

CHILDREN'S TIME OUTDOORS: RESULTS FROM A NATIONAL SURVEY

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Abstract

In the past decade, much has been said and written about American children's declining outdoor leisure time. These claims are confounded by the absence of a baseline for detecting trends in children's activities and time spent outdoors. The USDA Forest Service initiated a general population telephone survey, the National Kids Survey, to address this issue. This paper summarizes data collected during the first phase of this project (2007-2009). Results suggest that most children across all demographic groups are spending a substantial amount of time outdoors daily. Interaction with the natural environment varies as playing/hanging out, physical activities, and technology-centered activities appear to be more popular than nature-based activities. Future research efforts should build on these initial data and continue to monitor children's outdoor activities patterns across diverse populations.

1.0 Introduction

Children enjoy an array of benefits from spending time outdoors. For instance, outdoor time can help strengthen children's physical health (Maller et al. 2006); mental health (Burdette & Whitaker 2005); conservation attitudes (Chawla 2006); and social relationships (Ginsburg 2007). Considering the benefits associated with children spending time outdoors, many organizations such as the Children and Nature Network have been created to promote positive relationships between children and the natural environment. In large part, this movement has been fueled by the assumption that today's children are spending less time outside than in previous generations.

Although researchers have provided anecdotal (Louv 2008) and empirical (Pergams & Zaradic 2008) evidence to support a decrease in Americans' outdoor recreation participation, few have actually investigated the time children spend outdoors. Further, many studies documenting declining outdoor time for children have been constrained by potential generational recall bias and nostalgia associated with adults reflecting on their past (e.g., Clements 2004). Other limitations include coarsely defined leisure categories (e.g., Hofferth & Sandburg 2001) or highly specified traditional definitions of activities that constitute outdoor recreation (e.g., Outdoor Foundation 2010, U.S. Fish & Wildlife Service 2006). People who argue that time spent outdoors is decreasing cite another pattern that is well documented, the concurrent rise of communications and entertainment media in the lives of children (Zaradic & Pergams 2007). Kaiser Foundation research shows that children's media time (watching TV, listening to music, using Internet/computer, playing video games, etc.) has increased dramatically in the past decade to an all-time high of more than seven hours per day in 2009 (Rideout et al. 2010). Despite this growing body of evidence that appears to support a decline in outdoor recreation participation among today's children, popular interpretations have been confounded by the absence of a systematic baseline for detecting trends.

To address this problem, the USDA Forest Service developed the National Kids Survey. The goal of the National Kids Survey was to build a national baseline regarding children's time outdoors, to determine what kids are or are not doing outside, and to identify factors that affect children's outdoor recreation participation. This paper highlights some early findings of the National Kids Survey, specifically focusing on the following research questions: 1) How much time are children spending outside?, and 2) What are children's most popular outdoor activities?

2.0 Methods

We addressed these research objectives through the National Kids Survey, part of a general population, random-digit-dialed telephone survey of more than 120,000 households across the United States. We targeted a random, cross-sectional sample of non-institutionalized U. S. residents age 16 years or older. Teens 16 to 19 years-old were interviewed directly. A proxy household member (e.g., parent, guardian, older sibling 20 years or older) was interviewed on behalf of children 6 to 15 years old. Interviews focused on the individual youth (teen or child) in each household who had the most recent birthday. The average length of interviews was 14 minutes, with questions related to children's outdoor time representing a subset of the total interview

time. The data analyzed in this paper came from a screen of approximately 3,000 households from September 2007 to August 2009, which resulted in a sample of 1,450 youth (response rate = 48.3%).

