

INTRODUCTION **The Need for Sustainability**

● PETER MCLEAN

My remarkable ninth-grade biology teacher, Beverley Hathaway, encouraged her students to explore the outdoors. As I try to do with my students, she had us questioning and appreciating all that was begging to be noticed, that life right in front of our noses. In addition to quadrat studies in which we'd observe and record in a 10 x 10 m natural area of our choosing, she taught through several projects. In the fall, we'd gather leaves off trees, while noting their trunks and textures and smells. In winter, she had us observing birds at the feeder, where we'd draw their shapes and colors, admire their vitality, and hypothesize as to the nature of their incisive behavior. In the spring, her wildflower project asked that we lie beside our subject, so that we might enjoy the fragrance and better appreciate the perspective and, say, the faint pink of spring beauty, a tiny treasure that we later learned figured into the diet of a rather large bear, the grizzly.

As we continue to move into the 21st century, the times challenge us to better acquaint our students with nature, so that they better appreciate it, not only for its beauty and intrigue, but in knowing we're a part of the natural world, one which sustains us, one which nourishes our bodies and spirits.

Sustainability can be defined as responsible use of resources over an indefinite period of time; the Iroquois seem to well appreciate this notion as they make decisions on how they'll affect their people seven generations hence. Responsible resource use has become increasingly important as the human population continues to grow and consume natural resources at unprecedented rates. In the late 1950s, after hundreds of years, the world's population was nearly three billion; today, in less than 50 years, the world's human population has doubled to nearly seven billion. The demands of this ever-growing population increasingly have harmed the Earth's natural resources, its water, soil, and air and the natural communities they support (Ehrlich, 2008). Recently, more than 1000 of the world's eminent ecologists reported that "... over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history ... resulting in a substantial and largely irreversible loss in the diversity of life on Earth. ..." (Millennium Ecosystem



St. Andrew's environmental stewards, Mary Craig and Laura McCreedy, join others in planting native trees that will create a forest to improve the wildlife habitat and air and water quality of our local watershed.

Assessment Synthesis Report, 2005). Extinction rates are 100 to 1,000 times natural background rates (Wilson, 2006). One of every four species of the world's mammals (our closest relatives) is threatened with extinction, and 50% of them are declining (Schipper et al., 2008). Nearly 50% of our pharmaceuticals come from naturally-occurring plants and animals (Wilson, 2006), and ecosystem services (the renewal of our soil and water and air) are valued in the trillions of dollars (Costanza et al., 1997). Data from 2,500 of the world's leading climatologists reveal that human activities have altered the composition of the atmosphere, causing climate changes unmatched in the climate record of over a half million years (IPCC, 2007). The data show that, as the world warms, glaciers and other ice masses melt, causing sea level rise which then threatens much of the world's population. A warmer world includes jeopardized fresh water supplies, more heat waves, more intense hurricanes, and other extreme weather events. The effects on human and natural communities already are being felt.

Collectively, these data demonstrate that the human community is out of balance and out of touch with the natural one, that

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we fail to appreciate it and all that it provides. We recognize hundreds of corporate logos, but we struggle to identify our most common neighbors: a white oak, a bluebird, a spring beauty. Increasing emphasis on the artificial and less on the outdoors contributes to the rise in obesity, attention deficit, and depression among our children (Louv, 2005). As noted teacher and visionary, David Orr (2006), wrote recently: "In our time many things that ought to be and must be sustained are in jeopardy, the most important of which are those qualities ... [that we so value ... including curiosity], clarity, courage, generosity, kindness, wisdom, and humor."

As biology teachers, we must encourage outdoor study and experiences to reveal understanding and connection especially within ourselves, and we must set the example in not only how and what we teach (please see our Position Statement on Sustainability), but how we live. As humans, we must learn that we are a part of nature, that to take care of it is to care for ourselves; moreover, as individuals and collectively, we can make a difference. Considerations include reducing consumption and waste (e.g., using e-mail and fewer mailings and other printed materials), recycling (e.g., at convention centers where we gather once a year), using recycled paper (e.g., in our copiers, for our publications), conserving energy (e.g., the train is 20 times more energy-efficient than other conventional means of mass transit), facilitating workshops, and sharing inspirational stories by notables in the field like David Orr, Jane Goodall, Al Bartlett, Mike Tidwell, Sue Hubbell, Al Gore, Paul and Anne Ehrlich, Thomas Friedman, William McDonough, and E.O. Wilson.

As we move faster, grow and consume more, and risk further jeopardy to our natural capital, we are called upon to respond quickly, generously, and substantively. For the sake of our children and theirs, we must begin in earnest to live more appreciatively, more sustainably, more harmoniously with our natural world. ●

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