

No child left indoors

Coming home late one Halloween eve after a long laboratory class, I stopped at the mailbox and found a hand-written note in my then 6-year-old son James's nearly illegible script. It read "Caution – black widow inside". At first, I thought it was a prank, but squinting hard, I was flabbergasted to see the characteristic tiny red hourglass of this venomous spider in the beam of my flashlight. James was delighted. I never knew that black widow spiders habitually seek out mailboxes in Florida until we looked it up in the encyclopedia that night. My son proudly told me that he had learned to identify spiders from our family walks in the woods, peering at insects and studying their colorful markings. This bit of nature knowledge proved to be a potentially life-saving skill.

Kids need to know about nature. It nurtures and educates them, as well as instilling a sense of stewardship for the environment. A survey (Balmford *et al.* 2002; *Science* 295: 2367) found that more children knew the characters in the electronic game Pokémon than could identify an otter, a beetle, or an oak tree. Nationwide, the science literacy of citizens – both young and old – has been eroded. Federal funding for science education has not kept pace with other science-dependent portfolios such as homeland security or petroleum exploration. The implications of this oversight represent a critical global challenge which our country cannot afford to overlook.

Richard Louv's recent book, *Last child in the woods – saving our children from nature-deficit disorder* (Algonquin Books 2005) analyzes the societal problems that have arisen in the latest generations of children, who have essentially lost contact with nature. Louv quotes a fifth grader, who stated, "I like to play indoors better 'cause that's where all the electrical outlets are". The author cites recent studies where environmental education programs provided important therapeutic value to troubled youth, substantial reduction in symptoms of attention-deficit disorder, and statistical gains in academic grades, problem solving, and SAT scores. Nature-deficit disorder not only damages children, but also affects adults, families, even whole communities, and inevitably shapes the future of nature itself. In the ESA report, *Profiles of ecologists – results of a survey of the membership of the ESA* (<http://esa.org/education/diversity/>), 58% of respondents developed a passion for ecology before college, and 38% were hooked by the sixth grade. Almost 70% cited experiences not connected with a classroom or teacher that led to their love of science. In summary, early experiences outside of school influenced many ecologists to seek a nature-based career. In my recent book, *It's a jungle up there* (Yale University Press [2006], co-authored with my two sons) we expand Louv's platform by advocating nature-based immersion for entire families, not just children, to encourage a family conservation ethic.

When baby boomers think back to their childhood, they can probably recall a tree house, a scout camping trip, or neighborhood picnics. In today's world, many parents are rightfully reluctant to give their children unsupervised time outdoors, due to dangers ranging from global threats to distrust of strangers. But knowledge of nature is their best weapon if young people are to ultimately make good decisions about personal health, climate change, and land-use management. They need to touch flowers and know why some plants cannot survive without insect pollinators, walk in a forest and understand how many millions of years were required to create petroleum from dead plants – and it doesn't hurt to know how to identify a venomous spider!

As ecologists, we must lead by example in order to prioritize linking young people with their environment. This can be achieved by dedicating a portion of our research time to ecology education and outreach to youth. Science outreach projects can be planned in conjunction with ongoing research, and may include activities such as leading hikes for families, creating a nature trail at a local park, championing ecotourism, or bringing an insect collection to your child's science class. Over the next 2 years, the ESA annual meetings will feature informal science education sessions, where innovative case studies will illustrate how ecologists can promote K–12 and citizen science education as part of their work ethic. Our goal is to have "no child left indoors" by 2015. Please join the ESA Education and Human Resource Committee in working together as responsible ecologists to meet this target. Not only will the next generation benefit, but the future of the planet depends on it.



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