

PATHWAYS

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In this Issue...

Welcome to our abundant fall issue of PATHWAYS! Join us in exploring treasures of the Eastern Region, including an in-depth look at the rich history of ecological research and education at the Huyck Preserve and Biological Research Station in our Affiliate Spotlight. Reflect on the philosophical groundings of environmental education with Pete Salmansohn's "Building Depth into your Teaching." We'll learn about a fall favorite, the woolly bear caterpillar, draw inspiration from an archive piece, "Art in the Woods," and also discover how to age a tree stump. NYSOEAs Equity, Access and Inclusion Committee shares their recent discussion on a ground-breaking document, *The Principles of Environmental Justice*. Tom Stock looks back on his story of "Formation" and also considers the role of spirituality in outdoor education. Plus, Sally McCracken reviews two books: *All Children Smile in the Same Language: A Teachers Journey and Nature's Best Hope: A New Approach to Conservation That Starts in Your Yard*.

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A Message from the President

It's that beautiful time of year when summer has passed making way for fall to surrender its most glorious reveal. The fall season is about transition. Leaves are transforming with each passing moment, showing us their brilliance. Animals are starting to prepare for the cold months, and everything in nature is slowing down. Most of my fall time is spent outdoors, prepping our garden beds for a long winter's rest, gathering the last of the herbs, greens, and flowers. It's amazing that right before the frost there's still so much abundance above and below the ground.

Soon the ground will be covered in a blanket of white, and the land will become silent. This is a good time to reflect, rest and reconnect, a time to do less and be more present. I look forward to curling up by my wood stove with a new book, watching movies with my boys, and taking long walks. It is in nature that we are reminded of our infinite possibilities.

I am beyond grateful to all of you who keep supporting our organization. I thank all of you who have joined us for NYSOEAs Annual Conference, "Responding to Change through Connection". Outdoor education creates community by strengthening connections with the natural world, ourselves and each other. These past few years have not been easy on anyone, and for myself, I have learned to embrace change and build stronger connections to the people around me, and appreciate the gifts that nature has provided.

Thank you to our conference co-chairs, Sunny Corrao and Pammi Price, and the rest of the conference committee who did an amazing job putting together our annual conference. I hope you all left feeling inspired and I encourage all of you to reach out to the new people you have met. We are all here to learn from one another, to strengthen our relationships, and share our experiences.

"In nature, our human colors are mirrored perfectly to us, without argument or conflict, but with beauty and harmony. All we have to do is truly see them to discover ourselves and learn how to live in the same harmony." (Author unknown)

Thank you for your continued support in the growth of environmental and outdoor education.



With gratitude,

A handwritten signature in black ink that reads "Rebecca Houser".

Rebecca Houser
President, NYSOEA
president@nysoea.org

NATURE CENTERS & HOMESCHOOLERS

A NATURAL FIT

By Jaime Winans-Solis



Homeschool families enjoy a fall hike at the Huyck Preserve.



State parks, museums, beaches, nature preserves, gardens and neighborhood trails are all a part of the homeschool classroom. Homeschooling families are often looking for ways to invite more nature into their curriculum and are eager for ecology-based opportunities for their children. With summer programming winding down and most children back in school, homeschool groups, in addition to fall field trips, offer a way for nature centers to continue to engage young people in the outdoors throughout the school year.

Homeschooling is undoubtedly growing in popularity. Dismayed with computer-based virtual learning, new levels of parents found themselves withdrawing their children from their schools and embracing the opportunity to homeschool during COVID school closures, myself included. While my own children have returned to their school, many parents discovered homeschooling to offer a viable, long-term option for their children's education.

Across New York State, the number of homeschoolers is on the rise. In a *Times*

Union article assessing state-wide trends in homeschooling, Kathleen Moore (2022) writes: "By the end of the 2018-2019 school year, before the pandemic, there were 26,805 home-schoolers. At the end of the following year, when schools were in shutdown, there were 33,013 home-schoolers. Now there are 54,414 home-schoolers statewide, an increase of 65 percent since the 2019-2020 school year."

While this shift was initially spurred by the uncertainties of the pandemic, the increasing trend of homeschoolers has stuck despite the return of normal, i.e. pre-Covid, school routines. Many parents who deepened their commitment and responsibility for their children's education through homeschooling discovered an array of benefits to this approach. The flexibility of homeschooling and the ability to provide more nature-based learning is a big draw for many. Ainsley Arment, homeschooling mom, leader of an online homeschool community, and author of *The Call of the Wild + Free* (2019) explains: "The beautiful part about homeschooling is that you can create your very own forest school or nature-based environment for learning" (p. 246).



Arment continues: "Nature unlocks the imagination and inspires creativity in ways that a schoolroom never could" (p. 232). She urges homeschooling families to "visit the local nature center, not once, not just twice, but until the employees trust you enough to pull back the proverbial curtain and show you the good stuff. Cancel the cable and use the funds to purchase memberships at the local zoo, aquarium, and botanical garden instead" (p. 250).

To meet this interest, nature centers are increasing their offering of programs tailored to homeschoolers. Currently I am leading a group of homeschooling children and their families at the Huyck Preserve (much more about the Huyck Preserve in the Affiliate Spotlight). The homeschool class is offered to children from 5 to 12 years-old, and caregivers are asked to remain with their child. Our program is structured as a four-class fall session, with classes occurring bi-weekly. This includes two visits in both September and October. Starting at the beginning of the traditional school year works well, as homeschooling families seem motivated to get back into a routine around this time. Also, structuring a program to consist of multiple visits has many benefits: children can observe seasonal changes which are especially visible in the fall, they can build friendships with their peers, and deeper learning can be encouraged as children build on understandings from the previous outing. As an educator, I love to watch children develop a sense of belonging in nature and that often takes time.

Our current group is composed of 16 children and 6 parents. When working with family units, there are some practical considerations to keep in mind. I've found that a 2-hour long class works well in our setting. Caregivers often have younger siblings in tow, who tend to get restless, tired, or hungry with longer sessions. In our case, parents are also participants. This is most often a positive benefit as homeschooling parents are usually enthusiastic explorers alongside their children. During a recent pond study investigation, I was

delighted to see a mom wading out into the pond with a net to collect macro-invertebrates, totally unconcerned about her sopping wet jeans and water-filled boots. When parents are eager to get wet, muddy, and make their own discoveries, it creates a path for children to follow.

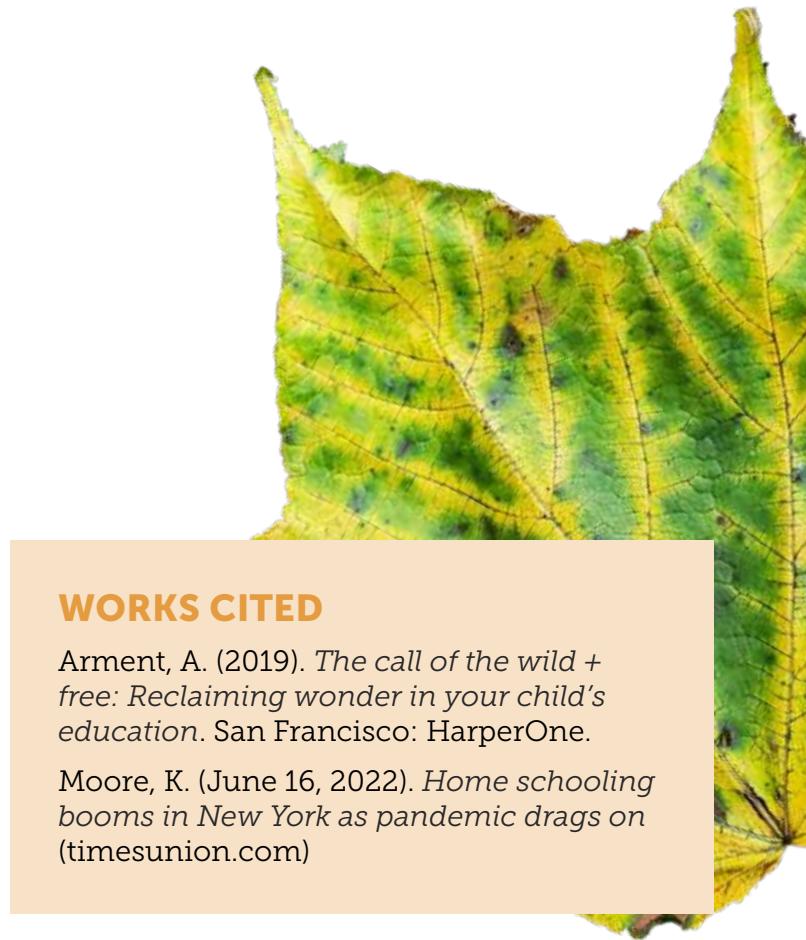
With a homeschool group there is often a wider age range than would be typical of a school field trip. Homeschooled children are usually accustomed to working with a range of ages, and there are many benefits to this type of learning. While young children are active explorers and naturally enthusiastic, the 10 and up crowd can be a little trickier to motivate. Engage them in leadership opportunities and more advanced work that can benefit the group, such as recording data or organizing field equipment. On a stream study outing, the younger learners were happily exploring, and collecting and counting crayfish. Older learners in this group were given the challenge of identifying crayfish species and recording this information on a data sheet. It is helpful to choose activities that offer a range of experiences from exploratory to more scientific, and parents can help guide their children to an appropriate fit for their abilities.

