



# Connecting Today's Kids with Nature



*A Policy  
Action Plan*

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## **A Policy Action Plan**

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Written by Heather White, Esq., Director of Education Advocacy

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Larry J. Schweiger  
President and Chief Executive Officer  
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## Message from the President



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*NWF President & CEO  
Larry Schweiger holding his  
grandson, Thadeus.*

Looking out of my home-office window, I can see down a long forested valley across North Park to a far-away place appropriately called “wildwood” where nine decades ago, Rachel Carson and her mother Maria roamed the Pine Creek bottoms, explored rock outcrops and woodlands, listened to birds, and discovered spring wildflowers and insects. Those hours in the fields of western Pennsylvania profoundly influenced one of the 20th century’s greatest women by fostering a rich sense of wonder and profound love of nature.

Perhaps reflecting on her wildwood walks with her mother, Rachel wrote later in life, “If a child is to keep alive his inborn sense of wonder he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in.”

Rachel would be deeply saddened by what has happened to the traditional connection between Americans and the outdoors, something that is markedly different from anything in our past. The evidence is everywhere. The average child today spends more than six hours a day watching TV, playing video games, or operating a computer. Meanwhile, the amount of time U.S. children now spend outdoors has declined by 50% in the past 20 years.

An important connection between being outdoors and caring for nature is being broken, and it greatly concerns me. Children who fish, camp and spend time in the wild before age 11 are much more likely to grow up to be environmentally committed as adults, according to Cornell University researchers. It was for me.

As a child, I spent many hours outdoors with my father, who was a dog trainer and hunter. He died more than 30 years ago, yet when I go to the woods and smell a familiar plant or hear a distant crow on a crisp fall day, my memories of being with Dad come flooding back in rich detail, as if it were yesterday. In those moments I can hear his voice clearly and I can see his ruddy face in the golden light of an early morning sun. I cherish those memories.

Although many environmental advocates speak of early experiences in nature that formed their connection, people of all professions often talk fondly of childhood experiences outdoors. Most adult Americans had a childhood where they could “go outside and play,” four little words rarely heard today.

What will become of wild places if children know little of the mystery, the grace, the interconnectedness of all living things? How will we address global warming and other environmental threats if we do not engage and prepare the next generation for these monumental challenges? We only save what we love and we only love what we know.



©NWF/Charlie Archambault.

*Exploring nature in your own backyard.*



As one of the largest conservation organizations in the country, National Wildlife Federation (NWF) is committed to helping children “rediscover the joy, the excitement, and the mystery” of our world.

With over 70 years of experience inspiring and fostering a connection with nature and wildlife, NWF continues to lead the way. Our award-winning *Ranger Rick*™ magazine has sparked curiosity about nature and wildlife in generations of children. Every month it delivers engaging stories, wildlife images, and ideas for fun outdoor activities. In response to increasing demand for age appropriate magazines about animals for younger children, NWF also offers *Your Big Backyard*™ for families with children 3-8 years old and *Wild Animal Baby*™ for families with children 12 months to 3 years old.



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*NWF has more than 70 years of experience inspiring and fostering a connection between children and nature.*

With tens of thousands of Certified Wildlife Habitats™ and Schoolyard Habitats®, our wildlife gardening programs help individuals and families attract birds, butterflies and other local wildlife to backyards across the country. A more recent addition to the suite of fun family outdoor activities is NWF's Great American Backyard Campout™, which is connecting families, neighborhoods and entire communities through camping, by sharing campfire stories and eating s'mores.

To encourage parents and caregivers to make time for children to “go outside and play,” NWF launched Green Hour, [www.nwf.org/kidsoutside](http://www.nwf.org/kidsoutside), a source of information and inspiration to create daily free time outside for children.

NWF and our partners are also working to engage policymakers on the local, state, and national level by:

- Advocating for increased funding and opportunities for environmental education, a proven strategy to enhance a child's connection to the outdoors, improve academic performance, and heighten interest in science and math;
- Calling upon our public health agencies to promote and educate parents on the importance of outdoor play for our children's well-being; and
- Increasing opportunities for outdoor recreation by promoting better community design for kid-friendly natural play areas and green spaces for children to grow and to connect.

We can't do this alone. With your help, we can make sure America's children carry with them a strong connection to nature. These are the memories they will carry with them fondly for a lifetime. You may even discover that you helped the next Rachel Carson find her wildwood.



Larry Schweiger,  
President & CEO of the National Wildlife Federation

# Today's Reality

## A Parent's Perspective

As I walked through the hallway of my daughter's elementary school, memories of my own school days came flooding back. For years, my day began by securing books to my bike rack and riding through the neighborhood to school which was only a few blocks away. It is only now that I understand how deep an impact my time riding bikes, playing in the woods, and exploring the neighborhood stream had on my development as a person.

As I learn more about the health benefits associated with spending unstructured time in the outdoors, I am even more convinced of the importance of adding time outdoors—a Green Hour®—to our family routine.

*Exploring nature can provide key bonding chances for parent and child. Jaime Berman Matyas with her two daughters.*



©Matyas

Outdoor physical activity is good for our lungs, growing bones and our hearts – in a multitude of ways. For me, playing outside opened my heart up to a love of nature, a sense of stewardship and responsibility for other living creatures. I came to understand the interconnectedness of the natural world in a very personal way.

As a parent, it is now my responsibility to foster this sense of wonder and stewardship in my children. Providing them experiences in the outdoors is an important way to pass along these values. And I believe that doing so with friends and other families is a great way to have fun and create meaningful relationships.

*Inspiring Americans to protect wildlife for our children's future.*





Like most parents, I feel forever challenged by time. Ensuring teeth get brushed twice a day, three meals are eaten and homework completed is a daily challenge. Yet as I think about my commitment as a parent to raising healthy children with self-confidence and strong values, I believe there is much more to being a good parent than managing these daily routines. Over the past few years I've made a concerted effort to integrate outdoor activities as part of our family's daily regimen. Now, our favorite setting for relaxed family time is outdoors, not in front of a television. Whether it's a Saturday morning hike, planting our garden, or lying in the backyard playing the cloud game, the outdoors has provided an ideal setting for my family to tune out other influences and connect with each other and our environment. There's always something for us to explore and discover together.



*Simple activities like swinging can be a scheduled activity for today's kids.*

When discussing outdoor exploration, a consistent concern raised by other parents is safety. The "I can't let my kids play outside alone" dilemma. I've thought a lot about this. While concerns about unsupervised play outdoors are real, encountering stranger danger is much more likely amongst children surfing the Internet than riding bikes through the neighborhood. While some parents may no longer feel comfortable allowing their children the same freedom to explore the outdoors alone and unsupervised, there are many other ways to connect kids with nature: through community and volunteer projects; scheduled but unstructured group activities; school activities; and family outings. Getting unplugged and outside is good for adults too!



*Enjoying a quiet moment with family can be a treat for today's busy families.*

There's more that can be done at school, too. Given the importance of unstructured time outdoors to our children's overall development and well-being, we should expect a portion of the school day to be dedicated to outdoor and nature education.

Unfortunately, with current constraints on schools, there is less time for recess and physical activity in school settings. And yet, the research continues to tell us of the positive relationship between academic performance and creativity and unstructured outdoor play and exploration. As members of the school community, we can help improve our local education system by getting involved. We can help remove barriers to connecting children and the natural world. More physical activity is also believed to have a positive influence on a suite of health issues facing society today, such as obesity, ADHD, and diabetes.

Unfortunately, the current trend in many school systems is to reduce time for PE, recess and field



trips. As parents, we have the power to make a positive difference in our children's education. We can get involved at a local level by volunteering to help create a schoolyard habitat, hosting outdoor school events, or speaking out for the importance of funding hands-on environmental education. We can also make a meaningful difference at the state and national levels by advocating for improvements to current education policy and funding to support more time outdoors and more environmental education. Both will better prepare our children for the future.



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*The pure childhood joy of playing should not be taken for granted but seen as a value for all American children to experience.*

As a mother and conservationist, I understand the importance of creating opportunities for my children to have time to connect with nature. Healthy children and healthy families need time together in the out-of-doors. We must share responsibility for reversing the concerning trend of children getting less unstructured time outdoors and becoming disconnected with nature. To raise healthy children and future generations that have a concern for the natural world, we must take action now. Make a family commitment to spend regular time out-of-doors – a family Green Hour<sup>®</sup> – volunteer to lead outdoor programs at a local school, and advocate at the local state or federal level for more funding and policy support for children to have outdoor education.

As my girls re-tell stories of our campouts, their berry picking adventures or the interesting creatures they found under a rotting log on a recent walk through the woods, I smile as I know that these activities will forever have an impact on who they are and the kind of adults they will become.

