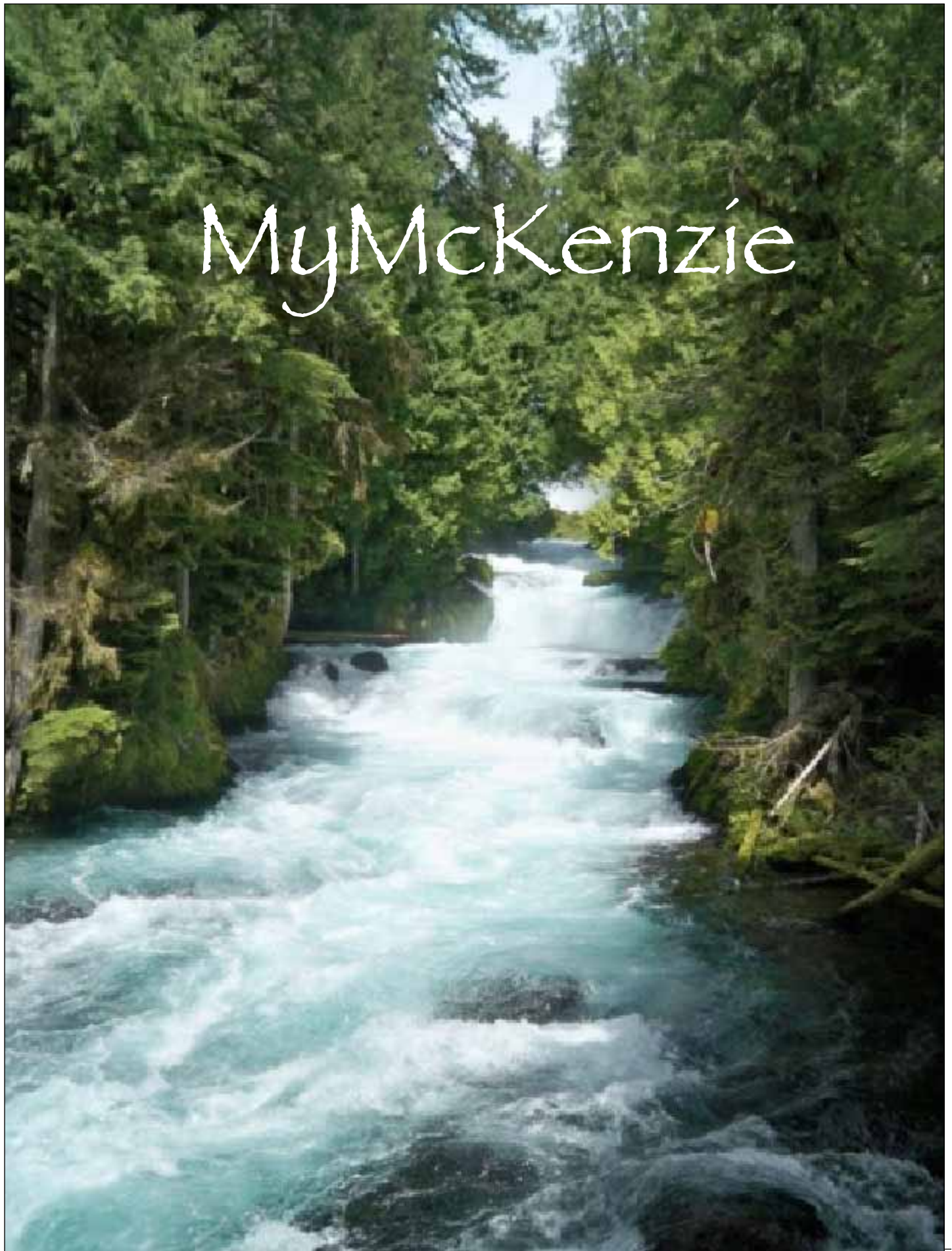


MyMcKenzie



MyMcKenzie:

An EE professional development program using place-based, service-learning.

by Kathryn Lynch

Where does your drinking water come from? It is a simple question, and given that humans can only survive a few days without water, a critical one. Yet, too many people cannot answer this most basic question. In Eugene, this lack of connection is often compounded by the transient nature of a large sector of the population (University students) who are often just passing through on their way to careers elsewhere.

