

Bluffviews

January, 2018

Vol. 8, No. 1

The Value of Volunteers

By Joann Fricke

Clifftop is an all-volunteer organization, from the board of directors down to the volunteers who roll up their sleeves and pitch in to help plant, burn, process, collect and install, as seen in the photos. Certainly we hire contractors when needed, but without volunteers, we could not begin to complete our projects.

Volunteering can help broaden your horizons by learning new things, taking you new places and getting exercise—and you don't even have to leave your home county! Before retiring, I could not have imagined knowing what an interesting plant called Doll's Eyes (*Actaea pachypoda*) was, much less that it is poisonous, or that I would enjoy the stewardship activity of prescribed burning as much as I do. Don't get me wrong, volunteering can be hard work but is so rewarding. I've often said that you couldn't pay me to remove bush honeysuckle, which often requires getting on your knees with a lopper or small saw to cut a large stem and spray it with herbicide. But as a volunteer, I am happy to work for several hours to help others. What is better than seeing wildflowers grow in the woods where bush honeysuckle once dominated the landscape? Or taking in the spectacular view of the Mississippi River valley from atop the bluffs?

An organization like Clifftop can never have too many volunteers. If you are not already on our volunteer email list and would like to help, please contact me at cliffmbr@htc.net. I can easily add you to our rolls so that when I send out a call for volunteers, you will be included.



Pond planting at PWSNP. Photo courtesy Susan Rick.



PWSNP prairie burn. Photo courtesy Ben Jellen.



Seed processing at PWSNP. Photo courtesy Joann Fricke.



Seed collecting at PWSNP. Photo courtesy Joann Fricke.



Stone bench installation at White Rock. Photo courtesy Susan Rick.

My Path to Becoming a Clifftop Volunteer

Text and photos by Cindy Helms

As a child I lived in several rural settings and, like all children, was always fascinated by nature, with frequent hikes into fields and woods. I loved collecting tree leaves for identification, watching tadpoles' metamorphose into frogs, and observing behaviors of a menagerie of pets.

Growing up in the 1960's I learned from periodicals like National Geographic that human overpopulation was causing extinctions worldwide through habitat destruction and pollution. I wanted to travel to the wild places in India, Africa, and the Amazon, to see the animals in their native habitats before they were exterminated. I never did get to travel to those wild regions, but found I could make a contribution to the efforts to preserve some of them through organizations that work to save habitats around the world, like The Nature Conservancy. During my adult life we've learned more about how humans purposefully or unwittingly transfer alien species around the globe. Many of these become invasive and contribute to the native species' decline. This gives us all the more incentive to preserve natural areas where possible.

In college I studied biology to gain more insight into 'what makes life live?' and 'how does life evolve?'. After college I had a series of jobs in genetics laboratories, where I could enjoy the same pursuit. However, being stuck inside all day and living in congested metropolitan areas made me dream of having a place in the country. I finally got the chance when my husband and I moved from jobs in Massachusetts to Washington University, St. Louis in January 1989. After scouting the area within an hour's commute of St. Louis, we decided to buy an old farm up on the bluffs near Maeystown. It had beautiful vistas and many sinkholes that either were filled with water or had craggy limestone rock bottoms that made us wonder if they might harbor cave entrances.



We had never seen karst terrain like this and in our first years here enjoyed exploring every corner of our land. The countryside here was quite different from our rural Massachusetts woodland. An especially notable difference was the prevalence of thick grape vines hanging from tree to tree. We were amazed when we came across three-inch thick, hairy poison ivy vines soaring up tree trunks, and honey locust tree trunks covered with thorns over one foot long with extremely sharp tips, as seen at left. The thorns had thorns, which still seems unbelievable. I read about these trees, and learned Native Americans had used their thorns for sewing needles. The reason the trees lack thorns above 20-30 feet is that those branches are out of the reach of Pleistocene megafauna like mammoths and

mastodons that loved to eat them. Today the thorns may be only a huge annoyance, but perhaps they still function to discourage smaller mammals from climbing the trees to get at the immature seed pods containing a sticky sweet pulp, before the pods mature and naturally fall to the ground.

Just before we arrived, this 70-acre farm had been used to graze cattle and horses and had one small field for row crops. The large animal over-grazing had created widespread erosion on the slopes. Our decision to allow most of the grazing fields to go wild has meant that we've been lucky observers of the natural plant succession and wildlife changes for nearly 30 years now. Erosion in the pastures stopped almost immediately as grasses took over the old cow paths. Fleabane, partridge pea (right), butterfly weed, goldenrod, asters, and ironweed were





Silver spotted skipper on ironweed bloom.

prevalent wildflowers in the old pastures. Within a few years, scrub dogwood, smooth and winged sumac, and brambles had choked out much of the grass around the sinkhole ponds and reached out into the former pasture lands. Pawpaw and possum haw appeared near pond edges. Persimmon, honey locust, sassafras and cedar trees sprouted up everywhere as pecan, hickory, walnut, and oaks moved in slowly. Today many of those trees are well over 30 feet tall, and the dogwood and sumacs are declining as the wooded areas become more mature forests. Invasive alien species so prevalent today in our area (e. g. autumn olive, and bush and vine honeysuckles) were not observed in those first few years, but soon got a foothold and continue to be a problem.