Participants were asked about a variety of topics, including the amount of time children spent outdoors (during the past week, weekdays); common outdoor activities; reasons for not spending time outdoors; and factors correlated with outdoor time. This paper focuses exclusively on general time outdoors and outdoor activities. "Outdoor time" was assumed to include all of a child's time spent outside (including at home, in neighborhood, at school, at sporting events, etc.). "Outdoor activities" were captured with the following question: "During the past week, which of the following types of outdoor activities did this young person participate in?" Respondents were asked to choose all that applied from a list of 17 general activity categories (including an open-ended option). These categories, based on preliminary pilot tests, included active and passive outdoor activities with varying degrees of structure. Respondents were also asked to identify their or their children's primary (most time spent – two choices allowed) and favorite (most enjoyed – one choice allowed) outdoor activities.

Prior to analysis, data were weighted to account for any over or under-representation of gender, age, race/ethnicity, education, or place of residence relative to general population proportions based on U.S. Census estimates for each data collection year (e.g., U.S. Census Bureau, 2007). The weights provided an adjustment to align sample proportions of children with corresponding Census strata, creating a balanced sample that was not over or underrepresented by any particular group. Data were analyzed using PASW Statistics Version 18.0. Chi-square tests of independence were used to compare time spent outside and activity participation among different demographic groups (gender, age, race/ethnicity, and income).

3.0 Results

3.1 Time Spent Outdoors

Data showed that, in general, most children spent at least two hours of time outdoors daily during the week preceding the household interview (62.5% of children spent two or more hours outdoors on a weekday, 78.2% on a weekend). Children generally spent more time outside on weekends, and about one-half (51.3%) of the children spent four or more hours outdoors on a typical weekend day. Less than five percent of children reported spending no time outdoors on either a weekday or a weekend (Figure 1).

<Insert Figure 1 about here>

Boys tended to spend more time outside than girls did on weekdays, $\chi^2 = 28.0$ (df = 5), $p < 0.001$, and weekend days, $\chi^2 (5, 1433) = 28.9$, $p < 0.001$. The percentage of boys spending two or more hours outdoors was higher than girls for weekdays (67.6% of boys vs. 57.0% of girls) and weekend days (81.4% vs. 74.9%). Girls were more likely than boys to spend less than one-half hour outdoors on both weekdays (8.2% of girls vs. 6.0% of boys) and weekend days (7.8% vs. 5.0%).

Children's time outside was also significantly different among the different age groups for weekdays, $\chi^2 (15, 1434) = 30.1$, $p < 0.001$, and weekend days, $\chi^2 (15, 1434) = 89.8$, $p < 0.001$. Younger children spent more time outside on weekend days than children age 13 or older. Weekday time outdoors was highest for children ages 13 to 15 (69.2% spent two or more hours outside), but lowest for children ages 16 to 19 (59.0% spent two or more hours outside). More children ages 16 to 19 spent less than one-half hour a day outdoors compared to children in the other age groups.

Significant differences in children's time outdoors also emerged among racial/ethnic groups for weekdays, $\chi^2 (15, 1421) = 41.4$, $p < 0.001$, and weekend days, $\chi^2 (15, 1421) = 38.1$, $p = 0.001$. In general, Hispanic youth spent more time outside on both weekdays (68.0% spent two or more hours outside) and weekend days (87.8% spent two or more hours outside) relative to other groups. The greatest shift in hours per day outdoors was for White children spending four or more hours outdoors: their numbers increased from 28% outdoors on weekdays to 51% outdoors on weekend days.

Annual family income was also related to children's time spent outdoors on weekdays, $\chi^2 (25, 1065) = 40.6$, $p = 0.025$, but not on weekend days, $\chi^2 (25, 1065) = 15.6$, $p = 0.926$. Children with family incomes less than \$50,000 generally spent more time outside on weekdays than children with higher family incomes. The shift between the percentage of children spending four or more hours outside on weekdays and weekend days was smallest (+12.1%) for the lowest income group.

