Beyond Ecophobia *by David Sobel*

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If we want children to flourish, says educator David Sobel, we need to give them time to connect with nature and love the Earth before we ask them to save it

Just as ethnobotanists are descending on tropical forests in search of new plants for medical uses, environmental educators, parents, and teachers are descending on second and third graders to teach them about the rainforests. From Brattleboro, Vermont, to Berkeley, California, school children are learning about tapirs, poison arrow frogs, and biodiversity. They hear the story of the murder of activist Chico Mendez and watch videos about the plight of indigenous forest people displaced by logging and exploration for oil. They learn that between the end of morning recess and the beginning of lunch, more than 10,000 acres of rainforest will be cut down, making way for fast food "hamburgerable" cattle.

The motive for all this is honorable and just, but what's emerging is a strange kind of schizophrenia. Children are disconnected from the world outside their doors and connected with endangered animals and ecosystems around the globe through electronic media.

What really happens when we lay the weight of the world's environmental problems on eight and nine year-olds already haunted with too many concerns and not enough real contact with nature?

The crux of the issue is the developmental appropriateness of environmental curricula. One problem we have in schools is premature abstraction – we teach too abstractly, too early. Mathematics educators have recently realized that premature abstraction was one of the major causes of math phobia among children in the primary grades. Unable to connect the signs and symbols on the paper with the real world, many children were turning off to math. Mathematics instruction has been reinvigorated in the last two decades through the use of concrete materials (such as cuisinaire rods, fraction bars, and Unifix cubes) and the grounding of math instruction in the stuff and problems of everyday life. The result has been the turning of the tide against math phobia.

Perhaps to be replaced by ecophobia – a fear of ecological problems and the natural world. Fear of oil spills, rainforest destruction, whale hunting, acid rain, the ozone hole, and Lyme disease. Fear of just being outside. If we prematurely ask children to deal with problems beyond their understanding and control, then I think we cut them off from the possible sources of their strength.

In response to physical and sexual abuse, children learn distancing techniques, ways to cut themselves off from the pain. My fear is that our environmentally correct curriculum will end up distancing children from, rather than connecting them with, the natural world. The natural world is being abused, and they just don't want to have to deal with it.

I propose that there are healthy ways to foster environmentally aware, empowered students. We can cure the malaise of ecophobia with ecophilia –supporting children's biological tendency to bond with the natural world.

Beyond cardboard rainforests

If curricula focused on saving the Earth don't work, what does? One way to find the answer is to figure out what contributes to the development of environmental values in adults. What happened in the childhoods of environmentalists to make them grow up with strong ecological values? A handful of studies like this have been conducted, and when Louise Chawla of Kentucky State University reviewed them for her article, "Children's Concern for the Natural Environment" in Children's Environment Quarterly, she found a striking pattern. Most environmentalists 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." Not one of the conservationists surveyed explained his or her dedication as a reaction against exposure to an ugly environment.

What a simple solution. No rainforest curriculum, no environmental action, just opportunities to be in the natural world with modeling by a responsible adult.

The child's expanding world

The formative years of bonding with the Earth include three stages of development that should be of primary concern to parents and teachers: early childhood from ages four to seven, the elementary years from eight to eleven, and early adolescence from 12 to 15. Though these age frames need to be considered flexibly, my belief is that environmental education should have a different tenor and style during each of these stages.

Over the past 10 years, I have collected neighborhood maps from hundreds of children in the US, England, and the Caribbean. Through analyzing these maps and doing interviews and field trips with these same children, I have found clear patterns of development in the relationship between the child and his or her expanding world.

From ages four to seven, children's homes fill the center of their maps, and much of their play is within sight or earshot of the home. Children often describe the worms, chipmunks, and pigeons that live in their yards or on their blocks, and they feel protective of these creatures.

From eight to eleven, children's geographical ranges expand rapidly. Their maps push off the edge of the page, and they often need to attach extra pieces of paper to map the new terrain they are investigating. Children's homes become small, inconsequential, and often move to the periphery of the map. The central focus in their maps is the "explorable landscape."

From 12 to 15, the maps continue to expand in scope and become more abstract, but the favored places often move out of the woods and into town. Social gathering places such as the mall, the downtown luncheonette, and the town park take on new significance.

At each of these stages, children desire immersion, solitude, and interaction in a close, knowable world. We take children away from these strength-giving landscapes when we ask them to deal with distant ecosystems and environmental problems. Rather, we should be attempting to engage children more deeply in knowing the flora, fauna, and character of their own local places. The woods behind the school and the neighborhood streets and stores are the places to start.

