



## What the Research Shows: A Summary

### RESEARCH-BASED INDICATORS OF THE NATURE DEFICIT

- Children today spend less time playing outdoors than any previous generation. 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. (Clements, 2004)
- Today's children have a more restricted range in which they can play freely, have fewer playmates who are less diverse, and are more home-centered than any previous generation. (Karsten, 2005)
- 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, totaling nine hours less a week of time over a 25-year period in which children can choose to participate in unstructured activities. (Hofferth and Sandberg, 2001; Hofferth and Curtin, 2006)
- Children between the ages of six months and six years spend an average of 1.5 hours a day with electronic media, and youth 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)
- Obesity in children has increased from about 4 percent in the 1960s to close to 20 percent in 2004. (Centers for Disease Control and Prevention, 2006)
- 62 percent of children do not participate in any organized physical activity and 23 percent do not participate in any free-time physical activity. (Centers for Disease Control and Prevention, 2003)
- The percent 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. Barely 21 percent of children today live within one mile of their school. (Centers for Disease Control and Prevention, 2006)
- While 71 percent of adults report that they walked or rode a bike to school when they were young, only 22 percent of children do so today. (Beldon Russonello and Stewart Research and Communications, 2003)

- 94 percent of parents say 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)
- 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)
- Children can identify 25 percent more Pokemon characters than wildlife species at eight years old. (Balmfold, Clegg, Coulson and Taylor, 2002)

### **RESEARCH-BASED INDICATORS OF NATURE'S BENEFITS TO CHILDREN**

- Contact with the natural world can significantly reduce symptoms of attention-deficit disorder in children as young as five years old. (Kuo and Taylor, 2004)
- The greener a child's everyday environment, the more manageable are their symptoms of attention-deficit disorder. (Taylor, Kuo and Sullivan, 2001)
- Access to green spaces for play, and even a view of green settings, enhances peace, self-control and self-discipline within inner city youth, and particularly in girls. (Taylor, Kuo and Sullivan, 2001)
- Green plants and vistas reduce 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)
- Proximity to, views of, and daily exposure to natural settings increases children's ability to focus and enhances cognitive abilities. (Wells, 2000)
- Nature is important to children's development in every major way—intellectually, emotionally, socially, spiritually and physically. Play in nature is especially important for developing capacities for creativity, problem-solving, and intellectual development. Therefore changes in our modern built environments should be made to optimize children's positive contact with nature. (Kellert, 2005)
- Children will be smarter, better able to get along with others, healthier and happier when they have regular opportunities for free and unstructured play in the out-of-doors. (Burdette and Whitaker, 2005)
- Positive direct experience in the out-of-doors 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)

- Children who experience school grounds with diverse natural settings are more physically active, more aware of nutrition, more civil to one another and more creative. (Bell and Dymont, 2006)
- Outdoor experiences for teens result in enhanced self-esteem, self-confidence, independence, autonomy and initiative. These positive results persist through many years. (Kellert with Derr, 1998)
- Factoring out other variables, studies of students in California and nationwide show that schools that use outdoor classrooms and other forms of nature-based experiential education produce 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)
- Studies of children in schoolyards with both green areas and manufactured play areas found that children engaged in more creative forms of play in the green areas, and they also played more cooperatively. (Bell and Dymont, 2006)

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