3.2 Most Common Outdoor Activities

Respondents indicated that hanging out/playing with friends was children's most common outdoor activity (84.0%), followed by land-based physical activities (e.g., biking, jogging, walking; 79.9%) and using electronic devices outdoors (e.g., listening to music, watching movies; 65.3%). Nature-based activities such as bird watching and wildlife viewing (30.7%), or hiking, camping, and fishing (29.0%), were not as common among youth as other alternatives. When respondents were asked to identify the single activity that occupied a majority of their or their child's outdoor time, hanging out/playing with friends outdoors (24.4%), land-based sports (e.g., football, soccer, golf; 22.1%), and land-based physical activities (20.4%) were the most frequent responses. Nature-based activities were the primary activity for just 5.4% of children. Even though the use of electronic devices outdoors was among the most commonly reported activities, it was the primary activity for only 2.8% of children. When asked to select

children's favorite activities, respondents indicated that hanging out/playing with friends (25.5%), land-based sports (25.2%), land-based physical activities (16.1%), and water-based physical activities such as swimming (8.1%) were the most enjoyed. Nature-based activities were the favorite activities for only 5.6% of the respondents (Figure 2).

<Insert Figure 2 about here>

Gender comparisons showed that more boys than girls went outdoors to hang out/play with friends (88.1% of boys vs. 79.9% of girls), participate in sports (61.1% vs. 37.8%), and ride off-road vehicles (23.8% vs. 15.0%). Girls were more likely to be outside reading or studying compared to boys (52.1% of girls vs. 39.8% of boys). When asked about favorite activities, boys showed a stronger affinity than girls for land-based sports (30.4% of boys vs. 19.7% of girls) and nature-based activities (7.9% vs. 3.0%). Girls favored water-based physical activities more than boys (10.4% of girls vs. 6.2% of boys).

Age comparisons showed that more children ages 6 to 12 than children ages 13 to 19 hung out or played outdoors (92.5% of 6 to 12 year olds vs. 75.9% of 13 to 19 year olds) and participated in land-based physical activities (84.3% vs. 75.7%). Children ages 13 to 19 were more likely than children ages 6 to 12 to use electronic devices outdoors (78.6% of 13 to 19 year olds vs. 52.8% of 6 to 12 year olds). Bird watching and wildlife viewing were more common among children ages 6 to 9 (39.8% participating) and 10 to 12 (40.8%), significantly higher than children 13 to 15 (22.5%) or 16 to 19 (19.4%). Motorized outdoor activities (e.g., riding motorcycles, ATVs, boating, jet skiing) were more common among children ages 13 to 19 (23.1% participating) than children ages 6 to 12 (16.4%). Children ages 6 to 9 (34.8%) preferred just hanging out or playing outdoors more than other groups. Sports gradually increased in popularity until age 15, reaching a peak in children ages 13 to 15 (31.7% listed as favorite) before dropping with children ages 16 to 19 (22.5%). The use of electronic devices outdoors was more popular among children ages 13 to 19 (5.1% listed as favorite) than children ages 6 to 12 (1.4%).

Results examining racial/ethnic differences in outdoor recreation generally suggested that Hispanic and White children were engaged in a larger variety of activities than African American children or children from other racial backgrounds. In this study Hispanic children (87.8%) displayed the highest levels of land-based physical activities, ten percentage points higher than any other racial group. Children from all minority groups (56.5%) were more involved in sports than White children (45.5%). However, White children demonstrated the highest levels of participation in motorized sports on land (22.6%) and water (10.7%). Nature-based activities were more common among White (33.9% hiked, camped, fished; 31.2% participated in wildlife viewing) and Hispanic (28.4% hiked, camped, fished; 40.0% participated in wildlife viewing) children than African American children (12.1% hiked, camped, fished; 18.9% participated in wildlife viewing). Using electronic devices outdoors was the only activity more common among African American children (76.5%) than the other racial groups. In terms of favorite activities, African American (36.7%) and Hispanic children (27.6%) preferred sports more than children comprising other racial groups (White = 22.7%, Other = 11.0%). Hanging out/playing with friends outdoors was most popular among African American children (34.7%) and children in the Other category (38.3%). White children preferred nature-based activities (7.4%) more than children in other racial groups (2.9%).