To respond to this serious disconnect with nature, the Environmental Leadership Program (ELP) launched a set of new EE projects in 2012 focused on helping students develop a connection to the sole source of their drinking water: the McKenzie River. This stunning 90-mile long river provides many gifts: clean drinking water, fish and wildlife habitat, recreation, hydropower and inspiration. The watershed offers fascinating and complex geology and geomorphology, multi-faceted and con-

The Environmental Leadership Program is a service-learning program housed in Environmental Studies at the University of Oregon. Through the ELP's Environmental Education initiative, UO students work with community partners to implement interdisciplinary, experiential, place-based environmental education. UO students gain professional training while local youth gain knowledge, skills, and inspiration to protect local ecosystems.

roversial land use issues, and a strong sense of community and history tied to place. Many organizations are doing work in the watershed which provides opportunities for students to directly engage in conservation issues. In sum, the watershed provides a great laboratory for interdisciplinary, place-based education and service learning.

The two main goals of the EE effort were to: 1) create a year-long program for UO students interested in EE careers (that would provide them with the knowledge, skills and confidence to develop and implement place-based, experiential programs), and 2) develop age-appropriate, engaging MyMcKenzie curricula for local youth, grades 1-8, that promotes the stewardship of the McKenzie River.

To prepare the undergraduates for their service projects, we offered a new fall course called Understanding Place: the McKenzie Watershed. The goal was to provide the necessary foundation for them to become effective place-based educators. During the 10-week course, we examined the geological, ecological, historical, social, and political influences that shape the

McKenzie watershed. Six field trips took us from the headwaters to the confluence, where we explored lava flows, springs, hiking trails, dams, hatcheries, restoration projects, historical sites and more. Guest speakers provided diverse perspectives on Klamath culture, salmon restoration, water quality and management, sustainable agriculture, among other topics. We wanted students to hear directly from the farmers, anglers, residents, scientists, policy makers and regulatory agencies that shape the watershed's past, present and future. Through diverse hands-on, student-led activities, the class gained a spatial and temporal understanding of the McKenzie, and contemplated the meaning of "place," what contributes to a sense of place, and how it influences people's worldviews and choices.

Then, in the winter course, *Environmental Education in Theory & Practice*, UO students learned how to transform their new knowledge of the McKenzie River into engaging place-based educational programs. Participants gained a working knowledge of best practices in EE through readings, guest lectures, field trips, and most importantly, their service-learning project in which they developed educational materials for their community partners. The "Critters and Currents" team worked in partnership with Adams Elementary School to develop two class-

room lessons and one field trip for each grade level. The "Canopy Connections" team developed and facilitated field trips for middle-schoolers that included a canopy climb, building watershed models, and mapping exercises, among other activities. All the activities used the McKenzie River as the integrating context, and placed particular emphasis on systems thinking,



and how the health of the river directly affects us, as the river provides our drinking water.

While the specifics of their curricula were left up to the teams to determine, all teams were required to: 1) incorporate an interdisciplinary approach, 2) include multi-cultural perspectives, 3) use experiential, inquiry-based methods, 4) promote civic engagement, and 5) articulate assessment strategies. Their materials were pilot tested at the end of winter term and then the teams worked with their community partners to implement their EE programs throughout spring term. Each UO student completed approximately 120 hours of service, which entailed facilitating field trips, classroom visits and developing supplemental educational materials (e.g. websites, presentations). What follows next are descriptions of the projects, written by the team members themselves.

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Case Study 1: Critters and Currents

By Leilani Aldana, Leah Greenspan, Courtney Jarvis, Claire Mallen, Anna Morgan, Trevor Norman, Makenzie Shepherd, Tony Spiroski, Britney VanCitters, Cheyenne Whisenhunt, Alicia Kirsten (graduate project manager).

Hiking along the McKenzie River trail is unlike anything else in its breathtaking beauty and awe. The trees tower above, the firs paint the horizon green, and the moss blankets the forest floor. Squirrels dart back and forth, winged insects buzz through the misty air, and regal ospreys circle above the river, spying on possible prey below. All these organisms work together in the carefully orchestrated equilibrium that is a Pacific Northwest forest. And although the forest can be serene, delicate, and quiet, it also tells a bold and enduring story to those who are willing to listen and fortunate enough to hear.

