

Report on the Prevalence of Environmental and Earth Science Education Activities in Oklahoma

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Aldo Leopold's *The Sand County Almanac*, published in 1949, was a call to conservation and land ethics. He experienced land as a community of living things to be loved and respected. Through the writings of Leopold, one can also experience the need for land ethics. He uses an outdoor experience to create an awareness of the connection between society and the land. For example, Leopold describes the act of cutting down a dead oak tree for firewood that connects the environment to man's history and to a social culture.

Rachel Carson's *Silent Spring*, published in 1962, addressed the hazards exposed by pesticide usage in the environment. Two concepts are presented in *Silent Spring*. The first questioned society's faith in technological progress, and the second helped develop the platform for the environmental movement. While working for the U.S. Fish and Wildlife Service for seventeen years, Carson learned about the problems involved with pesticide usage. *Silent Spring* presented a shift in public consciousness about the environment. Eight years after *Silent Spring* was published the first Earth Day celebration was held.

Just as Leopold's writings initiated a call to action regarding conservation and development of land ethics, Rachael Carson initiated a call to action affecting the outdoors and interdependence among all aspects of the environment. *The Sand*

County Almanac was a call to action. *Silent Spring* was a call to action. Richard Louv has also initiated such regarding the welfare of children left indoors (Louv, 2005). *Last Child in the Woods*, published in 2005, is a call to plan for the future while developing a meaningful contact with the natural world. Louv presented a quote from Walt Whitman and a quote from a fourth-grader in San Diego in his book *Last Child in the Woods*. The first quote by Walt Whitman is, "There was a child went forth every day, And the first object he look'd upon, that object he became, And that object became part of him for the day or a certain part of the day, Or for many years or stretching cycles of years. The early lilacs became a part of this child..." The second quote, presented by a fourth grader from San Diego stated, "I like to play indoors better 'cause that's where all the electrical outlets are." Louv suggests that a child's disconnect from the outdoors is linked to rises in child obesity, children's depression, and various attention disorders. Leopold, Carson, and Louv, have all stressed the role of the environment as an important national resource. Where are we today?

Environmental education is the study of the relationships and interactions between dynamic natural and human systems. Environmental education includes learning in the field as well as the classroom while incorporating the teaching methods of outdoor education, experiential education,

and place-based education. It is inherently interdisciplinary, promoting school/community partnerships. Both environmental and earth science education are a hands-on, student-centered, inquiry driven approach to learning while engaging higher level thinking skills. Both disciplines provide relevance to students' everyday lives while developing awareness, increasing knowledge, building skills, and creating the capacity for stewardship. Good citizenship regarding the environment upon which we depend for life support is necessary.

Across the nation, since 1976, the beginning of Project Learning Tree (PLT), PLT has exemplified the mainstay goal to "help students learn how to think, not what to think" (American Forest Foundation Project Learning Tree, 2004, p. v). Project Learning Tree provides opportunities for PreK-12 students to investigate environmental issues and make informed decisions as a responsible citizenry (American Forest Foundation, 2006). The Tbilisi Declaration of 1978, taken from American Forest Foundation Project Learning Tree (2006) fostered three objectives. Those objectives state that environmental education is a field to foster awareness and concern about economic, social, political, and ecological interdependences between rural and urban areas; provide all persons with skills and tools to protect and improve the environment; and create new behavioral patterns by individuals or groups toward the environment. Project Learning Tree provides engaging, hands-on activities that improve environmental literacy and how to think outdoors. The call to action initiated by the writings of Leopold, Carson, and Louv are reflected in the mission statements of environmental education programs such as PLT, Project WILD, Project WET, and the Leopold Education Project. Project WILD is wildlife in learning design and Project WET is water education for teachers. The programs WILD and WET exemplify education, learning design, activities, the environment, the outdoors, and decision making. The same dimensions are

revealed in earth science education as well. The educational dispositions advocated by environmental and earth science education is portrayed in H.R. 3036, the No Child Left Inside legislation passed by the House of Representatives in September, 2008.

Project WET (Water Education for Teachers) developed a myriad of curriculum activities to accommodate diverse learning styles, bringing water issues into a sharper focus that is meaningful to young people (The Water Course and the Council for Environmental Education, 1995). Project WET, as does Project Learning Tree, Project WILD, and the Leopold Education Project, presents environmental, outdoor education modules that will stimulate young people to be involved at home, in school, and in the community. Project WET uses water properties and issues as a platform to teach an environmental, outdoor ethic. Project WILD uses wildlife as a platform to teach outdoor, environmental education. Project Learning Tree does the same, using the forests as a platform, and the Leopold education project uses the land as a platform.

The No Child Left Inside Coalition represents some 890 organizations and some 40 million people encompassing all 50 states. On September 18, 2008, the United States House of representatives passed H.R. 3036, the No Child Left Inside Act. The Coalition embraces the political agenda of a green economy, environmental protection, and improvement in the education and health of our youth. The NCLI would provide the leadership for environmental education. The Coalition and the NCLI will help schools and states enhance environmental education. The NCLI legislation will help states develop environmental education curriculum and standards and encourage the development of outdoor environmental educational activities. Environmental education will enhance student achievement, help students develop critical thinking skills about a green economy, and help students' understanding of how environmental change will impact their lives.

Oklahoma supports many environmental education workshops used to train educators and citizenry alike. Math and science, through environmental and earth science education, create interconnectivity. An example of interconnectivity is displayed in a music class in which a teacher uses birdcalls to teach school children about quarter notes and half notes (Bien, 2008). Oklahoma Project Learning Tree, using trained, volunteer facilitators, conducted 16 workshops in 2007 impacting 330 participants of which 314 were involved in the pre-service teachers' workshops (Robertson-Stallings, personal communication October 21, 2008). The Oklahoma Leopold Education Project has trained 582 participants since 1995 (Waters, personal communication November 18, 2008). Since 1996, records indicate that 94 participants have been trained in LEP at Cameron University. Project WET Oklahoma, nationally, has trained over 300,000 educators over the past 13 years. Since 1996, in Oklahoma, Project WET has trained 6,611 educators and reached 397,180 students using activities like the H2Oklahoma water festival (Beatty, personal communication November 30, 2008). Oklahoma Project WILD has trained over 22,000 educators in the state since 1984 (Anderson, personal communication December 3, 2008).

Earth science organizations, such as the National Earth Science teachers Association and the American Geological Institute, support environmental education activities

such as WET, WILD, Learning Tree, and Leopold. Using No Child Left Inside as a theme, the American Geological Institute presented a call to action to explore our natural environments (Ervin, 2008). Earth science is everywhere. Environmental education is everywhere. Open the front door, venture outdoors, and get involved. Over the last few decades Oklahoma, itself, has trained some 30,000 educators and involved thousands of young people in getting outdoors. An added value to outdoor education is that encouraging young people to be active outdoors is helping ease attention disorders (Taylor, Kuo, & Sullivan, 2001).

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