

# Observational Ecology

## *Renewing the Study of Nature*

“The skill of observation—and it is a skill, to be honed, practiced and perfected—must be taught and encouraged. It is something that every science student must possess.”

—Paleo biologist Geerat Vermeij

The above statement can be said of every naturalist or interpreter who routinely works to illuminate natural history and ecological concepts. After all, observation is the first step in the scientific method, preceding wonder, curiosity, and care. By observation,



WREN SMITH

I mean any sensory stimuli—be it optical, auditory, olfactory, tactile, or edible engagement that helps us understand natural history in the context of the ecological and cultural processes that shape our inner and outer landscapes.

The sycamore growing near Holly Pond at Bernheim Arboretum in Clermont, Kentucky, is huge. On this day, it’s large enough for two local sixth-grade classes, their teachers, and several chaperones to gather around and admire from multiple perspectives. I invite the assembled to describe what they see. They note the peeling bark, and

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one student suggests it looks like the tree is wearing camouflage. Another mentions the large, flat, pointed leaves, several comment on the seed pods hanging like ornaments. After a few moments of sharing observations, I ask, “Does anyone know what kind of tree this is?”

I point to a girl with a raised hand. “Birch tree,” she exclaims with guarded excitement. I tell her that’s a good guess since some types of birch trees also have white bark. Others begin to chime in; their guesses include redwood, maple, and beech. During my short and gentle prodding, I learn that neither teachers nor any of the half dozen parents recognize

what kind of tree we are gathered under. This is particularly disturbing since the students are from a rural neighboring county where sycamore trees are not only common, but also ecologically significant.

During my 40 years as a nature interpreter, I have witnessed this prevailing and well-documented trend: the decline not only in local natural history knowledge, but the deep connections and fond familiarity that usually accompanies such knowledge. Most people who have profound feelings of affection for particular places will happily share stories of their sensory-rich wonderings and discoveries (often from childhood) that continue to fuel their curiosity, transforming fields, woods, wetlands, historical ruins, and even neighborhood thickets into places of the heart, places that even if vanished, remain an active force in their lives. This force is often applied to protecting those loved places. If it is true that what we see (or more broadly, what we observe) affects our perceptions, how do we as interpreters become agents for observational approaches that lead to resource protection? In the previous issue of *Legacy*, I offered five types of questions that focus attention (“Interpreting Nature on One Hand,” January/February 2016). But how does observation lead to caring? And how can we hone observational skills in the service of ecological literacy?



CLAUDE STEPHENS

### **Cultivate Language Rooted in the Land: Engage the Senses**

Most humans rely heavily on sight, so providing opportunities that hone, frame, and focus our visual perceptions can be helpful. But we are more than our eyes. Look for ways to make experiences rich in sensory discoveries beyond the visible.

Provide visitors with opportunities to smell, touch, taste, and listen. Encourage synthesized sensory fun through imaginative and free play opportunities. Most interpreters have a world view shaped in part by the vocabulary or the language of the places we love. This place-enriched language forms a positive feedback loop that helps us experience details and underlying processes that we might otherwise miss. The more our senses are engaged, the more likely our language to be rooted to the land, filled with word names—sassafras,

pawpaw, ebony spleenwort, luna moth, lightening bug—and sensory-rich details. Take a moment to recall one of the places of your heart and you will likely encounter the smell (essence) of that place; or relive the cool waters of a lake you swam in as a child, or the sizzling heat and haunting quiet of the desert; the sparkle of stars, and the crunch of snow, or the tang of wild blackberries from a relative's farm. Such direct experiences not only stay with us, they cultivate a language that frames how and what we observe.

So what happens when the language of the land is limited, forgotten, or never taught? In 2007 the *Oxford Junior Dictionary* removed dozens of nature related words, including acorn, blackberry, clover, crocus, and catkin, to make room for new terms that reflect the technological landscape—words such as broadband, chatroom, and

Opportunities for creative play can develop coordination and spark imagination.

voicemail. Robert Macfarland writing for *Orion* magazine described the situation this way: “A basic literacy of landscape is falling away up and down the ages. And what is lost along with this literacy is something precious: a kind of word magic, the power that certain terms possess to enchant our relations with nature and place.”

When our observable world is reduced to a flat screen, how does that affect our ability to commune with places where we live, work, or seek relaxation? How can these places speak a language that our hearts understand, and our actions reflect? We must, as Macfarland suggests, reclaim the language of

enchantment—a language that is specific and revelatory of places and the ecological and cultural processes shaping those places. We help cultivate this language when we provide opportunities for the places to speak. Sometimes this means getting out of the way of direct experience and allowing visitors time to explore on their own, to enjoy the kind of silence that allows places to sing. At other times it means providing interpretive enhancements—guided activities, stories, word names, journals, sketch pads, and sensory explorations.