In our first year here we planted one foot white pine trees, many of which did not survive severe pruning by deer. Those that did survive have grown into majestic pines with deep pine needle mulch underneath the stand of trees, making a place that reminds us of our old northeastern woods.

Hiking through our property more recently we've seen new (to me) native plants, including deer's tongue grass (*Dichanthelium clandestinum*) (right), senna (*Senna marilandica*), mountain mint (*Pycnanthemum virginianum*), and elephant's foot (*Elephantopus carolinianus*) (below). Elephant's foot is a native forb that I've seen nowhere else, but found that it has become invasive on our land. It is now growing nearly everywhere, especially along our paths at woodland edges. Its small delicate flowers are so unusual that I still would like to encourage it, which is good because it is next to impossible to pull out of the ground.



With my retirement in 2014, I had no long commute and had plenty of time where I could contribute more to our community. I heard of a local grassroots organization called Clifftop, and looked into what they were doing. I was impressed with its conservation works here in Monroe County, and decided to join in 2015. I took the tour of the PWSNP during that October member's day and decided to volunteer to help with the preserve, which had just been planted with prairie seed the previous spring. After a tour of the ponds available for stewardship, I chose to work on one of the sinkhole ponds, designated Pond #4. It is a permanent pond with a grassland edge around its west side and woodland stretching south and east. Wildlife observed in the pond include turtles,

frogs, and dragonflies. Buttonbush (*Cephalanthus occidentalis*) also grows in the pond's edge near some shrubby willow.

The following winter Pen and Carl DauBach created lists of native plants that could be introduced and planted around ponds and upland slopes. We chose three types of plants that normally grow near wetlands for the first spring planting in 2016 at Pond #4. In May the plants arrived and we planted about 2 dozen each of blue flag iris (*Iris virginica*), cardinal flower lobelia (*Lobelia cardinalis*), and great blue lobelia (*Lobelia siphilitica*). Unfortunately the following summer was very dry, and the pond's edge shrank far away from our plantings. Few survived. Huge giant ragweed and goldenrod grew and shaded out the blue lobelia. A survey in the middle of summer found only two flowering cardinal plants, but they were spectacular! (See photo on page 4)



Whenever I start to think we are living in Bizzaro America, I can literally become grounded again with Clifftop volunteer work, planting native plants, weeding overly aggressive goldenrod and ragweed, and observing the lives of the plants and animals living at Pond #4.

Upcoming Clifftop events...

Whoo's Living In My Backyard? A Great-Horned Owl Family from Nesting to Fledging co-sponsored by the Kaskaskia Valley Audubon Society and the SWIC Biology Department. 7:00 p.m. Thursday, February 15, Red Bud SWIC Auditorium, 500 W. South 4th Street. Paul Feldker shares pictorial documentation of an owl family's growth that took place right in his back yard!



In Search of Big Trees: The Illinois Big Tree Registry Program 1 – 3 pm, Saturday, March 17, Monroe County Annex, 901 Illinois Ave., Waterloo. Chris Evans, Extension Forester with University of Illinois Extension Forestry, presents a program on how to register state champion trees. Chris is seen in the photo at left with the State Champion Green Ash Tree.

Cave Biology Research at Southwestern Illinois College: A Tale of Many Snails

Text and photos by Bob Weck, unless otherwise noted

One of my favorite parts of working as a biology professor at Southwestern Illinois College is the opportunity to mentor students in research projects. Over the past few years, my students and I have focused on the biology of creatures inhabiting the many caves and springs in southwestern Illinois. The most recent projects involve studies of cave dwelling snails from the two most biodiverse caves of Illinois, Fogelpole Cave and Stemler Cave.

Very little is known about the basic biology of most cave organisms. There are several reasons for this lack of knowledge. Researchers can only enter caves when rain is not in the forecast. Some caves flood to the ceiling during periods of heavy rainfall. Weather limits chances for collecting data and resulting in many a cancelled trip. Most cave creatures are small and therefore hard to study. Also, caves are tough places to do research. Imagine looking through a magnifying lens, trying to make detailed observations of a tiny animal while squatting in a 55° F stream in total darkness. Oh, I forget to mention the mud that gets into all your gear and all over your data sheets.