Statistically significant differences in activity participation across income groups were not evident for many activities. Exceptions included using electronic devices outdoors, an activity that was most common among children from families at the extreme ends of the income spectrum (70.2% participating from the < \$25,000/year category, 66.1% average from all categories with \$75,000 or more per year). Water-based physical activities were most common among children in the lowest income group (40.5% participating). Nature-based activities were more popular among children from higher income families (36.3% participation average from all categories with \$75,000 or more per year) than lower income families (26.2% average from all categories with \$74,999 or less per year). In terms of favorite activities, hanging out or playing outdoors and land-based sports were the preferred choices among children in all income groups. Children from low income households favored land-based physical activities (21.2% preferred this activity vs. < 18% for all other categories) and using electronic media outdoors (9% vs. < 3% for all other categories) more than children in any of the other income groups.

4.0 Discussion and Implications

Results of the National Kids Survey indicate that, contrary to popular beliefs, many children today are spending a substantial amount of time outdoors. In fact, nearly two-thirds of all children spent at least two hours outside during an average day. These numbers represent a baseline measure of children's outdoor recreation behavior that mirrors the patterns emerging in existing research on adults. These studies suggest that overall outdoor recreation participation among Americans, when expanded to incorporate an array of emerging, non-traditional activities such as picnicking, family gatherings, and geocaching, may actually be on the rise (Cordell 2008, Cordell et al. 2008). Results of this study suggest that another trend, the growth of technology-based outdoor leisure activities that incorporate electronic media (e.g., digital cameras, iPods, smartphones), has already become important in the lives of children. This electronic influence – indoors and outdoors – is likely to increase in the years ahead, and park and recreation professionals could respond to this trend by developing innovative ways to link outdoor time and electronic media consumption (e.g., geocaching, Wi-Fi in parks).

Despite positive indicators regarding children's overall time spent outdoors, concern about a pervasive shift away from certain nature-based recreation activities, which has been documented nationally (Pergams & Zaradic 2008), could still be warranted.

Nature-related activities (e.g. hiking, camping, fishing, wildlife viewing) were not as common among children as many other alternatives (e.g., sports, hanging out with friends, using electronic devices outdoors), and the consequences of this discrepancy could be problematic. Direct play in nature is critical for youth development, especially during middle childhood (Kellert 2005). Outdoor experiences during childhood may also contribute to positive attitudes toward outdoor recreation and nature in adulthood (Bixler et al. 2002, Thompson et al. 2008). Because children's outdoor experiences are significant predictors of environmentalism later in life (Larson et al. 2011, Wells & Lekies 2006), the success of future conservation efforts may depend upon concerted efforts to track and facilitate growth in the time children spend outdoors and their involvement in nature-related activities.

We identified specific groups of children whose outdoor time could be increased. For example, boys were more likely than girls to participate in sports and more likely to rate sports as their favorite outdoor activity. Hence, specific initiatives or incentives may be necessary to encourage girls to participate more in outdoor recreation and physical activities. Further, less outdoor time was reported for older children compared to younger children, particularly on weekends. Previous research has noted a diminishing affinity for nature-related activities at the onset of adolescence (Larson et al. 2010). Outdoor activity settings that promote peer interaction and social networking may be necessary to encourage more teenagers to spend time outside. Outdoor time also differed among racial and income groups. For instance, African American children did not appear to spend as much time outdoors as Hispanics or Whites. Even if they were outdoors, African American children were more likely than others to be using electronic devices. The use of electronic media outdoors also appeared to be more popular among children from low income households. As the racial composition of the U.S. population changes, additional research is needed to understand the leisure preferences and behaviors of minority children, particularly in an outdoor recreation context (Shinew et al. 2006).

Overall, the first iteration of the National Kids Survey shows that outdoor recreation participation remains an important aspect of children's lives. As the U.S. population grows and becomes more heterogeneous (Cordell & Overdeest 2001), the Survey will provide an invaluable baseline for assessing trends in the outdoor recreation activity patterns of children from different demographic backgrounds. Hopefully, outdoor recreation professionals and researchers will be able to use information generated by instruments such as the National Kids Survey to inform management practices and enhance outdoor experiences for America's youth.