There is also a social aspect to homeschool nature groups. This is especially true for older children who crave social interaction. It can be challenging to keep them involved when they have so much to talk about with their peers. A mom jokingly remarked that homeschool meetups are an important time for tweens to get together and complain about their parents! It's best to embrace their need to socialize rather than try to stifle it. Consider the social interaction another benefit. Parents also enjoy meeting and talking with fellow homeschoolers.

Many other homeschool nature programs take a drop-off approach and do not require parents to stay. My eldest son participated in a full-day, drop-off program that ran for eight weeks during our homeschooling year. In addition to giving him a full day of nature immersion, the opportunity to develop new outdoor skills, and

meet new friends, it also provided us a welcome break from academics, and gave him a little independence away from the family. It made him a happier kid overall and we were able to get back to the math books, reading, and writing with greater ease after these breaks.

The homeschool program at the Huyck Preserve was initiated by a parent inquiring about opportunities for homeschoolers. This parent is a member of a homeschool co-op and was essential in spreading the word to make sure we had enough participants to fill the class. If you are interested in starting up a similar program, reaching out to local homeschool co-ops can be a great way to gauge interest in your area and recruit participants. Simply begin by talking to parents to see what sort of program will best meet their needs—you'll find homeschoolers to be fun, curious, and adventurous!



WORKS CITED

Arment, A. (2019). *The call of the wild + free: Reclaiming wonder in your child's education*. San Francisco: HarperOne.

Moore, K. (June 16, 2022). *Home schooling booms in New York as pandemic drags on* (timesunion.com)





Focus: Eastern Region events

Eastern Region Director, Anna Harrod, sent along this list of recently past and upcoming events hosted by NYSOEA affiliates in the Eastern Region.

Recent Events

Dutchess Land Conservancy

Millbrook, NY

History in the Woods Walk at Deer Pond Farm

DLC Ecologist Julie Hart and Deer Pond Farm volunteer and local historian John Cilio led an exploration of the history of this spectacular piece of land straddling Pawling, NY and Sherman, CT on November 12th. <https://www.dutchessland.org/get-involved/events-and-programs/land-history-walk-at-deer-pond-farm>.

The New Soil Food Web

The Dutchess Land Conservancy hosted an online discussion on the new soil food web on November 1st with soil expert Jeff Lowenfels. <https://www.dutchessland.org/get-involved/events-and-programs/earth-matters-jeff-lowenfels-the-new-soil-food-web>.



Hudson River Estuary Program

New Paltz, NY

A Day in the Life of the Hudson and Harbor

The 20th Annual Day in the Life of the Hudson and Harbor took place on October 13. During the one-day event, shorefronts along the Hudson River and the piers of New York Harbor were busy with activity as thousands of students equipped with seine nets, minnow pots, and water testing gear collected data on the Hudson's fish and invertebrates, tracked the river's tides and currents, and examined water chemistry and quality. Training workshops, online lesson plans, specialized equipment, data from previous years, and other resources are provided to educators. The Hudson River Estuary Program co-sponsors the event with the Hudson River National Estuarine Research Reserve. It is produced with assistance from the Columbia Climate School Lamont-Doherty Earth Observatory, which hosts the Day in the Life website.



**Huyck Preserve and Biological Research Station
Rensselaerville, NY**

Pre-Colonial History of the Preserve

Centuries ago, local Mohican families engaged in an annual early winter hunt in the high elevation district they called Mbeesuk (Lake-Place), the area known today as Rensselaerville and Westerlo. This event, held November 5th, focused on the relationship between local native people and the land at this season of the year. This walk was guided by ethnoecologist Justin Wexler of Wild Hudson Valley, who has studied Hudson Valley indigenous culture, language, and history for twenty years and has spent much of his life at the Huyck Preserve.

Mohonk Preserve

Gardiner, NY

Full Frost Moon Night Hike

On November 7th, the Mohonk Preserve hosted a walk in the woods under a full moon. This family friendly walk along the carriage roads at dusk encouraged participants to discover who prowls in the dark as they tested their night vision and tried on some "deer ears."



**Wilton Wildlife Preserve and Park
Gansevoort, NY**

Autumn Discovery Walk

Held on November 12th, this walk focused on discovering the signs of Autumn and observing how plants and animals adapt to the changing seasons. To view more upcoming programming go to: <https://www.wiltonpreserve.org/education/public-programs>.

Upcoming Events



Ashokan Center

Olivebridge, NY

Youth Empowerment and Sustainability Summit at the Ashokan Center

February 12, 2023 - February 14, 2023

The Youth Empowerment & Sustainability Summit (YESS!) is a global climate solution and leadership summit for young people who are ready to change their lives and their communities by working towards climate resilience. Youth Environmental & Sustainability Summit (YESS!) 2022 - The Ashokan Center



Department of Environmental Conservation

Five Rivers Environmental Education Center

Delmar, NY

Five Rivers has a number of unique as well as ongoing educational programs happening over the next few months. Join naturalists for guided walks, bird watching, or outdoor after school programming. To view of a full list of upcoming programs visit <https://www.dec.ny.gov/education/1980.html>.



Mohonk Preserve

Gardiner, NY

Hike with a Naturalist – Fall Tree ID

November 17 @ 8:30 am - 10:30 am

Every third Thursday of the month join Mohonk Preserve staff on a slow-paced hike exploring the natural wonders of the Shawangunk Ridge. Each month will focus on a different seasonal theme.

Autumn is a great time to enjoy a stroll through the woods.

With easy access to the tree leaves, we will take the time to learn how to identify a few local trees, learning what characteristics to look for in their leaves and bark. This is a free program for all ages. Registration is required and children must always be accompanied by a registered adult. This program will be 100% outdoors. <https://www.my.mohonkpreserve.org/s/login/>



HUYCK PRESERVE and Biological Research Station

Huyck Preserve and Biological Research Station

Rensselaerville, New York

Wildlife Embroidery Crafting

November 19, 2022 @ 1 PM

Learn the basics of embroidery by making an animal-themed embroidery hoop decoration to hang in your home or give as a holiday gift. \$10 supply fee for non-members; \$5 for members.

<https://www.huyckpreserve.org/event-registration.html>

AFFILIATE SPOTLIGHT

HUYCK PRESERVE

and Biological Research Station

by Margaret Maruschak

Over a hundred years ago, the cascading Rensselaerville Falls powered a felt mill owned by Henry Waterbury and Francis Conkling Huyck Sr., father of Edmund Niles Huyck. Though the mill is gone, the unique property was donated in 1931 by Jessie Van Antwerp Huyck as a preserve to honor her late husband and provide a gift to the community that would “increase the general and scientific knowledge and love of nature.”

The Huyck Preserve encompasses 2084 mostly forested acres in rural Rensselaerville, New York, twenty-four miles southwest of Albany. With historic buildings, trails, lakes, wetlands, ponds, and a Research Center with laboratory, classroom, and meeting space, the Preserve offers multiple environmental and outdoor programs, along with field research opportunities.

EDUCATION PROGRAMS

As part of their mission statement, the Huyck Preserve specializes in innovative, field-based education programs for K-12 school and homeschool students, and summer program participants. Learning how to collect data is incorporated into each class; the children practice scientific inquiry and generate meaningful data. Field trips for grades K-12 focus on the main themes of aquatic ecology, terrestrial ecology, and invasive species ecology. Students in grades 3-4 can collect crayfish to monitor the presence of the invasive rusty crayfish. Middle school students assess the health of a 90-year-old planted red pine stand. High schoolers measure water quality with biological indicator species and analytical instrumentation as part of a long-term water quality monitoring study.

Children of all ages come back to the Preserve to enjoy a summer camp experience that develops observation skills, critical thinking, and working together, all while having fun exploring nature, playing games, and creating art. The K-5 Nature Study sessions have grown fourfold in recent years and is a symbol of the success the Preserve has had in connecting its long history of biological research and conservation with teaching. Executive Director Anne Rhoads, Ph.D. views the science-based education program as one of the most critical components of the Preserve's multipronged mission. "The joy and excitement of children making discoveries in nature is so motivating – we can really see the next generation of conservationists developing."

OPPORTUNITIES AT THE ELDRIDGE RESEARCH STATION

Summer brings a bustling of activity at Huyck's Eldridge Research Station as researchers arrive from universities across the US and internationally. With its rural location and surrounding additional protected areas of state forests, the Research Station has been a sought-after pristine area for ecological field research for over 90 years. Field stations are unique in that biological phenomena can be observed over a long period of time. Several well-known ecologists have spent time studying at the Huyck Preserve, including Gene Likens, who later founded the Cary Institute of Ecosystem Studies in Millbrook, NY, and Eugene Odum, who became known as the "Father of Modern Ecology."