How do we translate these notions into guidelines for environmental education? I propose three phases of environmental curricula during the elementary and middle school years. In early childhood, activities should center on enhancing the developmental tendency toward empathy with the natural world. In middle childhood, exploration should take precedence. And in early adolescence, social action should assume a more central role.

Empathy: finding animal allies

Empathy between the child and the natural world should be a main objective for children ages four through seven. As children begin their forays into the natural world, we can encourage feelings for the creatures living there. Early childhood is characterized by a lack of differentiation between the self and the other. Children feel implicitly drawn to baby animals; a child feels pain when someone else scrapes her knee. Rather than force separateness, we want to cultivate that sense of connectedness so that it can become the emotional foundation for the more abstract ecological concept that everything is connected to everything else. Stories, songs, moving like animals, celebrating seasons, and fostering Rachel Carson's "sense of wonder" should be primary activities during this stage.

Cultivating relationships with animals, both real and imagined, is one of the best ways to foster empathy during early childhood. Children want to run like deer, to slither along the ground like snakes, to be clever as a fox and quick like a bunny. There's no need for endangered species here – there are more than enough common, everyday species to fill the lives of children. And the environmentally correct notion of not anthropomorphizing animals can be thrown out the window.

Paul Shepard, in The Arc of the Mind, says: "Animals have a magnetic affinity for the child, for each in its way seems to embody some impulse, reaction, or movement that is 'like me.' In the playful, controlled enactment of them comes a gradual mastery of the personal inner zoology of

fears, joys, and relationships. In the stories told, their forms spring to life in the mind, re-presented in consciousness, training the capacity to imagine."

With this conviction in mind, a group of colleagues and I conducted the following activities with preschool children in Peterborough, New Hampshire, and with second graders at Camp Waubenong in Brattleboro, Vermont.

We initiated our bird curriculum planning at Camp Waubenong by agreeing that we wouldn't have the children identify birds from fleeting glimpses and then look them up in books to start. Boring! Rather, we speculated on what it is about birds that appeals to children. The answer was obvious: they fly, and they make nests. Applying the developmental principle that children like to become things rather than objectify them in early childhood, we came up with our plan.

We gathered a bunch of large refrigerator boxes, cut them into sheets, and had the children lie down on top of them, on their backs with arms outstretched. Starting at the neck, we traced around the children, but instead of following along the underside of the arm, we drew a straight line from their wrists to their waists, then down on both sides to about the knees. The children then stood up, we cut out the shape, and voila! Each child had an individualized set of wings. We strapped them on, made it clear that the children were not to try the wings out by jumping off roofs, and they were off. A flock of birds leaped into action, flying through the forests, exploring life as birds.

We made it to the meadow where hay had recently been cut and said, "If we're birds, we need nests." And so we made child-sized nests. Many hours of dramatic play followed.

A few days later, we said, "You all make great birds, but we noticed that you're all brown, and only some of the birds we see around here are brown, but some of them have lots of colors. What are some of the color patterns on the birds?"

Children described some birds they had seen, but we didn't make a point of teaching names. Instead, we pulled out the paints so they could paint their wings. More bird games followed.

By the next day, children started to notice the birds around camp. "Hey, that's the same bird as me, that's the color pattern on my wings." Then the bird books came out. Soon, we had children poring over bird books trying to identify what kinds of birds they were and learn what they ate. Because we had started at their level of developmental fascination, had facilitated empathy through their participation in bird consciousness, we prepared them to objectify and enter the more cognitive realm of bird knowledge.

Storyteller Brenda Peterson reminds us that, "By telling their own animal stories, children are practicing ecology at its most profound and healing level. Story as ecology – it's so simple, something we've forgotten. In our environmental wars, the emphasis has been on saving species, not becoming them." And so we must begin in empathy, by becoming the animals before we can save them.

Exploration: teaching the landscape

Exploring the nearby world and knowing your place should be a primary objective for the "bonding with the Earth" stage, from ages eight to eleven. The curriculum can mirror the expanding scope of the child's significant world, focusing firs□ on□the surroundings of the home and school, then the neighborhood, the community, the region, and beyond. Making forts, creating small imaginary worlds, hunting and gathering, searching for treasures, following streams and pathways, exploring the landscape, taking care of animals, gardening and shaping the Earth can be primary activities during this stage.