The forest's tale is told by the many plants, fungi, animals, and humans that call it home. At one point, the entire McKenzie watershed told this story; the indigenous Kalapuya and Molalla people lived closely with their varied and unique plant and animal neighbors, constructing a narrative out of the reciprocity that encouraged a long-lasting relationship. Eventually the plot of this story was thrust into another direction, as the influx of newcomers would alter the face of this territory though extensive land management techniques and exploitation of natural resources. Today, the story of the McKenzie River Watershed illustrates the growing disconnection between forests and our society brought by global urbanization. But the story is not yet over, and we have the unique opportunity to transform it.

The prominence of technology and urbanization in the 21st century has established an obvious distinction between the urban and natural worlds. Younger generations, increasingly disengaged and separated from their local natural environments, exhibit symptoms of what is colloquially called "nature-deficit disorder" (Louv 2008). Marked by rising levels of ADD/ADHD, obesity, depression, and muted creativity, nature-deficit disorder will accelerate if not

immediately and holistically addressed.

Nature has the ability to inspire us, teach us, and transform our lives. By giving children the chance to explore the natural world, we allow them to experience the story nature has to offer. Utilizing place-based lessons and hands-on activities, environmental education helps students gain an ecological awareness and an understanding of natural processes. Infusing curricula with environmental themes and concepts has proven to foster stewardship and improve support for conservation (Jacobson 2006). Communities need to work collaboratively to ensure that children are provided with the awareness, knowledge, attitudes, and skills necessary to tackle future environmental problems. As environmental educators, we have enthusiastically decided to face this task; we are working to encourage deep and meaningful connections between students and nature, with the goal of nurturing responsible and active citizens.

The 2014 Critters and Currents team worked to help students connect to and build kinship with the McKenzie watershed. Our team of ten undergraduate students and project manager collaborated for six months with Adams Elementary School, to bring children to visit the Delta Old-Growth Forest, H.J. Andrews Experimental Forest, and Green Island managed by the McKenzie River Trust. We created curricula that promotes environmental awareness, inspires respect and compassion for the natural world, and encourages positive environmental action now and in the future.

Building connections and gaining understanding is crucial to implementing environmental education. David Sobel, who focuses on place-based education, states, "if we want children to flourish, to feel truly empowered, let us allow them to love the earth before we ask them to save it" (Sobel 1996). By allowing children to experience and explore the McKenzie River, students will become empathetic and compassionate toward their local ecosystems.

Throughout the spring, students at Adams Elementary School in Eugene, Oregon were able to participate directly in the narrative of the McKenzie River Watershed.

By constructing and decorating fabric bird's wings that they can wear, our students were able to *become* the birds that live in the McKenzie River Watershed; by developing proper habitats for real life decomposers such as pill bugs, sow bugs, and earthworms, our students were directly responsible for the lives of those who prolong McKenzie River ecosystems; by intimately learning about a particular McKenzie River critter through

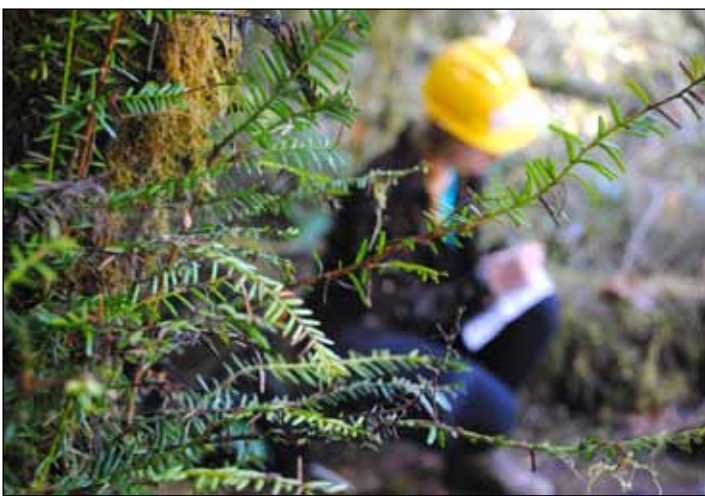


"You can only hear the river and the fresh breeze. Not a lot of people like to just relax and chill out in nature. Most people want to be lazy and play on their phones or tablets or something. For the newest generation, all people should find a connection to nature. When I did it was the best thing that ever happened to me. I would think that when people find a connection to nature... they'll be more observant people and more athletic, calmer, peaceful people. Stay strong and NATURE ON!" —6th grade student

storytelling and haiku writing, our students became empowered to protect and defend that critter and their home. Providing our students with activities that nourish empathy for the McKenzie River Watershed and its inhabitants inspires a sense of love and awe that lasts, like the narrative itself, a lifetime.