College undergraduates interested in biological or ecological sciences are encouraged to apply for the 8-week Huyck Odum Internship. Odum Interns work with the Summer Research Fellow, conduct original independent research, and develop leadership skills by mentoring the high school summer program.

Motivated high schoolers benefit from the intensive Wildlife Ecology Research two-week summer program. Mentored by Huyck staff and the Odum Interns, these students collaborate to produce a small group research project and present a poster summary of their work. They gain a significant, real-world research experience that can help them with career choices.



Students in the Nature Study summer program created masks decorated with natural materials and used them in games to learn about camouflage.

Huyck partners with thirteen fellow Hudson Valley research programs in the Ecological Monitoring and Management Alliance (EMMA). This collaboration was formed to pool observations on critical environmental issues including habitat fragmentation, deer population pressure, invasive species, and climate change. Individuals and groups interested in participating in climate change studies at Huyck are welcome to monitor the 0.1-mile Phenology Trail and submit observations of trees and herbaceous plants into Nature's Notebook, a national phenology database.

PUBLIC PROGRAMS

Rensselaerville Falls is a well-known destination for hikers and nature lovers. This 120-foot terraced waterfall can be viewed from three trailheads leading to the Lower, Middle, and Upper Falls. The Lower Falls trail is a 0.1-mile, nearly flat hike and is very popular with visitors looking for a short stroll or the start to a longer outing.

Who were Jessie Van Antwerp and Edmund Niles Huyck?

Jessie Van Antwerp Huyck (1868-1959) was known as a civic leader, making important contributions to educational and cultural programs in Rensselaerville, Albany, and beyond. She was a director of the New York State League of Women Voters and the Foreign Policy Association in Albany, served on the board of directors for the New York State Teacher's College, and was an active supporter of Albany Academy for Girls, her alma mater. Caring deeply for world and local issues, in 1931 she established the Edmund Niles Huyck Preserve in memory of her late husband, and in 1938 encouraged the creation of its biological field station. Jessie was also key in the creation of the Preserve's youth education programs.

E.N. Huyck (1866-1930) was one of Albany's best-known businessmen and philanthropists. He was known for running his business with high ethical and social standards. He provided his employees with one of the nation's most generous benefits package of the time. Edmund became President of F.C. Huyck & Sons, the company founded by his father which continued to be a leading manufacturer of papermakers' felts, wool jackets, and bed blankets long after E.N. Huyck's death in 1930.

Staff and volunteers enjoy leading various programs such as wildflowers, tree ID, and owl prowl walks, as well as guided paddles and winter wildlife tracking. The Preserve is open to all kinds of passive recreational opportunities including hiking on 12 miles of trails, swimming, non-motorized boating, birding, snow shoeing, and cross-country skiing.

Winterfest is an annual tradition to celebrate all things winter including sledding, snowshoeing, ice fishing, and hot cocoa. A favorite program at Winterfest is a visit from a local licensed wildlife rehabilitator, Kelly Martin. The Preserve also hosts a public annual symposium that is focused on science and land management issues such as invasive species and environmental monitoring.

As part of the Preserve's mission to connect research to education, all are welcome to enjoy the summer Thursday Night Lecture Series. Visiting research professionals present their projects, followed by a Q & A session, all in an informal setting complete with a welcoming pot-luck supper. Rhoads says, "these talks are a favorite summer tradition and make the research being done at the Preserve accessible to the public while bringing the community together."

Please visit the Huyck Preserve's website to further explore all the opportunities available to school children, the public, and researchers, along with conservation highlights and the engaging research history publication "A Field Guide to a Field Station." For more information, please contact the Preserve at:

Huyck Preserve Visitors' Center
5052 Delaware Turnpike
Rensselaerville, NY 12147
Phone: 518-797-3440
Email: info@huyckpreserve.org



Top Left: Fifth graders participating in an Aquatic Ecology field trip sampling aquatic macroinvertebrates as indicators of the health of the Huyck Preserve's Trout Creek

Middle Left: Huyck Researcher Jacob Suisse, Ph.D. shows a group one of his study sites on Lincoln Pond after a Thursday Night Lecture

Right: The crayfish catch and release activity, part of a lesson which teaches students about aquatic habitats, is always popular on field trips.

Bottom: The ice rescue demonstration at a past year's Winterfest





NATURE'S BEST HOPE

A NEW APPROACH TO CONSERVATION THAT STARTS IN YOUR YARD

by Douglas W. Tallamy

Reviewed by Sally McCracken, Past President 1980-81

Nature's Best Hope: *A New Approach to Conservation That Starts in Your Yard* was published in 2020. Its author, Douglas W. Tallamy, is an American entomologist, ecologist, conservationist, author of three books and co-author of four additional books. He is a professor at the University of Delaware in the Department of Entomology and Wildlife Ecology.

His areas of expertise are:

1. Researching how plants that evolved elsewhere impact food webs and biodiversity.
2. Advocating for home gardens to provide habitat for native species and thereby bridge the gap between parks and preserves.
3. Authoring books and papers that encourage people to help save nature's ecosystems with many how-to ideas.

Tallamy cites many significant challenges that have arisen since his first book (*Bringing Nature Home*, 2009) such as climate change and the decline of many plant and animal species. He takes the opportunity in his book to address such questions as the value of introducing plants, the feasibility of restoration projects, or just letting nature take its course. These issues receive detailed and clarifying explanations. The basic message of Tallamy's book is the call for

a more informed appreciation for native plants and to use them in our own planting spaces to help forestall the loss of species, both plants, and animals.

At the heart of *Nature's Best Hope* is the depth of Tallamy's knowledge and experiences as a professor for over 40 years at the University of Delaware. He has written over 95 research papers and is ultimately qualified to make the arguments he makes in his book about how to develop healthy ecosystems.

A core concept of the book is an idea that Tallamy calls the Homegrown National Park. He carefully quantifies all that we have lost in acres, in habitat, and in species. He states so strongly that we have the power as individuals to help restore nature and gives us tangible evidence through many success stories. He believes that home gardens can bridge the gap between parks and preserves in providing habitat for native species. He advocates for smaller lawns and using more native plants.

After reading this book, I am inspired to read his other books, *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens* (2009), and *The Nature of Oaks: The Rich Ecology of Our Most Essential Trees* (2021).

REVIEWS:

"This book is REALLY excellent. He suggests things that we all must do, in our own yards and in our neighborhoods to avoid ecological disaster."

"It is beautifully illustrated."

"Great book for explaining science in easy terms."

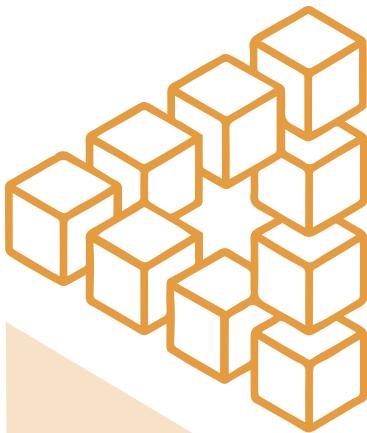
"I read his first book, but this new one reinforced beliefs about Mother Nature. This book is a MUST."

"This book deals with the concept that humans are slowly killing the Earth and it provides a realistic method that most individuals can accomplish to help provide a positive effect on all habitats."

"Tallamy lays out a fairly grim situation both with hope and encouragement to homeowners who can make a difference by making their yards a Homegrown National Park."

I always try to share opposing opinions with book reviews. A couple of opposing views of his work labeled it boring, uninspired, and nothing new. I would be remiss if I didn't mention a very thorough "rebuttal" to Tallamy's work given by Conservation Sense and Nonsense, an organization out of California, which claims it all "baseless generalizations." Should this review awaken your curiosity, I suggest you look up this organization to see their views, sparked mostly by the question, "What should we be planting anywhere – exotics, invasives or native plants and how do these all effect an ecosystem"?

A final word from Douglas Tallamy is, "Whether we like nature or not, none of us will be able to live long without it."



FORMATION:

Tom Stock

Written by Tom Stock

NYSOEA life member, tstock39@gmail.com

FORWARD MARCH

I really began my formation as a baby. As I looked out of my carriage, I saw clouds, treetops, and heard wind. Little did I know how these subconscious experiences would mold me.

I had no clue how my early years would form my interest in the environment. Eventually, I graduated to the back yard; I caught a grasshopper in a jar. From there, I experienced a step-by-step contact with nature. Our family doctor hired me to pull weeds from his lawn, where I discovered dandelion tap roots. My grandpa showed me how to plant zinnias. I enjoyed skating on his pond and fishing in it in the summer. He was my model of work. I worked alongside him. I adored him.

A college botany class sparked a latent interest in wildflowers, trees, mushrooms.

In grad school, I studied geology with many outdoor trips. Now let's fast forward to my role as a science teacher. Our campus was sterile, but we planted shrubs in a nature area. The kids began to see things in a new way, things that by themselves were worth learning about.