Forts and dens, these special places of childhood that are both found and built, appear to be crucially important for many children from ages eight to eleven. Children in urban, suburban, and rural landscapes find and create hidden places, even in daunting circumstances.

These new homes in the wild, and the journeys of discovering them, are the basis for bonding with the natural world. We need to cultivate a sensitivity to this developmental geography of childhood. Appropriate curriculum at this age will capitalize on the child's innate drive to explore the nearby world.

For example, appropriate environmental education about the water cycle can start by engaging children with running water. Many children who can recite the water cycle verbally still draw

maps that have streams running uphill. The challenge for the teacher is to find ways to engage students in stream walking and stream studies.

David Millstone, a fifth grade teacher in Norwich, Vermont, organized an expedition with his class in which they would follow a stream, not knowing where the stream would lead them. In a student-produced newspaper about this expedition, one child wrote:

The Deep, Dark Dungeon

"I can't see five feet," I thought to myself. We were walking through a giant culvert following this stream that runs behind the school and through the Nature Area.

"Watch out, dripping water," Mr. Millstone warned us. I finally realized what is beyond the steel grates that you see along the street. I looked up it and saw the grate 20 feet above me. The culvert seemed to be moving. I think we took a turn somewhere.

"The end," someone shouted. ... I had to walk with my feet widely apart. We got out alive, had a snack, and continued on our adventure."

Millstone describes his motives: "The trip expanded our recent emphasis on mapping our neighborhoods.

The search challenged the class's map-making skills; similarly, an adventure into the unknown stimulated the children's writing. ... The experience of following a stream would reinforce a fundamental concept in topographic maps – water flows downhill. ... I wanted the children to experience the thrill of posing a question and working directly to find the answer. And, not least of all, I thought this trip would be fun."

The children's writing for the class newsletter crackles with excitement over discovering something literally in their backyard. And notice that the project doesn't touch directly on acid rain or groundwater pollution or drinking water quality or evaporation and condensation. It does, however, immerse children in the primary experience of exploring streams and understanding where they go. Wet sneakers and muddy clothes are prerequisites for understanding the water cycle.

Social action: saving the neighborhood

Social action appropriately begins around age 12 and certainly extends beyond age 15. While woods, parks, and playgrounds are the landscapes of middle childhood, adolescents want to be downtown. As children start to discover the "self" of adolescence and feel their connectedness to society, they naturally incline toward wanting to save the world. Managing school recycling programs, passing town ordinances, testifying at hearings, planning and going on school expeditions are all appropriate activities at this point.
An article in the March/April 1989 issue of Sierra relates how a group of sixth graders in Salt Lake City, Utah, became concerned when they noticed that a map of hazardous waste sites in the city included a location just three blocks from their school.

"That old barrel yard?" 11 year-old Maxine asked. "Kids climb all over those barrels."

When classroom teacher Barbara Lewis contacted the Department of Health, she was told that "there's nothing children can do; they'll be in high school before they see any results." The students were compelled to act. They contacted the EPA, the owner of the barrel yard, and the mayor. They studied literature on hazardous waste and the problems involved in cleaning it up. They attracted reporters intrigued with the children's persistence. And, after a year and a half, they not only witnessed the removal of the 50,000 barrels and the beginnings of the EPA clean up, but they wrote legislation, lobbied legislators, and saw the passage of a Utah state law that set up a hazardous waste clean up fund.

Allowing time for nature

Suffering from the timesickness of trying to do too much too quickly, we infect our children with our impatience. Most nature study or environmental education in American elementary schools lasts a matter of weeks, maybe a month. As a result, depth is sacrificed for breadth, and there's little opportunity for immersion in the landscape. Instead, we make children do workbooks in

kindergarten, we let seven year-olds watch Jurassic Park, and we bombard them with tragic anxiety.

Jo Anne Kruschak, a first and second grade teacher in Vermont spent all of last year doing a project on a local beaver pond and marsh. These first and second graders visited the pond, about a quarter mile from the school, once a week through all kinds of weather.

"In the beginning," Kruschak recalls, "I thought we'd run out of things to do and study by Thanksgiving. By March I realized that there was no way we could follow up on all the neat opportunities by the end of the year."

If we want children to flourish, to become truly empowered, then let us allow them to love the Earth before we ask them to save it. Perhaps this is what Thoreau had in mind when he said, "the more slowly trees grow at first, the sounder they are at the core, and I think the same is true of human beings."

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