As adults, we often overlook the joys of simply being in the natural world. A childlike sense of wonder allows us to tap into long-forgotten natural connections that help foster a symbiotic relationship with nature once again, one that not only takes our breath away but also fills us with life. We stand in awe of the towering pines and vibrant mosses that carpets the old-growth forest floor; we are struck with silence as the wings of the great osprey beat the air above us and the tiny patterns of a water skimmer are drawn across a serene pond. These subtle, yet profound, experiences allow us to narrate our own story about the environment that surrounds us and how we as a community will care for it.

Let us persist with our place-based environmental education movement, where classrooms shift from hard desks and chalkboards to engaging the senses and producing first-hand experiences; where students can form intimate relationships with the story told by an old-growth forest or the wetlands of a floodplain forest, rather than reading about it in a textbook. Let us begin the shift to the great outdoors, where we can learn from the greatest storyteller of all: nature itself.



Case Study 2: Canopy Connections

By Justin Arios, Brandon Aye, Jen Beard, Cassie Hahn, Megan Hanson, Tanner Laiche, Hannah Mitchel, Christine Potter, Meghan Quinn, Christy Stumbo, Jenny Crayne (graduate project manager).

The 90-foot tall Douglas-fir swayed gently in the wind. Multiple ropes hung from the top, waiting to be climbed. The students buzzed with excitement and nervousness as Rob and Jason from the Pacific Tree Climbing Institute prepared them to climb. On their own effort, most students ascended to the top of the tree, swaying with the tree and seeing the forest with a bird's eye view.

Canopy Connections 2014 was developed and facilitated by 10 undergraduate students and included a 50-minute pre-trip

classroom lesson and an all-day field trip to HJ Andrews Experimental Forest. Through our field trip, we sought to immerse students in nature, foster a connection to place, and teach students about the processes and biology of an old growth forest. Connecting to nature at an early age combats Richard Louv's theory of "nature-deficit disorder" and instills a culture of respect and awe for the natural world and hopefully, the long-term protection of natural places.

We built our field trip around the theme of "Students as Scientists," integrating both science and the humanities. In addition to ascending into the canopy of a Douglas-fir, participating students collected scientific data, sketched native plant species, creatively expressed their observations through journaling, and built a debris shelter. Each lesson incorporated activities of various disciplines and catered to different learning styles. This rationale is supported by Howard Gardner's multiple intelligences theory which argues that students learn and process information many different ways. We used this reasoning to construct activities that engaged students' learning habits via kinesthetic, linguistic, visual, inter- and intrapersonal, naturalist, and logical learning methods.

Our first interaction with the students was during the pre-trip lesson. We built upon their knowledge of geography to construct a map of Oregon highlighting cities, mountain ranges, and rivers connected with the McKenzie River. At Fern Ridge Middle School, the students were eager to add other features to the map as well, including the Long Tom, the small river flowing behind their school. Once complete, half the class was given a term relevant to the field trip such as "geomorphic" and "species richness" while the other half was given definitions. The students mingled about the class, helping each other to match the terms with the definitions.

On the morning of their field trip, the students arrived at HJ Andrews, armed with the knowledge gained from the pre-trip lesson. As they filed off the bus, we were there to greet and guide them to the staging area. After an introduction to HJ Andrews, the community partners, and the field trip agenda, each group journeyed into the forest to their first of 4 stations.