Never looked through a pair of binoculars until age 27. My first sighting was a bird, I had no idea what it was, so I looked it up: a rufous-sided towhee. That got me started. I joined the Audubon Society and on a bus trip, saw a great blue heron standing on a rock in Long Island Sound shrouded by fog. I was hooked. I learned about the New York State Outdoor Education Association in 1969 and joined as a life member. I became a regional representative and began meeting some of the heavy hitters like Andy Angstrom. I liked what I saw. These people were deeply involved in bringing the outdoors to the public.

At an Audubon Society meeting, I volunteered to take on the role as education chairman... Otto Heck, a professor at Rutgers who ran a summer nature study program in Cold Spring Harbor, saw my name in a newsletter. He invited me to be his intern. I was looking up to a notable naturalist from New Jersey who was doing research on snakes in the Pine Barrens and great horned owls. I assisted him in conducting nature classes until he gave me my own.

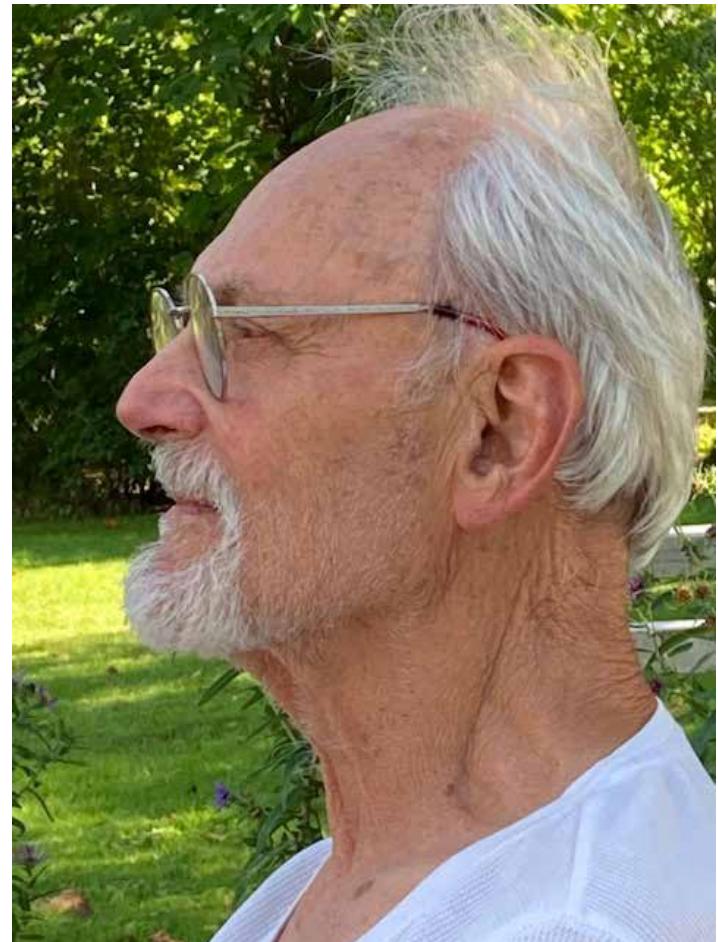


I began a serious quest to learn wildflowers, birds, seashore life. I was entering a new stage in my formation. I began leading walks for Nature Conservancy, and the Sierra Club. I began writing essays and donating nature objects to nature centers. I presented slide programs to the Long Island Botanical Society. Once the fire started, the flames of my interest took hold. I bought a lot of nature guides.

I went to a two week outdoor camp in three Allegany mountains. During a nature hike, I found a large stone with fossils. I still have those brachiopods from the Devonian period.

My two daughters, Julie and Jenny, became naturalists. Jenny, who calls herself "Ocean Girl", became an education specialist for Cordell Bank Marine Sanctuary in California. She started her forward motion with hikes, bikes, and swims with her dad. Julie took a different path. She became a high school art teacher and designed the tree-growing-out-of-a-book logo for NYSOEA.

And I wasn't finished being formed. Once I retired, I found time to take exploratory walks all over Long Island. My treasure chest of knowledge kept growing. One formed, formation hatches new formation. Although my early formation experiences still stay with me, I have built a huge chest of engagements with nature. Nature makes me happy and I try to give that happy to others. My latest formation is adopting a philosophy **SMALL IS BEAUTIFUL**. I bought a stereoscope that enlarges 60X. Indeed, small, when seen enlarged, becomes beautiful. Our role as outdoor educators is to encourage our charges to start their formation, which... can last a lifetime.



Spirituality & Outdoor Education

Written by Tom Stock
NYSOEA life member, tstock39@gmail.com

Spirituality is a deeply personal topic. In this article, the author reflects on his own spirituality and how it influences his teaching. Its printing is not intended to endorse nor promote the author's personal views; they are not necessarily shared by NYSOEA, this publication, nor any other members. On the other hand, while in most settings it would not be appropriate to teach spirituality to children, you may find it beneficial to consider how your personal connection to nature nurtures your professional ventures. ~ The Editors.

Everybody has a spiritual path. It is not a physical pathway. It may be part of a religious path. Spirituality has no physical form. One dictionary defines it as "of wind." Another dictionary says "a deeply emotional character." Just as wind cannot be seen, neither can spirituality. "Sacred" is another dictionary term. Each of us uses the word "sacred" in our own individual way. Some indigenous people have referred to all creation as "sacred, valued, and important."

Spirituality is part of our worldview. It has two manifestations...how it sounds and how we see things. It may sound like a soft "hum." The leader

taking a knee by at some point outdoors prompts children to respond to behaviors like this. This has nothing to do with facts or names. It has to do with how we fit ourselves into the bigger picture. As you look across a pond, maybe you softly say, "Ah. Look at this beautiful pond."

Spirituality has to do with our connection to ourselves, how we treat the world and others. What does spirituality look like? A peaceful reverence. You may kneel to look more closely at a clump of moss, a weed, a worm, an insect, a small flower. Children see your reverence and curiosity. How we interact with nature is a powerful message to a child.



Our spirituality guides our behavior. To look across a meadow, lake, ocean, mountain range. This is about our love. With every step outdoors, we marvel at our interdependence, relevance, and relatedness to nature, and how intelligently designed everything is. Whether we know it or not, this is a spiritual path.

MY SPIRITUAL PATH

During my morning walk around the village, I pop into the church. It is huge, dark, quiet and empty. Here is the oasis from sirens, cars whizzing by, and pedestrians. My inner compass guides me around the outside aisles. I think of my family, friends, and those who have died. My outdoor energy has lifted. I dare say that my spirituality has too, although in a religious place, the tone is different. I am free of ritual.

Later that day, I visit the ocean and perch on a sand dune. I feel relieved; I take in the vastness of the ocean, the sky, and the endless horizon. My attention is sharper with less detail. How lucky am I to have access to this place? This whole scene fills me with gratitude. This is the bigger picture.

In today's world, spirituality is more important than ever; climate change, sea-level rise, flooding, drought, wildfires, family, desertification, war. We need strong inner lives focusing on peace, love, and compassion. Strong moral character comes from spiritual passion to do well at whatever level

we can. Our spirituality is a life-long journey that changes over time. Outdoor educators are more important than ever. There is a greater need to guide the public's awareness of the importance of nature. We deliver the vital message of the importance of experiencing the countless connections that attach us to nature. We do this by our own behaviors first. The way we live is our primary lesson. People see this. You are being an outdoor educator without trying. Our lives are imbued with the spirit of right relationship. Each of us in our own inimitable way is capable of a minuscule act of saving the earth.