5.0 Citations

Bixler, R.D.; Floyd, M.F.; Hammitt, W.E. 2002. **Environmental socialization: Quantitative tests of childhood play hypothesis.** *Environment and Behavior*. 34(6): 795-818. doi: 10.1177/001391602237248

Burdette, H.L.; Whitaker, R.C. 2005. **Resurrecting free play in young children: Looking beyond fitness and fatness to attention, affiliation, and affect.** *Archives of Pediatrics and Adolescent Medicine*. 159(1): 46-50.

Chawla, L. 2006. **Learning to love the natural world enough to protect it.** *Barn*. 2: 57-78.

Clements, R. 2004. **An investigation of the status of outdoor play.** *Contemporary Issues in Early Childhood*. 5(1): 68-80. doi:10.2304/ciec.2004.5.1.10

Cordell, H.K. 2008. **The latest on trends in nature-based outdoor recreation.** *Forest History Today*. Spring 2008: 4-10.

Cordell, H.K.; Betz, C.J.; Green, G.T. 2008. **Nature-based outdoor recreation trends and wilderness.** *International Journal of Wilderness*. 14(2): 7-13.

Cordell, H.K.; Overdeest, C. 2001. **Footprints on the land: An assessment of demographic trends and the future of natural lands in the United States.** Champaign, IL: Sagamore Publishing.

Ginsburg, K.R. 2007. **The importance of play in promoting healthy child development and maintaining strong parent-child bonds.** *Pediatrics*. 119(1): 182-191. doi:10.1542/peds.2006-2697

Hofferth, S.; Sandburg, J.F. 2001. **How American children spend their time.** *Journal of Marriage and the Family*. 63(2): 295-308. doi:10.1111/j.1741-3737.2001.00295.x

Kellert, S.R. 2005. **Nature and childhood development.** In S.R. Kellert, ed. *Building for life: Designing and understanding the human-nature connection*. Washington, DC: Island Press: 63-89.

Larson, L.R.; Green, G.T.; Castleberry, S.B. 2010. **I'm too old to go outside! Examining age-related differences in children's environmental orientations.** In Watts, C.W., Jr.; Fisher, C.L., eds. *Proceedings of the 2009 Northeastern Recreation Research Symposium*. GTR-NRS-P-66. Newtown Square, PA: USDA Forest Service, Northern Research Station.