*Jaime Berman Matyas*

Jaime Berman Matyas  
Executive Vice President and Chief Operating Officer  
National Wildlife Federation

A photograph of two young girls walking on a large, weathered log in a forest. The girl in the foreground is wearing a green polo shirt and a dark blue skirt, with her arms outstretched for balance. The girl behind her is wearing a pink t-shirt and black shorts. They are both wearing white sneakers. The background is a dense forest with green foliage and tree trunks.

# Connecting Today's Kids with Nature

## A Policy Action Plan

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# Summary

**“Go outside and play.”** Most of us remember hearing those four little words throughout our childhood. It is not possible for us to imagine childhood without powerful memories of climbing trees, exploring the neighborhood, or just watching the clouds.

Yet recent research shows that children are spending half as much time outside as they did 20 years ago. Today’s kids spend six and a half hours a day “plugged into” electronic media. In his 2005 book, *Last Child in the Woods*, Richard Louv described this American trend. He gave this alarming problem a powerful name. Today’s kids suffer from a “nature deficit.”

There are many contributors to nature deficit. Often parents’ fear of strangers keeps kids indoors. Some parents worry about bug bites, bee stings, and poison ivy. Many children simply do not have an “outside” to play in because of the lack of playgrounds, parks, and open space. Others cannot get to a safe outside area because of busy roads and intersections. Liability concerns have limited traditional outdoor play activities like climbing trees and building forts. Video games and other electronics lure kids inside. In some communities, kids are so overscheduled that they just do not have time to play unless it is through an organized sport.

National Wildlife Federation (NWF) is committed to connecting children to nature. Children should have access to and time for play in nature. A right for unstructured play. A right to create and explore. A right to experience the sense of wonder of being outside.

“If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in.”

—Rachel Carson,  
Author of *Silent Spring*



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*Youth spend an average of six hours daily connected to electronic devices.*

## What is at Stake?

### The Health of Our Children

Nature deficit has had profound impacts on our children's mental and physical health. Over the past 20 years, time spent playing outdoors has been cut in half, but the childhood obesity rate has more than doubled and the adolescent obesity rate has tripled. Doctors warn that, for the first time in American history, life expectancy may actually decrease because of the health impacts of the current childhood obesity epidemic.

Research has linked childhood obesity to a lack of play time outdoors. Although physical activity through organized sports can help address childhood obesity, the medical community recognizes that unstructured free time outdoors has unique health benefits to children. Children who play outside are more active and more physically fit than those who don't. Time in nature improves a child's academic performance, concentration, balance, coordination, and self-esteem. Recent studies indicate that playing outside

even reduces the severity of symptoms of Attention Deficit/Hyperactivity Disorder (ADHD), which affects millions of American children.

### The Economy

The economic impacts of nature deficit are significant. The costs of the childhood obesity epidemic to our public health systems could reach \$100 billion annually. Hunting and fishing licenses sales have stagnated, resulting in severe cuts to state resource agencies' budgets. A decline in outdoor retail sales, a \$730 billion a year industry sector, may soon follow.

## Know the FACTS

### Research Shows:

#### Environmental Education:

- Good for overall student performance
- Great at motivating students
- Critical thinking skills consistently improve
- Math skills consistently improve
- Life science skills consistently improve
- Standardized test performance improves
- Supports and improves other science learning
- Supports language-arts development
- Under-resourced students show increased improvement over peers



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Sources: (Bartosh 2004);  
(Athman & Monroe 2004).

### The Future of American Conservation

From the redwood forests to the Gulf Stream waters, exploring the diverse landscapes of America has shaped who we are as Americans. Children who spend time in nature are more likely to have pro-environmental attitudes as adults. Time spent in nature with an adult important to the child often shapes a child's long-term environmental ethic. If this nature deficit continues unabated, we may face a dearth of environmental



leaders, professionals, and advocates as we try to conquer future environmental challenges such as global warming. We may also lose a unique aspect of our national culture and identity.

"We talk a lot about our children's future, but not that much about children. It's time for big conservation organizations to actively engage children and work to protect them, to energize them, and to cultivate their creativity in protecting our world."

—Richard Louv,  
Author of *Last Child in the Woods*

## Solutions to Reversing Nature Deficit and Connecting Children to Nature

Reversing nature deficit and connecting children to nature will take concerted policy action on the local, state, and federal levels. Since its inception in 1936, National Wildlife Federation (NWF) has worked to develop public policies that protect the environment and increase outdoor recreation opportunities for children. As part of our campaign to connect children to nature, we will:

### Connect Kids to Nature through Environmental Education

NWF will advocate for better funding and access to environmental education; hands-on environmental

education can connect children to the natural world. In addition to providing this important connection, there are many academic benefits to environmental education, including higher test scores in math, reading, and language arts. Studies show that integrated environmental education programs also increase children's critical thinking skills, self-confidence, and academic motivation. Environmental education can also serve as an educational equalizer across race, ethnicity, and socioeconomic levels.

### Promote Outdoor Play through our Public Health Systems

NWF will encourage federal and state public health leaders to educate parents and caregivers about the importance of play in tackling childhood obesity and improving children's mental health. The medical community recognizes that outdoor play time is critical to children's physical, mental, emotional, and social well-being. Well-child visits reflect an important opportunity to

educate parents that down time outside can result in healthier, happier kids. We will ask healthcare professionals to also consider recommending outdoor play for overstressed kids and for children diagnosed with ADHD.

### Increase Opportunities for Outdoor Recreation through Better Design and Access

The use of natural landscapes in playground design leads to more active and more creative play. In many communities, children do not have access to safe outdoor play areas. Connecting city parks through greenways and other green spaces can provide natural areas for children to play and increase wildlife habitat. NWF will target cities in our nation's migratory bird flyways to establish these green links that also serve as wildlife corridors. By working with designers, city planners, and local elected officials, NWF will work to increase wildlife habitat and ensure that children have access to green, kid-friendly areas in their communities for unstructured play outside.



*Physical activity, like bike riding, decreases health concerns such as diabetes.*

©NWF/Charlie Archambault.





#### 4 Encourage Parents to Build in Regular Time for Outdoor Play through GreenHour®, a National Educational Campaign

Parents and policymakers can make a difference to get children to experience all the benefits of free time in nature. NWF's national media and educational campaign, GreenHour®, helps parents with simple suggestions on how to play outside. To give parents and caregivers the information, tools, and inspiration to get their kids outside, NWF has created an online resource, [www.GreenHour.org](http://www.GreenHour.org). NWF and its affiliated state organizations will also form new "No Child Left Inside™" coalitions and work with existing groups of health professionals, educators, day care providers, after-school care providers, business leaders, anglers, hunters, environmental leaders, and elected officials to take collective action to connect children with nature.

### What You Can Do Take Action Close to Home

On a personal level, solutions to connect children to nature are pretty simple. Research shows that childhood experiences in nature with an adult family member or mentor help to shape a long-term connection with nature. Spend time with your kids outdoors. Consider the following actions:

- **Experience Green Hour®.** NWF recommends that parents give their kids a "Green Hour" every day, a time for unstructured play and interaction with the natural world. This can take place in a garden, a backyard, the park down the street, or any place that provides safe and



*Enjoying nature as a family has long-reaching effects in children.*

- accessible green spaces where children can learn and play. Visit [GreenHour.org](http://GreenHour.org) for ideas on how to connect children to nature.
- **Garden for wildlife with children.** NWF has established a gardening for wildlife program that is a perfect way to share your love of the outdoors with children and foster a future connection to nature. Not only does it give kids a chance to get their hands dirty, the program also helps create an understanding of how the things people plant impact the environment; for example, how replacing grass lawns with native wildflowers, shrubs, and trees provides a nurturing refuge for wildlife.
- **Encourage your local school to participate in NWF's Schoolyard Habitats® Program,** an integrated environmental education program where kids plant wildlife-friendly vegetation on school grounds. It gets kids outside, educates them about the natural world, and has been shown to improve their scores on standardized tests.
- **Volunteer in a local park, school, day care center, after-school care facility, or nature center.** Work in a community garden, participate in a trash clean up, perform trail maintenance, or support park safety efforts.
- **Play with a child outdoors.** Research shows that spending time outdoors with children can help shape their long-term environmental ethic. Free play in nature also increases physical fitness and reduces anxiety. Go fishing. Take a hike. Or just go for a walk and look at the clouds.

### Take Action in Your Community

The consequences of nature deficit are felt most keenly at the local level. Engage your local government, neighborhood associations, and other community-based organizations to:

- **Get the word out.** Educate health professionals, teachers, day care providers, after-school care providers, city planners, business leaders, and environmental professionals, and urge them to



incorporate nature deficit solutions into their everyday practices.