WITH CHILDREN

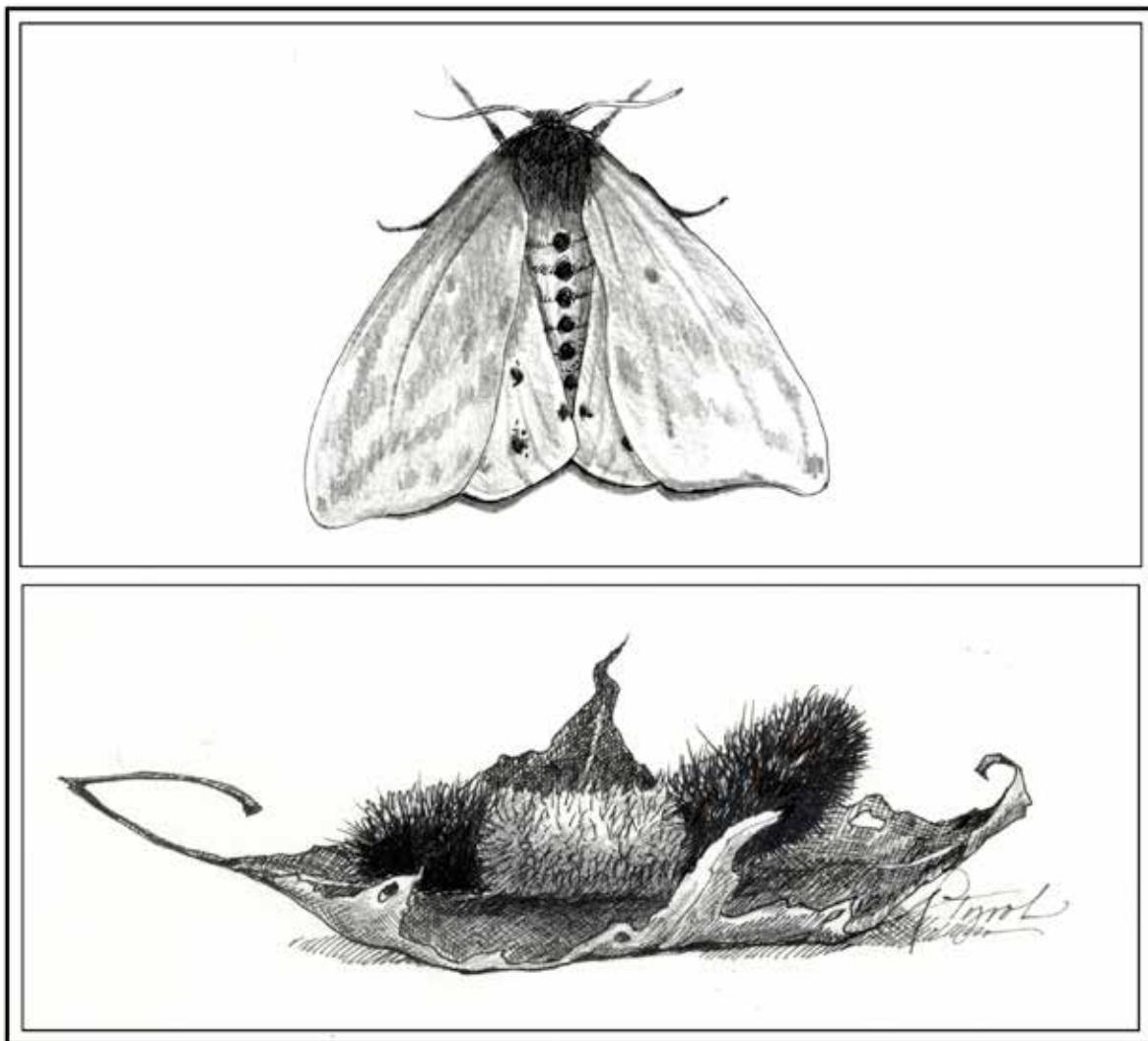
Stop, take a knee and invite the children to kneel. Ask for quiet attention. Ask for stillness. Let this last for three minutes. This small event is huge for these children. Many have probably done this. They are experiencing the big picture. The data is out there in its own natural way. Older teens may be challenged to a solo off by themselves for 45minutes. Their instructions might sound like this... find a quiet, comfortable place to sit. Settle down. Take some deep breaths. Scan your landscape. Stay put for 45minutes without electronic devices.

Empathy and compassion arise from spirituality. Although data and facts are important, some time with a minimum of data and facts outdoors allows us to...experience the bigger picture.





The Outside Story





WOOLLY BEARS

on the Move

By Meghan McCarthy McPhaul

Woolly bear caterpillars seem to be everywhere these days – creeping across the lawn, along the road when I’m walking the dog, hidden in the wilted cut-back of the perennial garden. Last week I found a woolly bear curled up in a shoe I’d left on the front porch. These fuzzy, black-and-brown-banded caterpillars seem intent these days to get somewhere. Where that is – and how they know – is a mystery.

“The purpose for their wanderings is not clear,” said Jack Layne, a biology professor and woolly bear researcher at Slippery Rock University in Pennsylvania. “It starts well before they hibernate, so it may be connected to finding food sources.”

Wait – a caterpillar that hibernates? Turns out the black bears aren’t the only ones bulking up for the coming winter and looking for a place to hunker down through the snowy season; the woolly bears are, too.

Woolly bears are the larvae of the Isabella tiger moth (*Pyrrharctia isabella*), although the caterpillars seem to get all the love. With their name and fuzzy appearance, they are, perhaps, among the most adorable of bugs. When I told my 10-year-old I was writing about woolly bears, she let out an “Awwwww!” on the level normally

reserved for such things as fluffy kittens and baby bunnies. This from a kid who despises most things creepy crawlly. I think it’s the woolly bear’s setae – the black and rusty-brown bristles that look like fur – that have won her over. She is not the only one beguiled.

“The woolly bear is so beloved by children and adults that it provides a universal childhood connection to nature,” said Dave Anderson, senior director of education for the Society for the Protection of New Hampshire Forests. “It becomes a kind of rite of childhood to find them; often to move them out of harm’s way and sort of care for them as a charismatic caterpillar. We absolutely need ‘insect ambassadors’ to help keep our childhood sense of wonder alive and healthy.”

All that cuteness, however, belies a certain toughness. These small wanderers don’t fly south as adults or overwinter as pupae like many other moth species. Instead they spend their winters as caterpillars, mostly frozen, tucked away beneath leaves or in some sheltered nook.

In late fall, woolly bears develop what Layne calls “freeze tolerance,” creating a natural antifreeze that allows the caterpillars to spend the winter at below freezing temperatures, while protecting

their cells so they can thaw out and carry on come spring's warmer temperatures. The caterpillar's setae – those fuzzy-looking bristles – trigger the freezing process on the body surface (away from internal cells) and help protect it from the potential damage of repeated thawing and refreezing as temperatures fluctuate through the winter.

As the weather warms in the spring, woolly bears thaw and return to their wandering ways, eating what plants they can find – they're not picky – before pupating in cocoons that they craft from their own setae and silk. The adult Isabella tiger moth emerges from the cocoon, generally in early summer, and – if successful at mating – lays eggs that hatch in the late summer or early fall. More southern populations of this species may produce two generations per year, Layne said, but northern populations typically produce a single generation annually.

Perhaps because of their recognizability and the timing of their wanderings, there are several weather-predicting legends attached to woolly bear caterpillars. One is that the direction the caterpillars travel foretells the severity of the winter: if they're headed south, they're running away from coming cold; north means winter will be mild. Anyone who's ever paid attention to the movement of woolly bears likely knows they travel any which way on any given day, so there's not much merit to that tall tale.

Another prognostic idea suggests the severity of winter can be predicted by the width of the caterpillar's brown band: a larger band means a milder winter; narrower means winter will be severe. Since the brown band grows wider with each molt the caterpillar completes, it's really more an indication of age – and, Layne said, sometimes genetics.

At this time of year, woolly bears are on the move, eating just about any growing thing they can find. Perhaps in their captivating wanderings, they're also looking for that perfect pile of leaf litter to curl into and wait for winter to pass.



Meghan McCarthy McPhaul is an author and freelance writer based in Franconia, New Hampshire. The illustration for this column was drawn by Adelaide Tyrol. The Outside Story is assigned and edited by Northern Woodlands magazine (northernwoodlands.org) and sponsored by the Wellborn Ecology Fund of New Hampshire Charitable Foundation (wellborn@nhcf.org). Northern Woodlands is an Affiliate Member of NYSOEA.





BUILDING DEPTH INTO YOUR TEACHING: ESSENTIAL AUTHORS, PHILOSOPHIES, AND RESOURCE MATERIALS

PART 1

Written by Pete Salmansohn

Outdoor educators are often most influenced either by observing and modeling their accomplished colleagues or by experiencing the wisdom and effectiveness of former teachers, professors, and mentors. I know that's the way it's been for me – a long but wonderful tutelage over the years. The point I'd like to make in this first article of a series is this: Let us not forget to consider all the things that we don't know, all the great work that has been done before us, and pathways we're not familiar with. Experiencing these previously hidden treasures is akin to the joy and excitement of discovering a wonderful new book or seeing a new animal for the first time, or experiencing a great hike or canoe trip which just bursts with discovery and wonder.

With this in mind, I'd like to share some key influences in my own career as an educator, and suggest that you see what usefulness and magic you can find there for yourself.



PEDAGOGY AND PHILOSOPHY



©Molly Steinwald

David Sobel, Antioch New England Graduate School professor emeritus, and author/presenter. In my mind, David Sobel is, and has been, the #1 most accomplished and influential academic voice in environmental education over the last 25+ years, since the publication of his

watershed essay, *Beyond Ecophobia: Reclaiming the Heart in Nature Education* (Orion Society, 1996). I was lucky enough to take a class with him some years ago when I attended Antioch, and I loved his humanistic, mud puddle/wild play/directly-experience-nature thinking. Among the thoughtful books he's written are: *Mapmaking with Children: Sense of Place Education for the Elementary Years* (Heinemann, 1998); *Childhood and Nature: Design Principles for Educators* (Stenhouse, 2008); and, recently, *Nature Preschools and Forest Kindergartens: The Handbook for Outdoor Learning* (Redleaf Press, 2015). His excellent, resource-filled website is www.davidsobelauthor.com.