- Larson, L.R.; Whiting, J.W.; Green, G.T. 2011. **Exploring the influence of outdoor recreation participation on pro-environmental behaviour in a demographically-diverse population.** *Local Environment*. 16(1): 67-86. doi:10.1080/13549839.2010.548373
- Louv, R. 2008. **Last child in the woods: Saving our children from nature-deficit disorder.** Chapel Hill, NC: Algonquin Books of Chapel Hill.
- Maller, C.; Townsend, M.; Pryor, A.; Brown, P.; St. Leger, L. 2006. **Healthy nature healthy people: 'Contact with nature' as an upstream health promotion intervention for populations.** *Health Promotion International*. 21(1): 45-54. doi:10.1093/heapro/dai032
- Outdoor Foundation. 2010. **Outdoor Recreation Participation Report 2010.** Boulder, CO: Outdoor Foundation. Retrieved 14 December 2010, from Outdoor Foundation: <http://www.outdoorfoundation.org/research.participation.2010.html>
- Pergams, O.R.W.; Zaradic, P.A. 2008. **Evidence for a fundamental and pervasive shift away from nature-based recreation.** *Proceedings of the National Academy of Sciences of the United States of America*. 105(7): 2295-2300. doi:10.1073/pnas.0709893105
- Rideout, V.J.; Foehr, U.G.; Roberts, D.F. 2010. **Generation M2: Media in the lives of 8- to 18-year-olds.** Menlo Park, CA: Kaiser Family Foundation.
- Shinew, K.J.; Stodolska, M.; Floyd, M.; Hibbler, D.; Allison, M.; Johnson, C. 2006. **Race and ethnicity in leisure behavior: Where have we been and where do we need to go?** *Leisure Sciences*. 28(4): 403-408. doi:10.1080/01490400600745902
- Thompson, C.W.; Aspinall, P.; Montarzano, A. 2008. **The childhood factor - adult visits to green places and the significance of childhood experience.** *Environment and Behavior*. 40(1): 111-143. doi:10.1177/0013916507300119
- United States Fish and Wildlife Service. 2006. **2006 National Survey of Fishing, Hunting, and Wildlife Associated Recreation.** Washington, DC: U.S. Dept. of the Interior, Fish & Wildlife Service, U.S. Dept. of Commerce, U.S. Census Bureau. Retrieved 2 May 2011, from http://library.fws.gov/pubs/nat_survey2006_final.pdf.
- United States Census Bureau. 2007. **U. S. Census Bureau Population Estimates.** Washington, DC: U. S. Census Bureau, Population Division. Retrieved 12 December 2010, from http://www.census.gov/popest/archives/2000s/vintage_2007/.
- Wells, N.M.; Lekies, K.S. 2006. **Nature and the life course: Pathways from childhood nature experiences to adult environmentalism.** *Children, Youth and Environments*. 16(1): 1-24.
- Zaradic, P.A.; Pergams, O.R.W. 2007. **Videophilia: Implications for childhood development and conservation.** *Journal of Developmental Processes*. 2: 130-144.

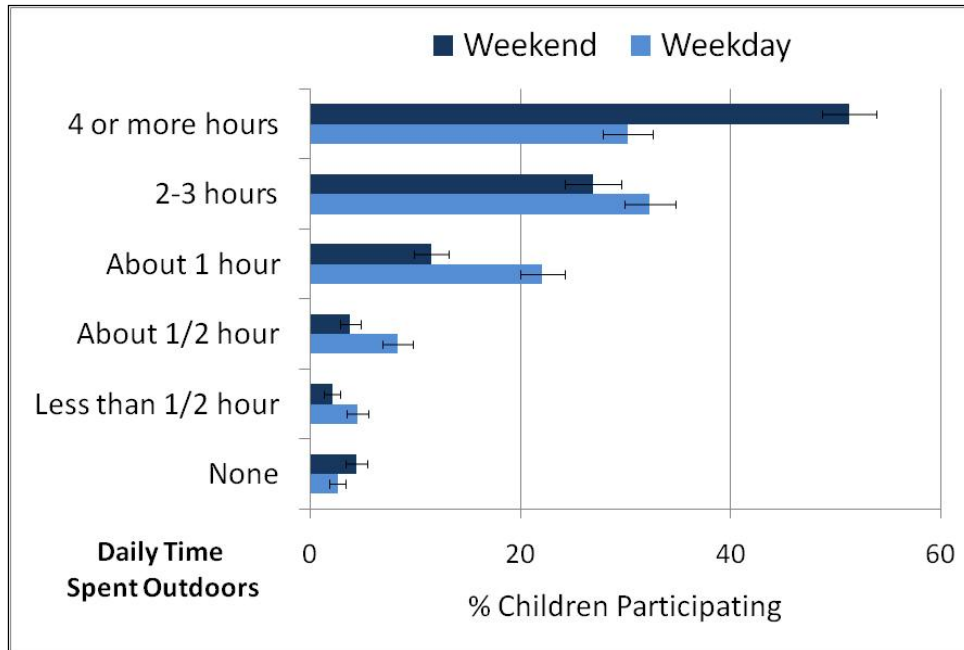


Figure 1. Children's time spent outdoors (with 95% CI) (Source: National Kids Survey, interview dates = 9/15/07 to 8/16/09, N = 1,437)



Figure 2. Children's favorite outdoor activities (Source: National Kids Survey, interview dates = 9/15/07 to 8/16/09, N = 1,437)