- **Work with local planning commissions and homeowners' associations to create zoning policies and incentives** to encourage more kid-friendly green spaces for creative play and designate special areas where children can participate in traditional outdoor activities such as climbing trees and fort-building, which have been limited because of liability concerns.
- **Support opportunities and funding for local environmental education**, including asking local school board members to provide information on current environmental education efforts, plans to update programs, and ways to increase funding for programs that help teachers link students to the outdoors.
- **Team up with local law enforcement** to ensure that parents are adequately informed about the safety of public parks and play areas and to increase opportunities for kids to play safely outside.
- **Create a local "No Child Left Inside" Day or participate in other community awareness events**, such as NWF's Great American Backyard Campout™, NWF's Wildlife Watch Day, National Get Outdoors Day, and International Migratory Bird Day®.
- **Reach out to after-school programs** to see how you can help them create opportunities for more free play time outside for kids. Research shows that the vast majority of children are enrolled in some kind of after-school program. Provide incentives and

opportunities for field trips to local nature centers, supply tools for an after-school facility garden project, or give materials for a community-based environmental education program.

### Take Action in Your State

State governments are responsible for the majority of public policies that can make our children's lives healthy, happy, and more active. State governments should consider integrated policy reforms that include connecting children to nature throughout the state health, social service, natural resources, and education systems. There are a number of meaningful actions your governor and state legislature should take:

- **Host a "No Child Left Inside"™ forum** to discuss ways to connect children to nature with health care professionals, business leaders, nonprofit organizations, educators, after-school providers, urban planners, hunters and anglers, conservation groups, and state and local officials to create access to safe outdoor play areas and educate parents on the benefits of unstructured free play.
- **Institute mandatory state standards for minimum exercise in school** that focus on outdoor activities for children.
- **Pass state environmental education legislation** to promote place-based and outdoor environmental education and increase funding for updating environmental education programs.

- **Require public health and social service agencies to educate parents** about the benefits of outdoor play to children's health to fight obesity and make kids' lives better.
- **Encourage day care and pre-kindergarten certification programs** to include education on the benefits of time outside for children.
- **Provide more funding for existing state programs** that promote recess, access to parks, camp experiences, and other ways to get kids outdoors.
- **Declare a Children's Outdoor Bill of Rights** to ensure children have the right to experience all the benefits of unstructured free time in nature.

### Know the FACTS

#### Summer Vacation: A New Experience for an Indoor Generation

Research shows that school children are actually gaining weight during summer vacation now. Communities should respond by:

- Connecting kids to water safety classes and increase opportunities for swim lessons.
- Sponsoring more day camps at local parks.
- Working with local libraries to encourage kids to read about the outdoors, then go outside.

Source: (Von Hippel 2007).

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## 6 Take Action at the National Level

The federal government has an important role in creating opportunities for children to play outdoors. Several federal policy actions can make a difference in connecting children with nature, and your federal officials should work to:

- **Pass proposed federal legislation, such as the “No Child Left Inside™” amendment** to the “No Child Left Behind” Act, to get environmental education back in the classroom and give incentives to states to create environmental literacy plans.
- **Reauthorize the National Environmental Education Act** to update environmental education standards and increase critical funding for environmental education.



*Children who have a significant experience with nature by age 11 are more likely to value nature as an adult.*

©NWF/Charlie Archambault

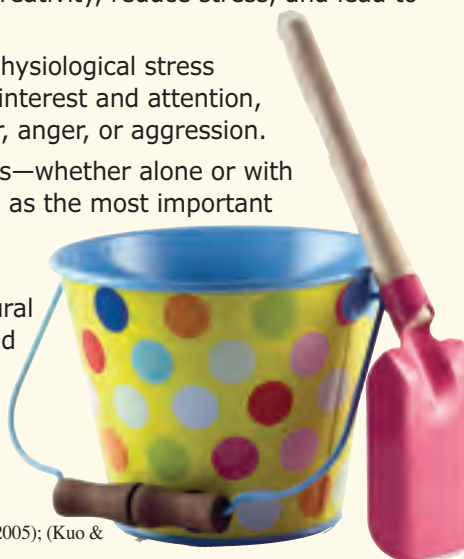
- **Form a Twenty-first Century Presidential Commission on the Great Outdoors** to make outdoor time part of children's daily experiences, and more fully explore the impacts of nature deficit on public health.
- **Increase the federal recreation budget** and review current federal agency programs and assess how they can connect children to nature.
- **Use existing federal public health programs to educate** parents on the importance of outdoor play to children's health.
- **Call upon the Surgeon General and Secretary of Health and Human Services to ask parents to make a commitment** to children's health by encouraging their children to experience daily free play time outside.

## Know the FACTS

### Research Shows:

- Kids are spending less time outdoors than they did 20 years ago.
- Play outdoors can increase creativity, reduce stress, and lead to increased physical fitness.
- Viewing nature can reduce physiological stress response, increase levels of interest and attention, and decrease feelings of fear, anger, or aggression.
- Early-life outdoor experiences—whether alone or with others—have been identified as the most important factor in developing an environmental ethic.
- Short-term exposure to natural areas through brief walks and even looking at images of nature has been found to have positive effects on mood, reducing feelings of anger and anxiety.

Sources: (Juster et al 2004); (Burdette & Whitaker 2005); (Kuo & Sullivan 2001).



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## Conclusion

Together, we can connect our children to nature and ensure that the next generation has the opportunity, the space, and the encouragement to “Go Outside and Play.”





# Understanding our Children's Nature Deficit

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"When children become truly engaged with the natural world at a young age, the experience is likely to stay with them in a powerful way – shaping their subsequent environmental path."

—Professor Nancy Wells,  
Cornell University

## Nature Deficit Defined

Children are no longer spending time playing outside. Today's kids spend six and a half hours a day "plugged into" electronic media.<sup>1</sup> Research shows that children are spending half as much time outside as they did 20 years ago.<sup>2</sup> Meanwhile, the childhood obesity rate has more than doubled and the adolescent obesity rate has tripled. Doctors warn that, for the first time in American history, life expectancy may actually decrease because of the health impacts of the current childhood obesity epidemic.<sup>3</sup> In his 2005 book, *Last Child in the Woods*, Richard Louv described this American trend. He gave this alarming problem a powerful name. Today's kids suffer from a "nature deficit."<sup>4</sup>

## Why We Keep Our Kids Indoors

The contributors to nature deficit are broad: fear of strangers; traffic hazards and a lack of safe open space; liability; concerns about insect bites, bee stings, and itchy plants; and competition for outdoor time from video games and electronic media.

### Stranger Danger

Many parents are concerned about strangers harming children in public spaces, but the stark reality is that kids may be safer playing outdoors than at home surfing the Internet. Although the risk of stranger abduction is very remote, and stranger danger incidents have actually decreased over the last 20 years, many parents and caregivers have decided that it is just too dangerous for children to be outside on their own—especially if the child is out of sight.<sup>5</sup> Many parents allow their children to play indoors on the Internet unsupervised even though one out of five children (10 to 17 years old) receive unwanted sexual solicitations while surfing online.<sup>6</sup> Nearly one-third of teens have talked about meeting someone in person who they have only met through the Internet; 12% of teens have agreed to meet a stranger that they met online. Sixty percent have filled out questionnaires



and given their personal information, such as address, telephone number, and school name. Children who use the Internet are also more likely to be exposed to inappropriately sexual or violent content. “Nine out of 10 children between eight and 15 have viewed inappropriate content on the Internet, often unintentionally while doing homework or filesharing with friends.”<sup>7</sup>

### Traffic & Lack of Open Space

Children have fewer outdoor places to play in general, and in existing green areas, few kids can bike or walk to their play areas without facing dangerous traffic hazards. Safe, natural areas for children to play outdoors have significantly decreased over the last 20 years.<sup>8</sup> A recent report tracked the space that children were allowed to roam over four generations. As an eight-year-old in 1926, the great-grandfather was allowed to roam for six miles unaccompanied. In 2007, his eight-year-old great-grandson could only go 300 yards from home on his own. In fact, the space that children have to roam around freely has decreased by 88% since 1970.<sup>9</sup> Only 36% of today's parents allow their kids



*The lack of urban planning over the past decades has reduced green space and access to nature in neighborhoods.*

to walk or bike to school by age ten, compared to 56% of the parents who walked or biked to school when they were ten.<sup>10</sup> Road traffic interferes with safe outside play opportunities, and it has been deemed “the one universal factor above all others” that has limited children's physical space in which to play.<sup>11</sup> Yet, policies that promote walking and biking in communities actually increase pedestrian safety.<sup>12</sup>

### Liability

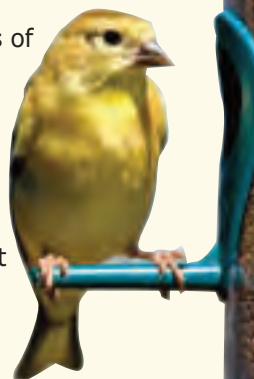
Even in areas where children are allowed to play, many of their activities have been severely limited by fears of liability for injuries. Homeowners' associations often prevent kids from participating in traditional ways in nature – fort-building, playing in ditches, and digging in the dirt to make mud pies. In some outdoor summer camps, children aren't allowed to climb trees.<sup>13</sup> In other green areas, well-meaning adults often admonish kids who go off the trail to explore. In the few school systems that still offer recess, many districts have significantly curtailed outdoor activities because of liability concerns associated with “active play” such as tag. Other school districts have removed outdoor playground equipment like swings and seesaws from fear of lawsuits.<sup>14</sup>

## Know the FACTS

### Research Shows:

- Spending time outdoors can lessen the symptoms of Attention Deficit Disorder/ADHD.
- Viewing nature from a window can increase girls' concentration and self-discipline.
- Time playing in natural green spaces can improve motor skills, including coordination.
- Environmental education can increase science test scores.
- 30 minutes outside a day can result in a better nights' sleep.