"If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it. Perhaps this is what Thoreau had in mind when he said, 'the more slowly trees grow at first, the sounder they are at the core, and I think the same is true of human beings.'

"Between the ages of six and twelve, children have an innate desire to explore the woods, build forts, make potions from wild berries, dig to China, and each of these activities is an organic, natural way for them to develop environmental values and behaviors. Instead, the 'look but don't touch' approach, (that is all too prevalent today in some parks, nature centers, and outdoor centers) cuts kids off from nature, teaching them that nature is boring, and fraught with danger. Inadvertently, these messages send children back inside to the dynamic interactivity of computer games. Could it be that our fear of litigation and our puritanical concerns for protecting each

and every blade of grass are hampering the development of the very stewardship values and behaviors that we environmental educators all say we're trying to foster? I believe so."



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Joseph Cornell, teacher, trainer, author. I first heard about Joseph Cornell back in 1979 when I was an intern at the Sharon Audubon Center in Connecticut. His groundbreaking and refreshing first book had just come out: *Sharing Nature with Children* (Ananda Publications, 1979); it was

very popular at the time and continues to be. He shared with readers 42 activities, separated into those that are Energetic/Playful; Active/Observational; and Calm/Reflective, with a basic foundation of directly using nature to: "...stimulate joyful, enlightening insights and experiences. Each of the games creates a situation in which nature is the teacher. Each game is a mouth through which nature speaks – sometimes in the language of the scientist, sometimes in that of an artist or mystic."

Cornell comes from a spiritual background and has lived in an intentional spiritual community in northern California for decades. He often takes a meditative, soulful approach: *The Sky and Earth Touched Me* (Crystal Clarity Publishers, 2014) and he has also copyrighted the term "Flow Learning: Opening Heart to Spirit and Nature" to describe his trainings, which are typically comprised of: Awakening Enthusiasm, Focusing Attention, Offering Direct Experience, and Sharing Inspiration.

I participated in a workshop he did some years ago and I was swept along with his joyful, centered, and gentle manner. His extensive website is www.sharingnature.com.

"Going outside expands who I am. Every encounter becomes a part of me—gray, granite outcroppings, dabbed with lichen and moss; tall, spreading oaks; calls of unseen migrating swans

flying north. Contact with nature connects me with the spirit of life within and all around me. I grow and thrive, like fast growing bamboo.

"Give others the gift of joy, serenity and a sense of belonging to the whole. Take them in a forest or on the seashore and let them consciously experience the deep charm and exuberance of nature.

"Children have a marvelous capacity for absorbing themselves in whatever they're looking at. A child will gain a far better understanding of things outside him/herself by becoming one with them than he/she will from second hand talk. Children seldom forget a direct experience."

©E. George



Steve Van Matre, author, presenter, former professor. Steve is far less known these days than other prominent voices in outdoor education like David Sobel, Richard Louv, Joseph Cornell and others, but he was a trail-blazing and outspoken force during the 70s, 80s, and 90s with his notably comprehensive, sequential, and ecologically-based teaching methods. I worked at what his organization (the Earth Education Institute) called the Sunship Earth program, a 4 1/2 day residential program, in Oregon for two autumns and found the role-playing, the theatre, the props, the singing, the joyfulness, and the continual reinforcement of basic themes (energy flow, change, interdependence, resource cycling, community, etc.) to be an outstanding way to teach foundational scientific concepts, and awareness. www.ieetree.org.

"We believe in building complete programs with adventuresome, magical learning experiences that focus on specific outcomes.

"Three guidelines that inform our work: 'How do the ecological systems of the earth function? How are we personally tied into those natural systems in our lives? How can we make changes

(individually and collectively) in order to lessen our impact upon those systems?'

"Falling in love with the earth is one of life's great adventures. It is an affair of the heart like no other; a rapturous experience that remains endlessly repeatable throughout life. This is no fleeting romance; it's an uncommon affair, one unconstrained by age or custom, and strengthened rather than diminished through sharing. The more one gives it away, the stronger it grows."

These three visionary educators have kept me inspired for decades, and I hope you will delve deeper into their work. There is much treasure.

As the series continues, we'll look at a wide variety of rich influences – important books, essays, interviews, curriculum resource materials for your teaching, great poetry, and a host of inspiring voices for mother earth and our priceless planet.





Reprinted with permission from Kudish in the Kaatskills and the Catskill Forest Association's CFA News. The article originally appeared in the Spring 2014 issue of CFA News.

STUMPED BY STUMPS?

Written by Michael Kudish

How old is that stump? No, not how old was the tree when the stump was cut. No, not how old was the tree when the trunk broke from near the base and fell in a storm. Ring counts can resolve these ages. By how old is that stump, I refer to how long ago the tree was cut or fell.

On our forest history course field trips at Paul Smith's College (in the Adirondacks), I'd stop the class at a stump and ask them how old it was. Few students knew where to begin to make an estimate. Because I knew when the stump was cut, or when the tree broke and fell in a storm, bit-by-bit I'd feed them clues until they were able to figure out the age on their own. We had a more of a challenge visiting sites where there were stumps of two different ages, and the most fun at one site with stumps of three different ages!

The sequence of events following stump formation is generally the same:

- (1) Fresh cut stump, or a fresh break from a live treefall: sap runs onto the stump surface up from the roots the same year.
- (2) Mosses, liverworts, and lichens come on the top surface in several years, well after the sap stops running.
- (3) The bark begins to fall off the stump as it dries out – in a decade or so.
- (4) Most or all of the bark is generally off in about 20 years.
- (5) The top of the stump begins to lose its flat surface, becoming eroded irregularly into peaks and valleys in about 30 years.
- (6) The stump is very irregular in shape, with high and low points, often with the high spike-like points forming a broken ring about a depressed center – after 40 or so years.
- (7) The stump disintegrates when kicked after about 50 years.

The time elapsed between the stages described above is an average - a norm; the actual time elapsed among individual trees of different sites, species, and sizes is very variable.

Here are two examples of such a normal rot rate – requiring roughly half a century for a stump to disappear. These are examples from which I learned how to age – or date – stumps because I knew when the logging had occurred and could watch the decay process over the decades. What I learned from known stumps I could apply to unknown stumps.

Both the Winnisook Club lands on Slide Mountain, and the Furlow lands at the head of Dry Brook and west to Balsam Lake Mountain, were logged in the early- to mid-1960s. This was just prior to the years, 1969 and 1970, when I was a graduate student placing my sample plots throughout the Catskills. Sugar maple, red maple, black cherry, and beech were the major species. On Pakatakan Mountain, northern red oak had been cut about the same time; logging had just been completed. The stumps in all these locations are still visible, but just barely.

But not all in the forest follows the norm. Let me describe several exceptional histories:

On Hunter Mountain, the Fenwick lumber Company logged between 1906 and 1917 (see CFA News, winter 2014, pages 11 through 14). In the 1990s, I photographed some of their stumps. In 2013, some stumps still remained after a century. Microscopic examination revealed that nearly all were yellow birch which rot slowly and can greatly outlast the half-century norm for other northern hardwoods and for red spruce. These stumps are at high elevations, above 3300 feet, where the growing – and hence also the decaying – season is short.

Peekamoose Lake, during a severe drought in the late summer of 1999, had fallen to such a low level that previously submerged stumps had emerged along its shoreline. Microscopic examination again revealed yellow birch. If I could determine when the dam was built causing the waters of this Rondout Creek tributary to drown the stumps, I would know how old the stumps were. Being

under water slows the rot rate even further. When was Peekamoose Lake formed? About the time that the Peakamoose (note spelling – Peak-of-the-Moose) Fishing Club was established in 1880 or a few years after.

In the Adirondacks, about eight miles west of Paul Smith's College, near the hamlet of Brandon (now a ghost town), the spring 1903 fires followed Patrick Ducey's late 1880s-early 1890s logging for eastern white pine. The stumps were charred and covered with charcoal, slowing the decompositional process down to a crawl because fungi and other decay organisms (e.g. bacteria and invertebrates) do not know how to rot charcoal – nearly pure carbon. In the 1970s, when I began teaching at Paul Smith's, the stumps were very evident as they still were in 2004, the last time I brought a forest history class there -and after a full century following the burn.

Shortly after the college opened in 1946, eastern white pines were logged on a site about a mile to the east. These pines were already aging by the late 1940s, having been established most probably by the great blowdown of 1675. Many were already three feet in diameter at the time of cutting. I brought forest history crews in each fall to see these huge stumps. They were very much intact after 50 years, still with flat tops (and some with young trees growing out of them!) partly because they were so big. The larger the stump, the longer it takes to rot. It may be another fifty years or more before they all are gone.

In contrast, returning to the Catskills, I sampled a stand of forest preserve containing American hornbeam (also known as musclewood – *Carpinus caroliniana*) on the crest of Dry Brook Ridge in 1970 for my thesis. By the late 1980s and early 1990s, not only had they all died, but no evidence of any trunks on the ground or broken stumps remained. Despite an exceptionally hard wood, American hornbeam rots exceptionally fast.