Nestled at the end of the Discovery Trail was the River Reflections station. Here students learned about the complex interactions and disturbances that occur in a riparian zone through scientific observation and personal reflection. This station reflected the essence of the ongoing work at HJ Andrews by focusing on the Long Term Ecological Research and Long Term Ecological Reflections programs, highlighting the value of using both scientific and artistic lenses to understand the natural world. As scientists, the students compared the temperature, humidity, canopy cover, and species composition between 2 plots, one

adjacent to the river and another 10-15 meters from the river. From our position on the creek bed, students saw a gravel bar in the middle of the river that provided a perfect example of the species found in newly disturbed areas. The students then

"When I reached the top, I felt like I was a part of something bigger!"
—Laura

"I was able to close my eyes and feel the air around me. There was a soft breeze against my face, and in that moment I was able to completely appreciate this world and its beauty." —Lydia

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journalled quietly by the river. To our surprise, students were so engaged in the journaling activity, they did not want to leave the station! Every student filled his or her own page in journals dedicated to collecting Canopy Connection's Ecological Reflections.

At another station, students discovered the diversity found in old-growth forests, both in terms of composition and structure.



They did this by identifying plants as tall as western red-cedar and as small as stairstep moss. Each student sketched and learned about a different plant and reported

back to their group. After getting a close up view of forest biodiversity, the students embarked on a riddle quest to discover what makes an old-growth forest different from other forests. Every hidden riddle, led them to a location on the trail identifying snags, woody debris, old trees, and canopy layers, which are the 4 main features of an old-growth forest. The students gathered in a circle to discuss how to mitigate threats to biodiversity through conservation measures.

At the "Stewardship in Action" station, the students reflected on the importance of taking care of nature by learning about and applying the Leave No Trace principles. Each student described their favorite place in the outdoors and how they felt there. This led into a discussion about the Leave No Trace principles. Students creatively expressed the principles through a short rap, poem or skit.

The highlight of this station was applying the Leave No Trace principles by constructing and deconstructing a survival shelter using only debris found in the forest. The

students were excited to get their hands on the branches and debris to build a shelter and crawl in for a picture!

The most profound station was "To Affinity with Nature and Beyond" -the tree climb. Each student had the opportunity to climb into the canopy of a 90-foot tall Douglas-fir tree using a system of ropes. Ascending the tree was a unique experience because students had to overcome any fears they might have had to get to the top of the tree. While climbing, students observed the change in temperature in the 3 canopy layers and were surprised to discover that (on sunny days) it was 10 degrees F warmer at the top. While this station incorporates scientific observation, what most students will remember for the rest of their lives is the sheer wonder of viewing the old-growth forest from the canopy.

Between each station, the students found a compass bearing written on a slip of paper and hanging on a tree. This bearing

led them to a riddle hidden 20-30 feet down the trail. The riddle related to the previous station the students left not long before. This activity was a fun way to keep students engaged during the transition time between stations while helping them reflect on what they learned at each station. The students learned how to read and use a compass, a valuable skill, while we were able to quickly assess if we met our learning objectives.

All in all, the Canopy Connections team spent over 1,800 hours to create and facilitate field trips for 6 middle schools and 230 students. While each field trip held the same content, every student left with his or her own distinct experience. One student from Roosevelt Middle School said, "I learned a lot about old growth forests that I did not know before, and I think I am more likely to participate in activities taking place there."

Throughout this program, our team and our students gained a great deal of knowledge, while fostering a connection to place and respect of old-growth forests. We have inspired our students to be curious about and want to learn more about old-growth forests and the natural world. Ultimately, we hope these students will be more environmentally aware and will continue to care about the forest and natural environments as much as we do. As much as we hope to have touched their lives, working with these students and the overall experience has motivated us to continue pursuing careers in environmental education and work to nurture a healthier environment in the future.

Acknowledgements

We would like to thank the Luvaas Family Foundation of the Oregon Community Foundation and Steve Ellis for their generous contributions that made these projects possible. Special thanks also to our community partners: the children, teachers and staff at Adams Elementary School, the McKenzie River Trust, Kathy Keable and Mark Schulze from HJ Andrews Experimental Forest, who hosted the field trip, and Rob Miron and Jason Seppa from the Pacific Tree Climbing Institute (PTCI), who facilitated the tree climb.

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Kathryn Lynch is Co-Director of the Environmental Leadership Program. Katie is an environmental anthropologist who has a strong commitment to participatory, collaborative and interdisciplinary approaches in both her research and teaching. Before joining UO she was a researcher at the Institute for Culture and Ecology, where her research focused on the relationships between forest policy and management, conservation of biodiversity, and nontimber forest products. She has also facilitated various courses and workshops that examine the nexus between environmental and cultural issues.