Sources: (Fjortoft 2004); (Touchette 2007); (Taylor 2001).



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*Children's time outside has decreased by 50% over the last 20 years.*

### Video Games and Electronic Media

As kids spend more time “plugged in” to electronic media, outdoor time has decreased by 50% and childhood obesity has skyrocketed. According to the Kaiser Family Foundation, today’s children spend an average of six and a half hours a day using media – including TV, computers, DVD players, and mp3 players. Over a seven-day week, kids log in around 44 hours of media use – close to a full-time job worth of input.<sup>15</sup> Eight- to 10-year-olds watch an average of more than four hours of TV a day.<sup>16</sup> The University of Michigan has found a 50% decrease in outdoor time over the last 20 years.<sup>17</sup> The more television a child watches, the less time the child spends outside playing.<sup>18</sup> Research shows that playing video games and watching TV has negative impacts on physical health, and violent media content negatively impacts children.<sup>19</sup>

For example, pre-schoolers who watch violent television tend to be more antisocial and aggressive during school years.<sup>20</sup>

### Bugs, Bites, Stings, and Itchy Plants

Many parents are concerned about bugs, bee stings, poison ivy, and other hazards.<sup>21</sup> These concerns are very manageable. Long sleeved shirts and insect repellent can protect from bugs and mosquito-borne illnesses. Poison oak and poison sumac are readily recognizable, and the right clothing can help limit exposure to these itchy plants.

### The Overscheduled Child

The good news is that today’s generation of parents is often more focused and more family-oriented than that of the baby boomer generation.<sup>22</sup> These parents are making conscious decisions to spend more time with their family. The bad news is that in the quest to be perfect parents, today’s parents may be unaware of the importance of play.

Many children’s lives are way over-scheduled, and, like adults, they are involved in too many activities.<sup>23</sup> The medical community observed in a 2007 study that kids are often “being raised in an increasingly hurried and pressured style that may limit the protective benefits they would gain from child-driven play.”<sup>24</sup> The American Academy of Pediatrics warns that overscheduling of children is becoming the “culture and even expectation of parents.”<sup>25</sup> Dr. Alvin Rosenfeld has termed this cultural phenomenon “hyper-parenting,” which “compels parents to become relentlessly self-sacrificing, enrolling children in activities so early so they

“I like to play indoors better ‘cause that’s where all the electric outlets are.” 9

– A Fourth Grader in San Diego.

can excel at academics, athletics or specialties.”<sup>26</sup> The media, the marketing of children’s toys and so-called educational products, and the increasingly rigorous college admission process contribute to this hyper-parenting phenomenon.<sup>27</sup> As a result, today’s children are feeling more stress, more anxiety, and more pressure to be perfect. From piano lessons to soccer practice, many of today’s kids shuttle back and forth from activity to activity and have very few chances for outdoor play.

## What is at Stake? The Health of Our Children

Children are not spending time outdoors, which results in severe impacts on their mental and physical health. The medical community has declared that “play (or some available free time in the case of older children and adolescents) is essential to the cognitive, physical, social, and emotional well-being of children and youth.”<sup>28</sup> Because of the important health benefits of play, the American Academy of Pediatrics has recommended that children spend 60 minutes each day in unstructured play time.<sup>29</sup> The CDC recommends that children and adolescents participate in at least 60 minutes of moderate intensity physical activity most days of the week.<sup>30</sup>

Yet, for many American children, the experience of playing outdoors is at risk of going extinct.<sup>31</sup> Today’s kids spend six and a half hours a day



“plugged in” to some form of electronic media, and children have decreased their time outdoors by 50% since 1981.<sup>32</sup> Children ages three to 12 spend one percent of their time outdoors, but they spend 27 percent of their time just watching TV.<sup>33</sup> Incredibly, children are now actually gaining weight over summer break, a time most often associated with outdoor activities like swimming, hiking, and simply playing outside.<sup>34</sup> This lack of unstructured free time outdoors has serious consequences for children's health.

### Outdoor Play is Different than Participating in Organized Sports

Although participation in organized sports is beneficial to children for a variety of health reasons, it does not have the same impact as unstructured free play outside. Often children spend more time on the sidelines than playing in the game. In contrast, play outside involves everyone.<sup>35</sup> Play outside enhances children's critical thinking skills and creativity. Unlike organized sports, unstructured play

outdoors does not emphasize winning or losing.<sup>36</sup> Some doctors also fear that families experience additional stress levels when their ultra-competitive children's sports schedules require travel to away games.<sup>37</sup> Furthermore, doctors warn that parents should not simply rely on organized sports to ensure kids get enough physical activity. Instead, the medical community urges parents to exercise with their children in the outdoors to promote an active, healthy lifestyle.<sup>38</sup>

### The Physical Health Impacts: Outdoor "Play" Instead of Exercise

Given the positive associations connected to outdoor play and negative connotation with “exercise,” experts recommend that we change the terminology to get kids to exercise outside. Instead of using the term “exercise,” we need to encourage children to “play.”<sup>39</sup>

### Lack of Play Time Outdoors is Linked to Childhood Obesity

There is growing concern that children's lack of time outdoors is linked to the national obesity epidemic.<sup>40</sup> The prevalence of overweight children ages six to 11 has more than doubled in the last 20 years, increasing from 7% in 1980 to 18.8% in 2004. The rate among adolescents aged 12 to 19 more than tripled, increasing from 5% to 17.1%.<sup>41</sup> Doctors warn that, for the first time in American history, life expectancy may actually decrease because of the health impacts of the current childhood obesity epidemic.<sup>42</sup> Overweight and obese children suffer from a myriad of health problems,



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*The American Academy of Pediatrics recommends 60 minutes of daily unstructured free play as essential to children's physical and mental health.*

including higher risks of cardiovascular disease, diabetes, bone and joint problems, and sleep apnea.<sup>43</sup> Overweight children often become overweight adults, and the effect of obesity on adult health is profound. Doctors warn that without unstructured play time, today's kids are growing up with depression, and anxiety, and have become increasingly overweight.<sup>44</sup>

### Kids who Play Outdoors Play Harder, have Better Motor Development, and are Generally More Fit

Research shows that kids who play outdoors play harder and get more exercise.<sup>45</sup> Scientists have shown that kids who play outdoors are generally more fit than those who spend the majority of their time inside.<sup>46</sup> Kids who play outside in natural areas also

## Know the FACTS

### Research shows: Children who play outside

- Play more creatively
- Have lower stress levels
- Have more active imaginations
- Become fitter and leaner
- Develop stronger immune systems
- Have greater respect for themselves, for others, and for the environment

Sources: (Fjortoft 2004); (Burdette & Whitaker 2005).



showed a statistically significant improvement in motor fitness with better coordination, balance, and agility.<sup>47</sup> The “richness and novelty” of being outdoors also stimulates brain development.<sup>48</sup>

### Outdoor Play May Help Kids Get Better Sleep

The National Institutes of Health recommends 30 minutes outside daily for better sleep, and studies indicate that children’s play outside can improve sleep.<sup>49</sup> Half of all adolescents get less than seven hours of sleep on weeknights.<sup>50</sup> Insufficient sleep during childhood can cause permanent changes in a child’s brain structure, and some scientists believe that “many of the hallmark characteristics of being a tweener and a teen – moodiness, depression, and even binge eating – are actually symptoms of chronic sleep deprivation.”<sup>51</sup> For toddlers especially, a lack of sleep can have serious consequences. Research has shown that less than 10 hours a night of sleep for toddlers “is associated with externalizing problems such as Hyperactivity-impulsivity (HI) and lower cognitive performance on neurodevelopment tests.”<sup>52</sup> Obesity has been linked to sleep disorders in children, and exercise has been shown to dramatically reduce sleep problems in affected children. In one recent study, for example, half of the participating children who engaged in daily outdoor play for 40 minutes found that their snoring went away in three months.<sup>53</sup>