The great variability in rot rate - created by differences in tree species, tree diameter, decomposer species, growing season, abundance of water, presence or absence of forest fire, and a whole pile of other factors -can truly stump a person or crew of people trying to date a stump!



From the Archives



ART IN THE WOODS

Written by Frances S. Bruyn

Take these classic art projects to the next level using
this art teacher's practiced perspective.

This article originally appeared in The Communicator Fall-Winter 1971. Slightly edited.

Editors' note: Ms. Bruyn was an art teacher with the Edgemont School District in Scarsdale, NY, at the time of the original printing. We left the opening paragraph to give you perspective; in some school districts, outdoor education was a vital (and funded) part of the curriculum 50 years ago!

Art in the woods? What's that? Why would a school system send its art teacher to join the sixth grade for a week in the woods? The outdoor education program of the Edgemont School District in Scarsdale has included their art teacher and music teacher in all of their outdoor camping experiences for the past six years. Since I am the art teacher in the Greenville School of the Edgemont District, I can give you a few examples of why I am sent.

Nature and forms of nature have affected all civilizations since early man. Designs based on the forms of nature have been seen in the early caves, the paintings of the Egyptians, Romans, Europeans, Africans, South Americans, and throughout the United States.

What do the woods offer our children artistically? This article is based mainly on the very simple, but artistic and inexpensive projects that can be done in the woods. First---



COLOR

Trees appear to be green, but are not to the alert observer. A flat piece of paper is green all over – turn or twist the paper and it will not only change shape but tones of color. Roll it and hold it in a light and look carefully. One side is a very light green where the light hits, the middle area is a soft green, while the edge is a dark green because of the lack of light. Light gives color to all objects. Now – look at a tree, a bush, or grasses – if they were perfectly flat, they would look like the sheet of paper. However, none of them are flat, they curl, they twist, they turn and reflect the light in many directions, therefore they are never a flat green. Look very carefully and see the sunlight on a single leaf – look more carefully and see the affect of sunlight on the entire tree. Look again -- are all the trees the same green? You must have observed that the evergreens have an entirely different tone of green than the hardwoods, and even the hardwoods will vary in shades and tones... Not everyone notices this – it takes a very special boy or girl to stop and look carefully to see this difference.

SKETCHING

Great!! We are now looking and seeing! This is a good time to bring out many simple sketching materials. Crayons, chalks, pencils, charcoal, water colors, and poster paints are the simplest to include. Ask your students to find a comfortable spot to work, give them a cardboard or stiff board to work on, several generous size pieces of paper

(12x18). And ask them to look around and find something that is really interesting to them. This could be an overall landscape, a small shed, a rotted log, a beaver dam, or even a close-up on some fresh new wild flower. Look at it closely for a moment or two and then sketch it as it "looks to you". Everyone will see the scene differently. Wouldn't life be boring if it looked the same to everyone? Encourage the student to look carefully – see the full shape of a tree and how it varies from the shape of other trees – or if it is a closeup of a plant, can they show the veins in the leaves, or the shadows in the depth of the flower? Many times, they do not want to spend a long time on a single drawing – fine! Turn the page and start another quick sketch. Quick sketches are as valuable for encouraging students to look and see sketches that are labored over for many hours. The most enjoyment comes from the actual feeling that they are expressing different scenes of nature in their chosen medium. Be careful not to be over-critical and discourage their expressions as they may see the picture entirely different from you. Modern art expression has encouraged all forms of designs and naturalism in the individual's work.

RUBBINGS

This is a really exciting form of art easily adapted to the out-of-doors and open to many interesting possibilities. Usually when I have groups do rubbings, I have many sheets of inexpensive

newsprint available for them to experiment with (size about 6" x 9"). Wax crayons or oil crayons are the simplest materials. Now what do you rub? Stop and look! We are looking for textures, sometimes the simplest objects have the most fascinating textures. Over there is a young maple tree – let's see what we can rub from the bark. First, we hold the small sheet of newsprint as firmly against the tree as we can (sometimes small pieces of scotch tape or masking tape will help us) and then using only the side of a small piece of primary crayon we gently rub up and down, then side to side being careful not to tear the paper as we do it. Of course, very rough surfaces are a little more difficult to rub but if gently done you will produce an excellent print. Next, let's rub a leaf, then a large stone, a smooth pile of sand, the walls of the cabin we are in, the screen on the window, gnarled logs, twigs, ... keep looking and the possibilities are endless. Try to see how many different textures you can find. After the students have made these rubbings, you have an excellent opportunity to discuss the structure of plants and leaves. They are now much more aware of the simple structures of plant life.



BURDOCK ANIMALS

Another suggestion for fall activities may come as you are looking for fall leaves. Perhaps you will see burdock burrs, if so, collect them and save them as they make an exciting project as well. Burdocks naturally stick to each other as well as to you. Take a few burrs at a time and arrange them in the general form of the animal you want to make. Think about the animal's shape – tall and thin, short and fat, long or short legs and try to make this general shape from the burrs. Once you are pleased with the shape then using cotton batting cover your animal with a thin coating and gently pat it into shape. You may even add tooth picks as very simple legs, and sometimes spray paint for color. Final touches are: felt for ears, tails, and noses, and any other distinguishing details. Simple but fun!

PINE CONE ANIMALS

I hope by now you are becoming more aware of all the many opportunities presented to you out-of-doors. For example, are you near evergreen trees with all their varieties of cones? Collect them – large or small. Ask your students to look at them carefully to see what they remind them of, thinking in terms of birds or animals. What if you added heads or tails? What if you glue several together? You now have a cone sculpture developing and when everyone joins in you will have animals, birds, plants, and other forms all coming alive from cones.

What if you pull a pine cone apart? Very simply pulled apart and laid in layers they can become fur, feathers, or other representations of textures on wildlife. Experiment – if you don't try, nothing will happen. Entire pictures and collages can be made of parts of pine cones.

WALL HANGINGS

Another fall project involves collecting dried flowers, plants, and twigs. These combined with small pine cones and sewn onto burlap make a very pleasant wall hanging. Each student should have a piece of burlap, linen, or any plain material approximately 15" x 20". He then is encouraged to

find interesting dried wild flowers and plants that he thinks are pleasant to look at. Encourage him to find some tall ones and some short ones so he can vary his arrangement. They should never be too large in diameter. He then arranges them in an interesting manner on his burlap. After they are arranged, he then starts sewing as carefully as possible from the back – coming through over the dried flowers and back again, tying on the back. Each flower, depending on the size, should be tied two or three times. He continues until he has sewn all dried plants onto his burlap. Pine cones are especially good at the base of his design to cover all the rough stalks. After completed, he fringes about an inch at the bottom and staples the top to a dowel stick tied with a small cord. This makes a very charming and interesting wall hanging.

SPATTER PAINTING

Year around activities include spatter painting. The equipment is cardboard, any paper, straight pins, Flit gun (ed note: hand pumped sprayer), and colored ink. We work as a team gathering interesting flat materials looking for different forms and shapes. Once a team member has found several items, she joins her partner and pins them to the paper which has cardboard behind it, so that the pins will hold the shape firmly. All shapes must be pinned many times so that they lay flat and will not flop when the ink is applied. After pinning all objects, the cardboard is placed against a wall or tree and sprayed with the Flit sprayer from about two feet away. Caution must be exercised realizing the spray will hit more than the picture and anything in the background will also get its share of ink. After the picture is dry, remove the pins and you should have an interesting print. Leaves and plants that you have used in the rubbings will also be usable for this project.

Yes, these are only a few of the many, many ways to have Art in the Woods or the Out-of-doors. These are the least complicated and the least expensive, but all are based on a simple principle – **STOP – LOOK – FEEL – AND SEE!!**



Dried arrangement using driftwood, dried grasses, stones, shells, feathers, and branches.



PRINCIPLES OF ENVIRONMENTAL JUSTICE

Written by Elisa Caref



On September 12th, 2022, several NYSOEA board members joined the Equity, Access, and Inclusion Committee to discuss the Principles of Environmental Justice as part of our dedication to the regional Safe Space Commitment we are a part of.

Many of us were unfamiliar with the history of these Principles. Luckily, several of our members were able to fill us in with the background information. The Principles were created by Delegates to the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington D.C., which was a monumental event in the history of the Environmental Justice movement. The first of its kind, this summit brought together Black, Indigenous, Latino, Asian American and Pacific Islander, and other people of color to one place to discuss environmental injustices they were facing in their communities. One important impact of this summit was the eventual passing of Executive Order 12898, passed by President Clinton in 1994, which included federal actions such as creating interagency working groups in Environmental Justice. The groups provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and BIPOC communities.

