http://www.childrenandnature.org/research/)

### *Children & Nature Network Leadership Series*

This new resource is launched by Dr. Martha Farrell Erickson's article, "Shared Nature Experiences as a Pathway to Strong Family Bonds," and Dr. Stephen Kellert's article, "Reflections on Children's Experience of Nature." By renowned scholars and leaders, each of these brief articles is grounded in science while being written in a reader-friendly style.

[www.childrenandnature.org/downloads/CNN\\_LWS\\_Vol1\\_01.pdf](http://www.childrenandnature.org/downloads/CNN_LWS_Vol1_01.pdf)

[www.childrenandnature.org/downloads/CNN\\_LWS\\_Vol1\\_02.pdf](http://www.childrenandnature.org/downloads/CNN_LWS_Vol1_02.pdf)

### *Children & Nature Network Web Portal* [www.childrenandnature.org/](http://www.childrenandnature.org/)

The Children & Nature Network Web site provides the most recent news and information about the children and nature movement, as well as up-to-date reporting on research, legislation, best practices, and a bibliography of related books and publications. Sign up to be a member of the Network to receive monthly newsletters and news of other resources.

### *C&NN Connect*

Join the community of people who are participating in the children and nature movement through C&NN's new social networking tools. Sign up at [www.childrenandnature.ning.com](http://www.childrenandnature.ning.com) to participate!

### *Become a Fan on Facebook:*

[www.facebook.com/pages/Children-Nature-Network/109655118143](http://www.facebook.com/pages/Children-Nature-Network/109655118143)

*Follow us on Twitter:* [www.twitter.com/ChildrenNature](http://www.twitter.com/ChildrenNature)

*Read the C&NN BLOG:* [www.childrenandnature.org/blog/](http://www.childrenandnature.org/blog/)

*Join Nature Rocks and start a Nature Rocks Flock:* [www.naturerocks.org](http://www.naturerocks.org)

For a full variety of recommended resources and tools to help support and inform the movement to reconnect children and nature, visit the C&NN Web site at [www.childrenandnature.org](http://www.childrenandnature.org).

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