



# HANDS ON THE LAND

A National Network of Field Classrooms Connecting Students, Teachers, and Parents to Their Public Lands and Waterways

## FEATURED SITE

### Great Smoky Mountains National Park

was created in 1934 to preserve both the rich biological diversity and the extensive cultural history of the Southern Appalachian mountains. The Smokies contain the largest area of old growth forests left on the east coast and are home to several species that can be found nowhere else. Each year, over 150 researchers, 20,000 students and 9 million visitors come to the Smokies to study, explore, and enjoy this amazing National Park.

The **Appalachian Highlands Science Learning Center** is located at 5000 feet on the North Carolina side of Great Smoky Mountains National Park. The mission of the Appalachian Highlands Science Learning Center at Purchase Knob is to increase the amount and effectiveness of research in the Appalachian highlands network parks that meet management needs while increasing public access to and understanding and appreciation of these research activities.



A high school student sorts through a soil sample looking for micro-snails as part of the new soil macro-invertebrate study. This database is housed on the Hands on the Land site.

## Taking the Pulse of the Smokies

### Student Physicians at Work

In Great Smoky Mountains National Park, students not only learn about the environment when they come on field trips, they also contribute to actual research. Through the efforts of the education and research coordinators at the Appalachian Highlands Science Learning Center, located in the Great Smoky Mountains NP, the activities of researchers with permits are extended beyond the regular field season by students (middle, high school, and college) and teachers during training seminars. Many of these projects have databases housed on the Hands on the Land website. Currently, five environmental monitoring studies are featured; they include a salamander mark/recapture study, water quality monitoring, a slime mold study, ozone bio-monitoring, and a terrestrial invertebrate monitoring site.



A high school student looks for aquatic macro-invertebrates in Great Smoky Mountains National Park. The database for this study is housed on the Hands on the Land site and currently, more than 20 actively participate in entering data into this database.

Each environmental monitoring study is set up to provide background information on the topic and the research project. There are photos, glossary terms and links to other pertinent websites. Additionally, teachers who bring their classes out to the participating field site to collect data can view the data they collected back in the classroom. Dave Zelenka, the Hands on the Land website guru, has developed ways for students to interpret the data by adding graphing, map making and data animations. Currently in development are teacher guides for each database so classes that can't visit a site to collect data can still manipulate the data in order to work through the scientific method. Many of the schools that collect data in the Smokies also post data they collect near or in their schoolyard. This allows them to compare their schoolyard to their neighboring federally protected natural area.

Most of the environmental monitoring studies are generic enough that they can be reproduced at other Hands on the Land sites. If you are collecting water quality data at your site, why not post your data so we can compare the deciduous forests of the Appalachian Mountains to the desert southwest or Pacific northwest?

#### More information:

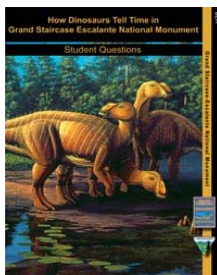
Contact Education Coordinator Susan Sachs at [susan\\_sachs@nps.gov](mailto:susan_sachs@nps.gov).

## A BLOOMIN' GREAT EFFORT



Students in upper elementary school and middle school participated in the Alaska Harmful Algal Bloom Monitoring Partnership (AHAB) during the past school year. AHAB is composed of shellfish farmers, shellfish fishermen, tribal groups, state and federal agencies, educators, and the University of Alaska. AHAB's objective is to provide data on the timing and distribution of harmful algae along with measurements of environmental conditions and to analyze indicators and potential mechanisms for toxic algal bloom formation to develop the capacity to predict harmful algal bloom events.

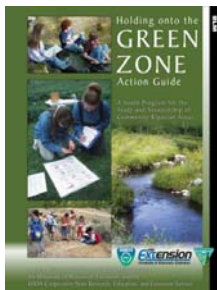
Students participated in sampling twice in May 2008 in Coffman Cove and a couple of times during the 2008-2009 school year in Thorne Bay. A new simplified sampling protocol will allow students to continue assisting with the sampling effort during the 2009-2010 school year at Thorne Bay.



## CURRICULUM HIGHLIGHTS

Check out Grand Staircase-Escalante's new on-line curriculum for high school students. **GSENM Student Explorations** is divided into five modules: Archaeology, Ecology, Geology, Human Landscape, and Paleontology.

More information: <http://www.gsenmschool.org>



With this year's National Public Lands Day focusing on our nation's water resources, the Bureau of Land Management offers the **Holding onto the GREEN ZONE** activity guide for ages 10-14. There are several "Anywhere Activities" as well as opportunities for streamside observation and data collection.

More information:

[http://www.blm.gov/wo/st/en/res/Education\\_in\\_BLM/riparian\\_module.html](http://www.blm.gov/wo/st/en/res/Education_in_BLM/riparian_module.html)

## ASK A SPECIALIST



Start your own **Ask a Specialist** forum, chat, or video conference with Hands on the Land's E-Learning system. The HOL website now uses Moodle as the engine that powers our on-line educational tools. Find out more by taking the on-line training today.

More information:

<http://www.handsontheland.org/lms>  
Enrollment key: handsontheland

## UPCOMING EVENTS

National Public Lands Day  
Saturday, September 26, 2009

National Public Lands Day is the nation's largest hands-on volunteer effort to improve and enhance the public lands Americans enjoy. In 2008, 120,000 volunteers built trails and bridges, removed trash and invasive plants, and planted over 1.6 million trees. Join us for the 16th annual National Public Lands Day.

2009 NAI National Workshop  
Hartford, CT  
November 17-21, 2009

The 2009 NAI National Workshop will provide a wealth of information and rejuvenation. Join interpreters from around the world to share your experience, interests, and ideas.

The Power of Partnerships: Creative Leadership in Environmental Education  
Portland, Oregon  
October 7 - 10, 2009

NAAEE and the host Affiliate—the Environmental Education Association of Oregon—are planning a unique event amid the state's natural beauty. This year marks NAAEE's 38th Annual Conference—and change is in the air. You'll find new organizations, young presenters with innovative perspectives, and fresh ways to share your own ideas.