The Principles document was also groundbreaking, and our team members had a fruitful conversation about them. Overall, there was mass agreement that while we were impressed by the breadth and depth of the Principles, it was somewhat disheartening how relevant they all still are today. In some sense, not much has changed in the way of tackling environmental injustices - we still face many of the same racial and socioeconomic disparities as we did three decades ago. For instance, one of our members pointed to Principles 4 and 6, which both cover nuclear testing, waste, and toxic materials. She grew up in Nevada, not far from where the Yucca Mountain Nuclear Waste Repository was located, and was a point of discussion in her childhood. Even today, we hear new discussions about the potential of Nuclear energy, but issues of storage and waste transfer and transportation still have yet to be solved, and low income and BIPOC communities are still most likely to face the more negative repercussions of toxic waste. Another member brought up Principle 8, which "affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards." That feels especially poignant in the days of the COVID pandemic, when so many

front-line workers are low income and BIPOC individuals, often facing the most danger with the fewest protections.

Despite the few concrete changes we've seen, the Principles still felt revolutionary to us reading them today, over 30 years later. There are several Principles that focus on tackling different systems of power: #14 speaks against "the destructive operations of multi-national corporations," #13 tackles exploitative healthcare systems, and #15 opposes military occupations. In many ways, these Principles are really critiquing the capitalist system without saying so explicitly. In fact, they reminded one of our members of the book *What Every Environmentalist Needs to Know about Capitalism*. Another member pointed out Principle #10 because the language is so strong: "Environmental Justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide."

We also noted that some things have clearly evolved in the last 30 years. For instance, Principle #1, which "affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction", focuses mostly on nature and the earth. Today's environmental justice movement expands beyond the natural world to center humans as the main focus of who and what we need to protect from injustice. It's not that we don't consider nature, but the environmental movement now is much more encompassing of the interconnectedness between humans and the earth, and the historical impacts of systemic racism as they relate to people and the environment. The definition of environmental justice has in fact evolved to include the "meaningful involvement of people".

Another shift one of our members pointed out was the type of language in Principle #17 that asks individuals to "make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to ensure

the health of the natural world for present and future generations." While that is still a part of the environmental movement today, we have seen a much more significant shift away from personal responsibility to hold corporations and the biggest polluters (especially developed nations) responsible. Recent studies have come out showing that individuals can only do so much when only 100 companies are responsible for 71% of all carbon emissions since 1988. The current environmental justice movement has evolved to continue to hold systems of power more accountable for their actions.

At the end of our rich conversation, some members brought up some takeaways from the Principles and our discussion. Many of us voiced that we were interested in learning more about the history of the First National People of Color Environmental Leadership Summit, especially since it was something most of us did not learn about in undergraduate or graduate programs, even those focused on environmental conservation and education. One member talked about her desire to incorporate more information about Environmental Justice work that government agencies are undertaking today into her longer-term programming for high school students, to get them more involved in the movement. Another member expressed interest in promoting career paths including EJ offices of government agencies for young people interested in our field. The work that's being done is important, yet is something that we may tend to forget about as environmental educators on the ground.

Ultimately, we all learned a lot and are looking forward to our future discussions centered on resources through the Safe Space Commitment. More information will be in your inboxes in weeks to come!

The Principles of Environmental Justice Document can be accessed at: <https://www.ejnet.org/ej/principles.html>

For more information about the Safe Space Commitment visit: <https://www.hudsonriver.org/article/safe-spaces>





ALL CHILDREN SMILE IN THE SAME LANGUAGE: A TEACHER'S JOURNEY

By Daniel Bisaccio

Reviewed by Sally McCracken, Past President 1980-81

As promised in the 2022 summer issue of PATHWAYS, we are including a review of Daniel Bisaccio's new book, *All Children Smile in the Same Language: A Teacher's Journey*.

Dan published his newest literary work, *All Children Smile in the Same Language* in June of 2022. In this book, he begins by stating what he believes are the four essential traits needed for teaching regardless of one's discipline. Passion, flexibility, building a community, and developing intellectual engagement are the rudders that guide teachers through uncharted and rough waters that will ultimately sustain the fire to make a difference in children's lives, he says.

These four traits are the titles of each of the four chapters in the book. Each chapter contains 4 or 5 essays that relate to the themes. The format is based on personal stories gleaned from his decades of teaching at both the high school and college levels. A glossary of specialized vocabulary and a pedagogy matrix for designing a curriculum are found at the end of the book.

For most of Dan's career, he taught outdoors. Content is more relevant when it is taught in a meaningful context, he says, and teaching outside expands the conception of the "lesson plan" to an integrated instructional sequence that translates learning outcomes into problem-

solving strategies. When colleagues asked him, "What do you do outside? Do the kids just play?" his response is, "Why should school be an indoor activity?"

The intended audience for this book is preservice teachers, beginning teachers, experienced teacher-leaders who coach new teachers, and anyone who is interested in how education happens.

Dan Bisaccio has had a very well-rounded career in education including teaching science at several high schools and teaching at the college level at Northwestern University in Boston and Keene State College in Keene, NH. From 2008 until 2017 when Dan retired, he was at Brown University as the Director of Science Education, the Director of Graduate Studies – Teacher Education, and a clinical professor for the Education Department. Dan's ongoing research with the Smithsonian Institution's biodiversity and monitoring program involves field research at several tropical sites in Central and South America. His work has been recognized by the United Nations Environmental Program (Convention on Biological Diversity).

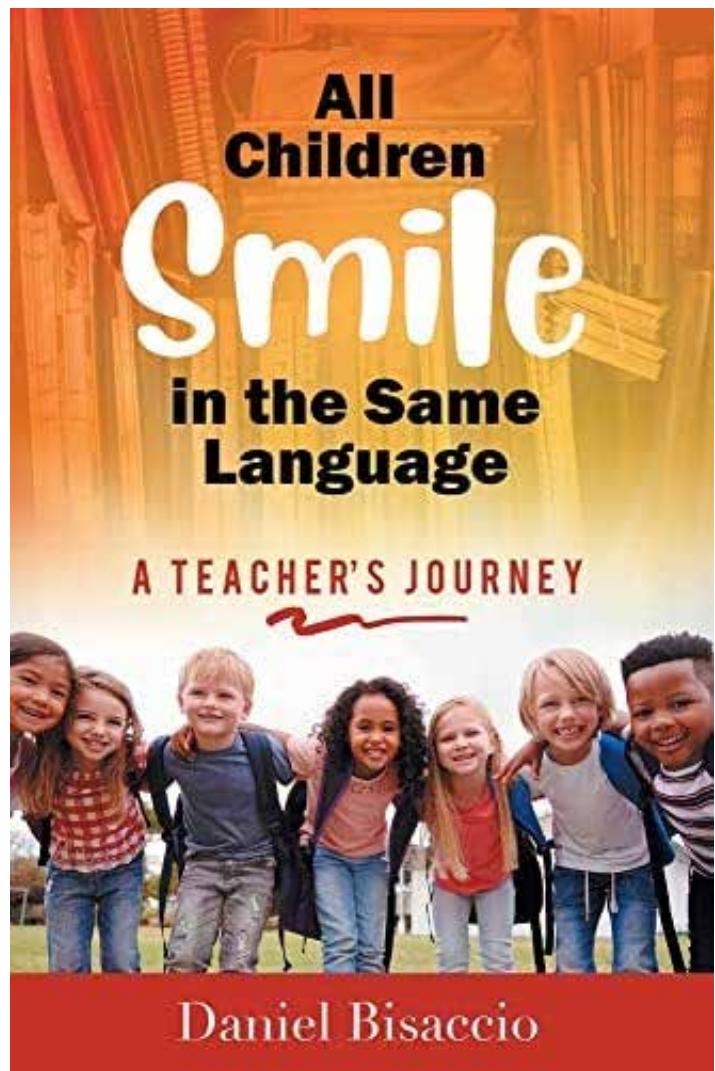
He has been the recipient of many awards including the Presidential Award for Excellence in Science teaching in 1989 and in 2009 he received

the Brandwein Ecology Medal. In 1999, he was chosen the Entomology Teacher of the year by the Entomology Society of America.

Dan has authored many articles on educational pedagogy and practice for many professional publications including the article, "Common Core+Next Generation Science Standards= Leave No Child Inside," for the fall issue of PATHWAYS in 2013. His teaching methodology and research has been highlighted in several books and on National Public Radio. In his retirement years, he continues to lead education workshops and outdoor field projects for students and teachers. His curriculum vitae is most impressive.

Mr. Bisaccio recently presented a program on his new book at the Keene Toadstool Bookshop in Keene, Vermont. Teachers from several school districts received professional development credit for recertification. With teachers leaving the profession in record numbers, he put forth the question, "How do we attract vibrant, creative and intelligent individuals? How do we retain outstanding teachers?"

This short book is chock full of gems of wisdom and good questions to ask ourselves as teachers. I found his essays and anecdotes humorous, enlightening and inspiring to help us as teachers continue to take on the daily challenge of challenging our students.



LET THE CHILDREN LEAD

Written by Tom Stock

Follow them
As they forage discoveries
As they mine their freedom
Follow their excitement
As they wonder among forest trees
Follow them as they
Share their wonder
A stick, a worm, a falling leaf
Follow the child
Who bathes in nature
As if swallowed by it
Follow them
They teach us how to be childlike
They lead us to a better world



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