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### *The Mental Health Impacts: More Time Outside, Less Anxiety*

While today’s children are exposed to more images of nature through the Internet and television than previous generations, they are missing out on the benefits of a direct experience with nature.<sup>54</sup> Time spent in nature has an intense psychological effect on children. “The non-human environment, far from being of little or no account to human personality development, constitutes one of the most basically important ingredients of human psychological existence.”<sup>55</sup> Exposure to nature has many short-term benefits on children’s psychological and physical well-being. Being in nature engages all five senses and therefore affects childhood maturation very strongly.<sup>56</sup> Nature is also continuously dynamic and unstable, which heightens awareness while observing wildlife and experiencing the outdoors. Research shows that “direct, ongoing experience of nature in relatively familiar settings remains a vital source for children’s physical, emotional, and intellectual development.”<sup>57</sup>

### Lessens the Symptoms of ADHD

Over two million children in the U.S. have been diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD). Children with ADHD are restless, have trouble paying attention, listening, following directions, and focusing on tasks.<sup>58</sup> Research has shown that spending time outdoors reduces the severity of symptoms of children with ADHD.<sup>59</sup> The greener a child’s play area, the less severe the ADHD symptoms. Even indoor settings with windows may be more supportive for ADHD kids than indoor settings without windows.<sup>60</sup> Researchers have also found that even short walks in green settings such as urban parks increases concentration in sufferers of ADHD and lessens other ADHD related symptoms.<sup>61</sup>

### Promotes Self-Confidence and Improves Concentration

Children who spend time playing outside are more likely to take risks, seek out adventure, develop self-confidence and respect the value of nature.<sup>62</sup> Outdoor recreation experiences like camping can improve children’s self-esteem.<sup>63</sup> Green spaces



outside the home – including views of nature from windows – can increase concentration, inhibition of initial impulses, and self-discipline.<sup>64</sup>

### **Stimulates Creativity and Problem-Solving Skills**

Unstructured play outdoors also promotes creativity and problem-solving skills, because all play requires “solving some form of social problem, such as deciding what to play, who can play, when to start, when to stop, and the rules of engagement.”<sup>65</sup>



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*Time in nature increases concentration for students.*

### **Reduces Stress and Aggression**

Time spent in green spaces, including parks, play areas, and gardens, has been shown to reduce stress and mental fatigue.<sup>66</sup> At least one study examined kids in inner city urban areas of similar income, education, and family situations, who live in public housing. Children who were exposed to greener environments in the public housing area demonstrated less aggression, violence, and mental

stress.<sup>67</sup> In a 2003 survey, 73% of children said that participating in outdoor activities allows them to connect with themselves. 83% of children said that getting into a natural setting allows them to escape the pressures of everyday life.<sup>68</sup> Just viewing nature reduces physiological stress response, increases levels of interest and attention, and decreases feelings of fear and anger or aggression.<sup>69</sup>

### **The Economy** **Public Health Costs Due to Obesity and Indoor Air Pollution**

Given the connection between nature deficit and childhood obesity, the economic toll on our public health system is significant. According to the National Academy of Sciences, national healthcare costs for obese and overweight adults alone range from \$98 billion to \$129 billion annually. “Obesity-associated annual hospital costs for children and youth more than tripled over two decades, rising from \$35 million in 1979-1981 to \$127 million in 1997-1999.”<sup>70</sup>

The economic toll associated with children’s exposure to indoor air pollution, including mold, radon, nitrogen oxides, tobacco smoke, and dust, is also significant. The costs to public health systems and of lost productivity due to indoor air pollution amount to an estimated \$45 billion per year for the State of California alone.<sup>71</sup> Air quality inside is often worse than outside, even in major cities. Some indoor pollutants are two to 50 times higher in concentration indoors than outdoors. Children are particularly vulnerable to the effects of indoor air pollution because their immune systems are

“When one tugs at a single thing in nature, he finds it attached to the rest of the world.”

—John Muir, Naturalist

developing. Health effects include asthma, allergy attacks, headaches, and even cancer.<sup>72</sup>

### **Costs to Outdoor Recreation Industry from Reduced Visits to Parks, Declining Interest in Hunting and Fishing, and Fewer Excursions in the Outdoors**

The active outdoor recreation economy contributes \$730 billion annually to the U.S. economy. Outdoor recreation supports six and a half million jobs in the U.S., and generates \$88 billion in annual state and national tax revenue, and \$289 billion annually in retail sales and services in the country.<sup>73</sup> A continued nature deficit could substantially impact this profitable sector of the U.S. economy.

In 2006, 87 million Americans spent approximately \$120 billion enjoying recreational activities relating to fish and wildlife. This spending equates to about 1% of gross domestic product, which means that one out of every 100 dollars of all goods and services produced in the U.S. is associated with wildlife recreation. Anglers and hunters spent \$75.4 billion in 2006, with an average of \$2,225 per person in 2006.<sup>74</sup>

Unfortunately, hunting and angling activities have rapidly decreased over the last 20 years. Overall hunting participation dropped 10% from 1996





"Environmental Education can help a struggling student become a competent student, and a competent student grow into a star."

Kevin Coyle,  
NWF Vice President for Education

to 2006. This trend could hurt the economy if it continues since hunters spent nearly \$23 billion on trips, equipment, licenses, and other items to support their hunting activities in 2006. Likewise, the number of anglers is decreasing. From 1996 to 2006, the number of anglers 16 years old and above decreased 15%. Fishing in the Great Lakes dropped 30% in the same time period. In Alaska, one of the most popular states for hunting and fishing, recreational fishing decreased by 26% and recreational hunting decreased by 24%. Nationally, fishing related spending decreased by 16% in the last 10 years. One positive trend is that wildlife watching has increased 13%. Wildlife-watching Americans spent \$45 billion in 2003 on their activities.<sup>75</sup>

In addition to dwindling sales of hunting and fishing goods and services, state hunting and fishing license sales have plummeted. Many states rely on millions of dollars from license fees to protect threatened animal populations and control other menacing populations like deer. If the sales continue to decline, state resource agencies will be hit hard and may be unable to keep up many important conservation activities.<sup>76</sup>

Visits to our national parks have decreased 25% over the last 15 years, and park associated recreation

businesses are at risk for revenue losses, too.<sup>77</sup> In 2004, recreation workers held about 310,000 jobs. According to the Bureau of Labor Statistics, about 35% of year-round recreation workers are employed by local governments, mostly in park and recreation departments.<sup>78</sup> A continued nature deficit would result in even more local recreation budget cutbacks, thereby perpetuating nature deficit by reducing the already limited number of local green areas for children to experience.

### Loss of Potential Conservation Savings

According to calculations by the National Environmental Education Foundation, improved environmental knowledge could result in \$76 billion in savings to the national economy from energy conservation and environmentally friendly behaviors. Without effective environmental education for tomorrow's leaders, and without children who want to connect to the natural world, however, the nation could lose out on this considerable annual savings.<sup>79</sup>

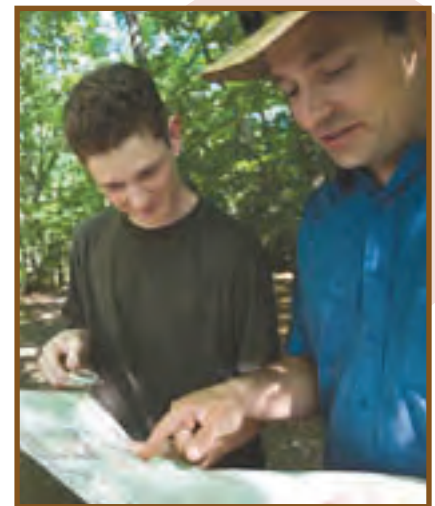
### The Future of American Conservation Exploring the Great Outdoors is a Special American Cultural Value

In a recent national survey, 92% of Americans responded that they "love to be outdoors," and 91% believed that today's children are not spending enough time outside.<sup>80</sup> Exploring the outdoors is part of the American experience. From the redwood forests to the Gulf Stream waters, Americans connect to the diverse landscapes of our country. If we lose this nature-child connection, we will lose a special part of our national culture and identity.