### Develop and Share Searching Images

When I was a child visiting Bernheim, my father taught me to recognize our native persimmon trees. He helped me see how their bark resembles an alligator's hide. This pattern became ingrained as a searching image, so that to this day, if there's a persimmon tree nearby, it's not likely to escape my notice. Over the years I have developed hundreds of searching images that enliven the landscapes

Under guidance from Bernheim's Kathy Hart, CIG, campers make and sample a "Five Scents Salad" from Bernheim's Edible Garden.



I encounter. What searching images have you developed? What processes, or people helped you develop them? Searching images are not just mental templates; they become the alphabet in a language rooted in the landscape.

### Renew Nature Study as a Movement

I agree with many other naturalists, writers, and ecologists that we need to renew and expand upon the nature study movement that arose from a collective desire to combat the detrimental effects of an increasingly industrialized American society in the late 19th and early 20th centuries. Proponents such as Anna Botsford Comstock, who wrote *Handbook of Nature Study*, an important text aimed at teachers of natural history, believed that observable knowledge of local plants, animals, and landscape provided enrichment and also revealed underlying scientific truth. Comstock and other nature-study advocates weren't just interested in teaching the names of things; they wanted to cultivate an engagement with the outdoors that would benefit individuals, society, and the natural environment.

Aldo Leopold and Rachael Carson, two pillars of conservation

and environmentalism, were both influenced by the nature study moment. In 1938 Leopold delivered a talk titled "Natural History: The Forgotten Science." Central to his talk was his dismay for the new approach to science that was increasingly reductive—taking things apart without explanation of the processes or systems connecting them.

Today, ecological crises such as global warming, mass extinctions, and the contaminations of our air, water, and soil are on the rise. At the same time, our connection with the natural world has declined. Many articles and books such as Richard Louv's *Last Child in the Woods* attest to this lack of connection with nature, and create the milieu for the formation of an enriched nature-study movement: one that focuses on local natural history and ecological processes in the context of new technologies in a changing world; one that goes beyond science or even environmental education, both of which are often deductive approaches. While there are numerous excellent environmental education programs that help students understand abstract ecological concepts while providing first-hand explorations of schoolyard natural history, many others focus so much on ecological disasters that they miss the opportunities for students to encounter the *genius loci* that both guided and unstructured time outdoors provides. David Sobel in his 1996 book, *Beyond Ecophobia: Reclaiming the Heart in Nature Education*, cautioned against laying the burden of environmental degradation on children younger than fourth grade. Sobel suggests that such a "cart before the horse" approach may produce anxiety instead of joyful bonds of affection that foster lifelong stewardship.

### Alternating Our Focus

In a past *Legacy* issue, I shared a tidbit gleaned from a book by poet Leonard Nathan, *Diary of a Left-Handed Birdwatcher*. Nathan mentioned an idea known in quantum physics as the principle of indeterminacy. In



lack of local knowledge, nor are these parents or teachers. Like the rest of us, their observational lenses have been focused by cultural norms that allow much of what makes a landscape meaningful to melt into a vague and undefined background.

But there is hope. On this beautiful day, they are outside; their teachers and parents brought them here. They seem smart and eager. Maybe, just maybe, they will remember this tree, and recognize other sycamore while riding home, and in their neighborhood. Maybe they will recall the metallic green tiger beetle they saw hunting for prey near the sycamore's massive trunk. Perhaps they will remember more than the name. Maybe they will remember how the points of the leaves shed water, and investigate again how the roots of sycamore often form a deep bowl of water supporting a community of minnows, crawdads, whirllygig beetles, and more. Perhaps they will feel peaceful and rooted. Maybe they will sit quietly long enough that when a breeze blows they will feel their own leaves fluttering.

### For More Information

Comstock, B. Anna. 1911. *Handbook of Nature Study*. Ithaca, N.Y., Comstock Publishing.

Saragin, Rafe, and Pauchard, Anibal. 2012. *Observation and Ecology*. Washington D.C.: Island Press.

Smith, Wren. 2010. *Legacy* (September/October). *Plants Provide Multi-Sensory Magic*. NAI.

Sobel, David. 1996. *Beyond Ecophobia: Reclaiming the Heart of Nature Education*. Great Burlington, MA: Orion Society.

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laymen's terms, this is the notion that the more we focus on the details, the more we miss the big picture, and the more we focus on the big picture, the more we miss the details. In other words, shifting our focus from the small details to the big picture and back again, grounds our observations in context. We need a "this *and* that," not a "this *or* that" approach to nature study.

*Observation and Ecology: Broadening the Scope of Science to Understand a Complex World* by Rafe Saragin and Anibal Pauchard beautifully articulates the necessity of direct experiences in nature as significant influences on ecological literacy. The authors also examine how advances in technology are being employed in the service of

A young Bernheim visitor studies and hugs his new friend.

our ecological knowledge, and how others are being trained through the citizen scientist movement in some old-school ways of observation. Saragin and Pauchard devote a sizable portion of their book to examining where and how science education veered off the rails in academia by focusing purely on verifiable experiments, while discounting the role of observation in ecological literacy.

Back at the sycamore, I give the students no hint of the internal dialogue that their answers have fired off in my head. After all, the students are not to blame for their