### Instilling a Long-Term Environmental Ethic in Our Youth

Direct childhood experience in nature before age 11 promotes a long-term connection to nature.<sup>81</sup> Studies of British environmental educators; a comparison of interviews with American and Norwegian environmental activists; and comprehensive analysis of El Salvadoran environmental professionals demonstrate that childhood contact with nature is essential to shaping a lasting environmental ethic and an interest in environmental professions.<sup>82</sup> Organizations like the Scouts, environmental education programs, and Outward Bound-type programs during the teen years also serve as formative experiences in creating a sustained ethic of environmental stewardship.<sup>83</sup>

The connections between childhood nature experiences and adult environmental attitude are not unique to environmental professionals.<sup>84</sup> A recent study investigated the impacts of



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*Teaching basic critical thinking skills through nature studies is a key component for professional success.*

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childhood nature experiences in interviews with over 2,000 non-environmentalists in the 112 most urban areas of the US. The survey asked how often participants had childhood contact with nature, participated in environmental education, nature experiences with other people, and associated these factors with environmental attitudes and behavior. This study concluded that the most important factor of long-term environmental attitudes was “many hours spent outdoors in natural habitats during childhood or adolescence—alone or with others.”<sup>85</sup>

A wide array of outdoor activities supports a long-term connection to nature. Childhood experiences in nature like walking, playing, hiking in natural areas, camping, hunting, fishing, gardening, or plant collecting, have a “significant, positive association with both adult environmental attitudes and behaviors.” Books, magazines, and media also support environmentally friendly behaviors. People who during their youth engaged in active pursuits in the outdoors like hiking and gardening, however, were more



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*Love of nature is an American value.*

likely to express pro-environmental attitudes and engage in pro-environmental behaviors as adults.<sup>86</sup>

### **Taking a Child Outdoors with You Could Change the World**

Sharing nature with a parent, grandparent, close relative, or mentor often feature prominently in environmental advocates' experiences. Environmental leaders consistently “attributed their commitment to a combination of two

sources: many hours spent outdoors in a keenly remembered wild or semi-wild place in childhood or adolescence, and an adult who taught respect for nature.”<sup>87</sup> In fact, research has shown that time spent outdoors playing, bird watching, hunting, or camping, or being with a special person is associated with an environmental ethic.<sup>88</sup>

## Know the **FACTS**

### **Research Shows:**

Childhood activities positively associated with an environmental ethic:

- Playing outdoors
- Spending time with a mentor or close relative in nature
- Fishing
- Hiking
- Camping
- Hunting
- Scouting
- Environmental Education Programs
- Summer Camp
- Books & Magazines
- Media

Source: (Wells & Lekies 2006).



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# Solutions to Reverse Nature Deficit and Connect Our Children to Nature

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"At age seven, children have as passionate a longing for creative interactions and learning as they earlier had for explorations of the world."

—Joseph Chilton Pearce,  
*The Magical Child*

We need to protect our children's future. To reverse nature deficit and connect our children to nature, National Wildlife Federation (NWF) will work to connect children to nature through advocating for environmental education, educating our public health community about nature deficit, increasing opportunities for outdoor recreation experiences for children through better design and access, and embarking on a national public outreach campaign to encourage parents to build in regular time for outdoor play. Several policy actions at the federal, state, local, and personal level can make a difference.

## Connect Children to Nature through Environmental Education

Hands-on, experience-based environmental education can connect kids to the natural world. NWF will support policies to invest in and increase opportunities for environmental education to help reverse nature deficit. Environmental education programs use the environment as an integrating context (EIC) across disciplines, which often results in interdisciplinary, hands-on, community-based projects that affect the local environment.<sup>89</sup> Despite the intricate causal relationships involved in the environmental sciences, only 44% of high school educators teach environmental education. Environmental education is much more common at the elementary school level with 88% of elementary school teachers using some type of environmental education. There is widespread public support for environmental education, with 95% of adults and 96% of parents supporting environmental education in public schools.<sup>90</sup> Unfortunately, because of the unintended consequences of current federal education legislation, known as the "No Child Left Behind" Act, many schools have reduced their environmental education budgets to meet these new testing and curriculum requirements.





There are four major types of outdoor education programs that serve to connect children to nature:

- (1) investigational approaches;
- (2) outdoor learning;
- (3) place-based learning; and
- (4) community service.

Traditional environmental problem-solving in a community or “investigational approaches” have shown to increase test scores on environmental knowledge, reading, and writing skills. Outdoor learning

programs like Outward Bound or the National Outdoor Leadership Schools have become “meaningful lifetime experiences” and often promote environmental stewardship. Place-based education connects the school to its immediate environment. Community service approaches advance responsible environmental behaviors and give children an opportunity to support local green spaces. Furthermore, experts note that if environmental education is done right it can be worth up to \$75 billion a year in measurable environmental benefits.<sup>91</sup>

In addition to connecting kids to nature, integrating environmental education into school programs has proven academic benefits:

### **Sparks Interest in Science and Math as Future Career Pathways**

According to the National Environmental Education and Foundation, 80% of all students decide to opt out of science and math careers before entering high school. Environmental education is a “heuristic tool for making science more relevant and appealing,” and

## Know the **FACTS**

### **Research Shows:**

#### **The Benefits of Environmental Education**

- Kids in environmental education classes have higher scores on standard measures of academic achievement (reading, writing, math, science, social studies).
- In schools that compared the Environment as an Integrated Context for learning (EIC) to traditional programs, 36 of 39 measures showed higher performance by EIC students. There were fewer behavior problems and more engagement and enthusiasm for learning.
- Environmental education programs have resulted in higher test scores across the board.
- Some specific case studies:
  - In a third grade class in Milwaukee, all the students in the environmental elementary school passed the state reading comprehension test, as opposed to only 25% of the Milwaukee public schools system-wide.
  - At an elementary school in Asheville, NC with an environmental focus, fourth grade students achieved a 31% point increase in math achievement in one year.
  - Scores on college admission ACT test were higher from the School of Environmental Studies in Apple Valley, MN than their peers in schools at the district, state, and national levels.
- Controlling for GPA, gender, and ethnicity, EIC programs significantly raised scores on three key tests: achievement, motivation, and critical thinking.
- Increased critical thinking skills are attributed to environmental themes, open-ended research projects, student voice, and empowerment.
- Motivation improvements attributed to learning experiences tailored to students' interests/strengths, and applied to real-life issues/problems.
- Schools with environmental education programs showed higher test scores on standardized tests in math, reading, writing, and listening. The pattern of environmental education school students' higher scores persisted for five years of data investigated.
- Outdoor education programs in California showed that science scores on post-test were higher for groups in outdoor education. Teachers reported improved self-esteem, conflict resolution, and relationship with peers, problem-solving, motivation to learn, and behavior in class.

Sources: (Lieberman & Hoody 1998); (SEER 2000); (NEEF, 2000); (Coyle 2005); (Bartosh 2004); (Athman & Monroe 2004); (American Institutes of Research 2005).



"Play is the only way the highest intelligence of humankind can unfold."

Joseph Chilton Pearce,  
Author of *The Magical Child*

"provides an appealing entry point for students thinking about future careers."<sup>92</sup> In one study, educators observed thousands of students in environmental education programs and found that test scores improved across the board. Science was the only subject where 100% of the students' scores improved.<sup>93</sup>

### Improved Math Scores

In a Houston schools study, fourth grade students who participated in NWF's Schoolyard Habitats® Program increased math scores significantly more than peers with a traditional curriculum. Overall, minority children showed more improvement.<sup>94</sup>

### Increases Academic Motivation and Attendance

A Washington state study concluded that students enrolled in environmental education programs showed better

overall GPA improvements and increased attendance and motivation.<sup>95</sup> Another study showed EIC students had better attendance rates 77% of the time and fewer discipline problems.<sup>96</sup>

### Closes the Gap in Underserved Communities and Serves as an Educational Equalizer

A 2004 study evaluated a place-based environmental education project in an under-resourced, predominantly African-American Louisiana school district. The performance gap between the district's performance and the state average on state educational tests improved across all subject areas.<sup>97</sup> The National Environmental Education Foundation found that "environment-based education appears to be a kind of educational equalizer, improving reading, science achievement, and critical thinking across ethnic and racial groups and across socioeconomic levels."<sup>98</sup>

### Improves Critical Thinking Skills

A recent study examined over 400 high school students in eleven Florida high schools and contrasted students'

critical thinking skills in environmental education programs and traditional classes. The environmental education classes significantly raised students' scores on two nationally recognized critical thinking skills tests. Teachers concluded that students' critical thinking skills improved because the environmental programs involved interdisciplinary problem-solving approaches, empowered students by allowing them to choose their projects, and allowed students to connect their projects to their communities.<sup>99</sup>

### Higher Standardized Test Scores in Reading, Math, Science, and Social Studies

Numerous studies, including an evaluation of student performance in 40 schools in 12 states implementing environment as an integrating context (EIC), show that students in EIC programs have higher scores in reading, writing, math, science, and social studies.<sup>100</sup>

### Increases Self-Esteem and Science Scores

In California, a comparison of at-risk sixth-grade students showed that students in hands-on environmental education significantly raised their science scores by 27%, and they showed better self-esteem, motivation, and behavior.<sup>101</sup>

### Promote Outdoor Play through our Public Health Systems

NWF will encourage public health leaders to educate parents and caregivers about the importance of play in tackling childhood obesity and improving children's mental health. The medical community recognizes that



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*Parent and child playtime in the natural world strengthen bonds.*



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outdoor play time is critical to children's physical, mental, emotional, and social well being. The American Academy of Pediatrics recommends that pediatricians promote free play as "a healthy, essential part of childhood," and discourage parents from overuse of passive entertainment like TV and videogames.<sup>102</sup> Routine well-child visits provide an important opportunity to educate parents that play time outside can help their kids be healthier and happier. NWF will urge healthcare professionals to consider recommending outdoor play for over-stressed kids and as a way to augment strategies to help children diagnosed with ADHD.<sup>103</sup> Public health programs like the Children's Health Insurance Program (CHIP) and the Women, Infant, and Children nutrition program (WIC) can provide critical information to parents on the importance of playing outside.<sup>104</sup> NWF will also reach out to the Surgeon General and Secretary of Health and Human Services to seek support for combating nature deficit and to urge parents to make a commitment to get their children outside for unstructured play time.

### **Increase Opportunities for Outdoor Recreation Through Better Design and Access**

By working with designers, city planners, and local elected zoning commissions and officials, NWF will work to ensure that children have accessible kid-friendly green spaces for unstructured free play. In many communities, children do not have access to safe outdoor play areas.<sup>105</sup> Where there are playgrounds, many are barren, concrete slabs that resemble parking lots.<sup>106</sup> Given the many health benefits of play in natural areas, playgrounds should incorporate

green areas in their design. Natural play areas result in more active play.<sup>107</sup> Natural areas can also increase a child's interest in the environment.<sup>108</sup> Research shows that green landscaping in playgrounds makes kids' play more creative and more physical.<sup>109</sup> Better community design that connects green spaces with walking paths and hiking trails can promote a more active lifestyle for families and help to combat obesity. The medical community also recommends that physicians and health care professionals work to support active lifestyles by promoting "safe recreational facilities, including parks, playgrounds, bicycle paths, sidewalks, and crosswalks."<sup>110</sup>

Experts recommend using natural vegetation as "both the play setting and the materials" in natural play areas. According to designer Randy White and professor Debra Rivkin, kid-friendly, green playgrounds might include:<sup>111</sup>

- Indigenous vegetation, including trees that change colors, waving long grasses, and high vines that attract birds and butterflies
- Sand and water play areas

- Avenues to experience weather and changing seasons, like mobiles stirred by the breeze, soft wind chimes, or covered porches
- Insect and butterfly gardens
- Natural places to sit in, under, lean against, climb and provide shelter and shade
- Different levels and nooks and crannies, where kids can sit, read, and talk
- Rubber walkways, ramps, and low hills instead of stairs to promote exploration of gravity

NWF will also focus on developing green spaces in cities in the nation's migratory bird flyways to create habitats and access for wildlife, and in return, access for children to observe nature firsthand. Since urbanization often fragments habitats, green link projects can work to connect habitats.<sup>112</sup> Urban green spaces "play a crucial role in maintaining water quality, loafing grounds, feeding grounds, perch sites, ambient temperature, buffer strips, and other important factors that contribute to the overall health of an ecosystem."<sup>113</sup> NWF will continue to support our



*Test scores increase when students have regular outdoor learning experiences.*

©NWF/Charlie Archambault



Wildlife Habitat<sup>®</sup> program and Schoolyard Wildlife Habitats<sup>®</sup> programs to enable communities to form green links in their neighborhoods.

Connecting nature through greenways and green links can not only improve wildlife habitat, but also provide many quality of life benefits to citizens. In Portland, Oregon, for example, the 140-mile green “loop” around the city connects hiking trails, parks, and bike paths.<sup>114</sup> NWF will also research incentives and innovative policies to promote urban green spaces and share creative approaches with local planning officials. In Davis, California, for example, a city ordinance requires that new development link to the city’s greenway.<sup>115</sup> A better built-environment and better access to green spaces will help connect our children to nature.

### **Encourage Parents to Build in Regular Time for Outdoor Play through Green Hour<sup>®</sup>, a National Educational Campaign**

Parents and policymakers can make a difference to get children to experience all the benefits of free time in nature. NWF’s national educational campaign aims to reduce and address barriers preventing children from experiencing the outdoors. Our goal is to reach two million parents (10 million children) encouraging them to build regular outdoor time into their children’s lives. NWF’s Green Hour<sup>®</sup>, an online resource for parents, features ideas for unstructured play and interaction with the natural world.



*All-season play and exploration provide new opportunities for learning.*

The vast majority of Americans receive their environmental information through traditional media like television and newspapers.<sup>116</sup> According to a recent national survey, 91% of Americans believe that children need to spend more time outside.<sup>117</sup> Now we need to urge parents to create time for outdoor play for their children. NWF will use our existing publications, including *Ranger Rick*<sup>®</sup> magazine, to encourage parents to build regular time for outdoor play into their children’s lives. NWF will also reach out to the advertising and business communities in our efforts to get kids outside. We

will also target influential community leaders, who are often trendsetters and opinion leaders, to seek their support to educate parents about nature deficit and potential solutions.

NWF and its affiliated state organizations will form new “No Child Left Inside<sup>™</sup>” coalitions, and work with existing groups of health professionals, educators, day care providers, business leaders, anglers, hunters, environmental leaders, and elected officials to take collective policy actions to connect children to nature.

## **Know the FACTS**

### **Research Shows: Suggested Outdoor Activities for Parents and Kids**

- Nature Journaling
- Bird Watching
- Building a Fort
- Taking a Tree Walk
- Using a Field Guide
- Looking at Clouds
- Shape Searches
- Bug Collecting
- Puddle Jumping
- Wildflower Identification
- Walking
- Gardening
- Skipping Rocks
- Climbing Trees

Source: [www.greenhour.org](http://www.greenhour.org)



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# What You Can Do



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Several policy actions at the local, state, and level can make a difference in connecting children to nature.

## **Take Action Close to Home** **Experience Green Hour<sup>®</sup>**

Documented benefits of spending time outdoors motivated NWF to create a family-friendly website to encourage families to spend 60 minutes of time outside each day. You do not have to know a lot about the natural environment to enjoy time outdoors with your children. Take a field guide with you and learn together. Or just simply take a walk to your local park. Spend some time together in your garden. Look for birds. Watch the clouds. For ideas on how to spend time outdoors, visit [www.nwf.org/kidsoutside](http://www.nwf.org/kidsoutside).

## **Garden for wildlife with a child**

NWF's gardening for wildlife suite of programs encourages homeowners, business-owners and community members to create wildlife friendly landscapes that are accessible for all to enjoy. Nurturing an appreciate for plants and wildlife at a young age is a key component for fostering a child's future connection to nature. For more information, visit [www.nwf.org/gardenforwildlife/](http://www.nwf.org/gardenforwildlife/).

## **Encourage your local school**

Encourage your local school to participate in NWF's Schoolyard Habitats<sup>®</sup> Program, an integrated environmental education program where community members, children, teachers and administrators work to create outdoor learning centers and labs. Both through the creation and utilization of these teaching spaces, children learn about the natural world, and can improve their scores on standardized tests.

"Nature has been for me, as long as I remember, a source of solace, inspiration, adventure, and delight; a home, a teacher, a companion."

— Lorraine Anderson  
Author





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*Fishing and hunting provide experiential learning for students and mentoring opportunities with community members.*

- **Volunteer in a local park, school, day care center, after-school care facility, or nature center.** Work in a community garden, participate in a trash clean up or trail maintenance project, or support park safety efforts.
- **Play with a child outdoors.** Research shows that spending time outdoors with children can help shape their long-term environmental ethic. Free play in nature increases physical fitness and reduces anxiety. Go fishing. Take a hike. Or just go for a walk and look at the clouds.
- **Health Professionals.** Ask about time outdoors during well-child visits and consider “prescribing” time outdoors to improve children’s physical and mental health.
- **Teachers, Day Care Instructors, and After-school Program Providers.** Use the local environment as an opportunity to learn, incorporate nature into lesson plans, and enable kids to have some quiet time outside before class. Participate in NWF’s Schoolyard Habitats® program. For more ideas, visit [www.nwf.org](http://www.nwf.org).
- **Planners.** Design more green play areas that enable free play. Provide better, safer and pedestrian-friendly access to parks and playgrounds. Work with elected officials to make parks safer, to encourage families to get active and be outside to reduce health costs. Market the unique environmental qualities of your community.
- **Environmental Professionals.** Educate citizens on the benefits of spending time in nature with kids.

## Take Action in Your Community

The consequences of nature deficit are felt most keenly at the local level. Consider working with your local government, neighborhood associations, and community organizations to:

### Get the word out

Educate health professionals, teachers, city planners, business leaders, and environmental professionals and encourage them to incorporate nature deficit solutions into their everyday practice.

- **Law Enforcement.** Work to ensure that green areas like state and local parks are healthy, safe places for kids to play.
- **Business Leaders.** Provide paid leave time both in private and public sector for parents to go to schools and participate in outdoor field trips and school gardening projects.

## Support opportunities and funding for education

Support opportunities and funding for local environmental education, including asking local board members to provide information on current environmental education efforts, plans to update programs and ways to increase funding for programs that help teachers link students to the outdoors.

### Join local law enforcement

Team up with local law enforcement to ensure that parents are adequately informed about the safety of public parks and play areas and to increase opportunities for kids to play safely outside.

### Create a “No Child Left Inside™” Day

or participate in other days of action, including the Great American Backyard Campout®, National Get Outdoors Day, Wildlife Watch Day, and International Migratory Bird Day.

## Reach out to after-school programs

Reach out to after-school programs to see how you can help them create opportunities for more play time outside for kids. Research shows that the vast majority of children are enrolled in some kind of after-school program. Provide incentives and opportunities for field trips to local





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nature centers, supply tools for an after-school garden, or give materials for a community-based environmental education program.

### **Enroll in the NWF's Schoolyard Habitats® Program**

NWF has worked with schools to plant wildlife-friendly vegetation on school grounds. This tried and true program works and has been found to increase participating students' math scores and educate them about the environment.

### **Create zoning policies and incentives**

Work with local planning commissions and homeowners' associations to create zoning policies and incentives to encourage more kid-friendly green spaces for creative play and designate special areas where children can participate in traditional outdoor activities, like climbing trees and fort-building that have been limited because of liability concerns. Consider the following actions:

- Advocate for better playground design that incorporates natural landscapes.
- Support walkways and bike trails into neighborhoods, unlinked to roads, for recreating and commuting by families.
- Push for investments in public transportation infrastructure so natural areas are easier to access.
- Promote a "walking school bus," where parents take turns walking a group of kids to school in your community to help kids walk to school safely, but also enjoy some time outside and get some exercise.



*A family GreenHour® can instill a love for nature.*

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### **Take Action in Your State**

State governments are responsible for the majority of public policies that can make children's lives healthier, happy, and more active. State governments should consider integrated policy reforms that include connecting children to nature throughout the state health, natural resources, and education systems. Some state reform policies worth investigating include:

#### **Connecticut's No Child Left Inside™ Parks Program**

The State of Connecticut created a "No Child Left Inside™" program, which includes a multi-week scavenger and adventure hunt in the "Great Parks Pursuit Day" to encourage families to experience the state park system. This comprehensive program provides park passes for foster families, supports an urban fishing program, promotes water safety classes for children to learn how to swim, and connects the outdoors to the state library system by offering a summer environmental reading program and special park passes that are only available at the libraries.<sup>118</sup>

#### **Maryland's Chesapeake Bay Watershed Education & Training Program**

Maryland's Chesapeake Bay Watershed Education & Training Program strives to ensure that all children within the Chesapeake Bay watershed have a meaningful bay experience before they graduate from high school.<sup>119</sup> In conjunction with the Chesapeake Bay program, the National Oceanic & Atmospheric Association's Bay and Watershed Education & Training (B-WET) Program supports environmental stewardship and provides hands-on watershed experiences and uses the environment as an integrating context. Two Pacific programs have also been created, including Monterey Bay in 2003 and the Hawaiian Islands in 2004.<sup>120</sup>

#### **California's Children's Outdoor Bill of Rights**

On July 6, 2007, the State of California issued a proclamation recognizing the "Children's Outdoor Bill of Rights." Drafted by the California Roundtable on Recreation, Parks, and Tourism, the Children's Outdoor Bill of Rights states that by the age of 14, every child in California

has the right to experience the following activities:

- Discover California's past
- Splash in the water
- Play in a safe place
- Camp under the stars
- Explore nature
- Play on a team
- Follow a trail
- Catch a fish
- Celebrate their heritage

### Washington State No Child Left Inside™ Grant Program

In January 2008, Washington State announced a No Child Left Inside™ grant program administered by the Washington State Parks and Recreation Commission. The program has \$1.5 million available to Washington state outdoor education and recreation youth programs to connect children to nature.<sup>122</sup>



©NWE/Charlie Archambault.

*Environmental education increases interest in science and math.*

### Pennsylvania Environmental Education Grants Program

The Department of Environmental Protection set aside 5% of the pollution fines and penalties collected annually for a grants program that funds environmental education projects across the state.<sup>123</sup>

Governors and state legislatures can make a difference in connecting children to nature and should take action to:

- **Host a “No Child Left Inside™” Forum**, to discuss ways to connect children to nature with health care professionals, business leaders, nonprofit organizations, educators, after-school providers, urban planners, hunters and anglers, conservation groups, and local officials to work together to create access to safe outdoor play areas and educate parents on the benefits of unstructured free play.
- **Declare a Children’s Outdoor Bill of Rights** to ensure that children have the right to experience all the benefits of unstructured free time in nature.
- **Institute mandatory state standards for minimum exercise in school** that focus on outdoor activities for children. As a result of the No Child Left Behind legislation, many states have cut physical education programs, outdoor field trips, and environmental education. Exercise programs in school that incorporate the outdoors would provide substantial benefits to the health of our children.
- **Pass state environmental education legislation** to promote place-based and outdoor environmental education and increase funding for updating environmental education programs. Try to connect every school with a natural place. Consider incorporating environmental education into teacher education and accreditation programs.
- **Require public health and social service agencies to educate parents on the benefits of outdoor play on children’s health** to fight obesity and to make kids’ lives better. Public health agencies should work to redefine exercise to take away its stigma and call it “play,” and work with health professionals to advance time in nature as a potential avenue to lessen the symptoms of ADHD, fatigue, and childhood depression.



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*Share your love of the outdoors with a child.*





## Take Action at the National Level

The federal government has an important role in creating opportunities for children to play outdoors. Some existing federal programs worth investigating include:

### U.S. Forest Service “More Kids in the Woods” Program

In 2007, this federal program awarded \$1.5 million with cost share partners for local projects that connect children to national forest lands.<sup>124</sup>

### U.S. Bureau of Land Management’s (BLM) “Take it Outside” Program

This program expands many existing initiatives that connect children to the 258 million acres of BLM-managed public lands. The agency partners with schools, youth organizations like the Girl Scouts, and provides a website for families on recreational opportunities on BLM lands.<sup>125</sup>

### U.S. Fish & Wildlife Service “Children and Nature” Initiative

This new initiative aims to connect children with nature, and to encourage families to visit national wildlife refuges to experience nature firsthand.<sup>126</sup>

### National Park Service’s Youth Programs

The National Park Service has several educational programs to engage children who visit national parks, including the Jr. Ranger Program. The Park Service also has partnerships with groups such as the Student Conservation Association, the Youth Conservation Corps, and Job Corps, and private youth organizations like the Girl Scouts and Boy Scouts to

engage children in environmental stewardship projects and environmental education.<sup>127</sup>

Federal policies can make a difference in connecting children to nature, and your federal officials should work to:

- **Pass proposed federal legislation, such as the “No Child Left Inside” amendment** to the “No Child Left Behind” Act to get environmental education back in the classroom and give incentives to states to create environmental literacy plans.
- **Reauthorize the National Environmental Education Act** to update environmental education standards and increase critical funding for environmental education.
- **Form a Twenty-first Century Presidential Commission on the Great Outdoors** to make outdoor time part of children’s daily experience, and more fully explore the impacts of nature deficit on public health.
- **Increase the federal recreation budget**, and conduct a review of federal agency resource budgets and assess how they can connect children to nature.
- **Use existing federal public health programs to educate** parents on the importance of outdoor play to children’s health. The Children’s Health Insurance Program (CHIP), the Women, Infants, and Children (WIC) nutrition program, and Medicaid reflect unique avenues to encourage parents to support outdoor play.
- **Call upon the Surgeon General and Secretary of Health and Human Services to ask parents to make a commitment** to their children’s health by encouraging their children to experience daily unstructured free play outside.

## Conclusion

Together, we can connect our children to nature and ensure that the next generation has the opportunity, the space, and the encouragement to “Go Outside and Play.”



*Outdoor play results in healthier kids.*

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