Bringing cave animals back to the laboratory for study allows researchers to conduct experiments in a controlled setting on a regular schedule and address questions that can't reasonably be answered in a cave (plus it's warm and your butt stays dry!). Some aquatic cavesnails are well suited for life in the lab due to

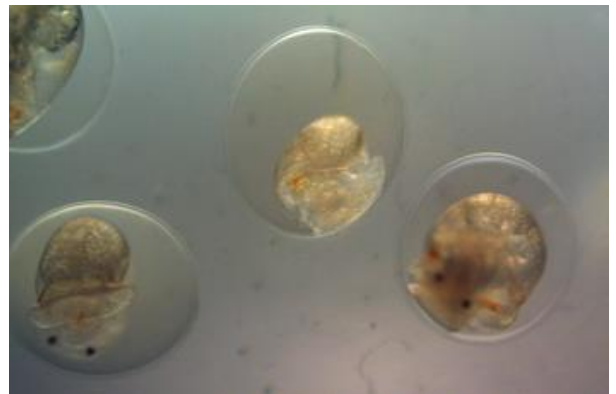


SWIC biology student Nicole Whitsitt conducted a cavesnail survey in Stemler Cave, summer 2012.

their small size and willingness to reproduce in captivity. Lab-based snail investigations at SWIC have included reproduction and growth rates, inheritance of pigmentation, and response to light. I have also managed to incorporate snails into the lab portion of a few SWIC biology classes. Albinism (or generally a lack of pigmentation) is a common feature in cave animals. Research I conducted with Dr. Steve Taylor and several SWIC students showed that in two local cave populations the lack of pigmentation is a recessive trait due to a single gene.

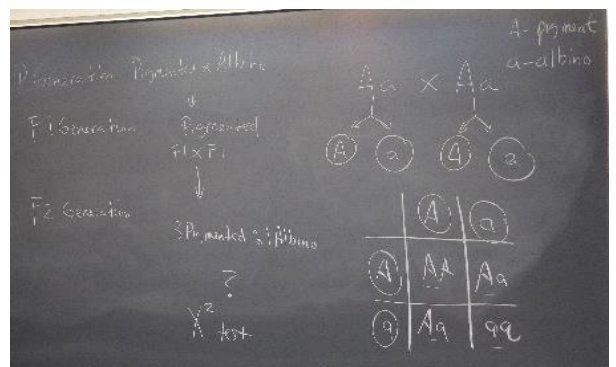


© 2015 Matthew L. Niemiller



Albino form of the Fogelpole Cave *Physa* snail. Adult pictured on left is courtesy Dr. Matt Neimiller. An albino embryo is located in the center of the right image, surrounded by its pigmented siblings (note lack of black eyes).

In the Fall 2015 semester I substituted crosses between pigmented and albino snails from Fogelpole Cave for the fruit fly crosses traditionally used to study inheritance in my Biology 101 course. A tally of class data supported the prediction of a 3 pigmented to 1 albino ratio in offspring. It was a fun break from the usual routine for me and the students enjoyed the fact that they were studying local organisms.



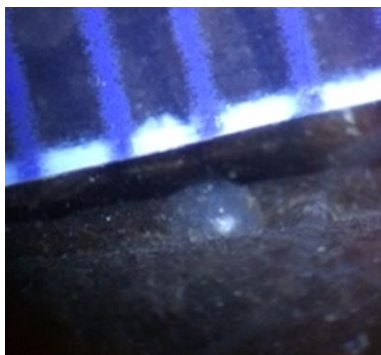
Biology students examining offspring of snail crosses in a genetics lab exercise and chalkboard notes.

My current project is focused on learning some basic life history information about the Illinois state endangered Enigmatic Cavesnail (*Fontigens antroecetes*). This is a minute snail (2.5 to 4 mm as adults) that is known only from Stemler Cave in Illinois and a few caves in southeastern Missouri. The snail grazes on “biofilms” or communities of bacteria and microbes that grow on the surface of rocks in cave streams. We have started a colony of cavesnails, housed in aerated containers of cave water and kept in electric coolers to simulate cave conditions. Over the past year I have been working each week with two students to collect data on the number of eggs produced, embryonic development time, and growth rates of hatchlings.



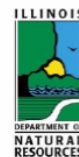
SWIC Biology students, Nicole Linskey (right) and Olivia Tarantella (left) observing and measuring cavesnails. Modified wine coolers serve as our “simulated caves” for the snail colony.

The Enigmatic Cavesnail project has revealed some interesting information that I hope will help in any future efforts to manage and conserve the species in the wild. We learned that the snail lays relatively large eggs (about 1mm, which is small to us, but consider how small the adults are!) tucked away in crevices on the undersides of rocks in the cave stream. This presumably protects the developing embryo and prevents them getting washed downstream during flood pulses. The embryos take a surprisingly long time to develop, an average of 71 days, and hatchlings grow slowly. This is typical of cave-adapted animals that must survive in a relatively food-sparse environment. One problem facing cave-adapted animals is the introduction of excess nutrients from home septic and agricultural runoff, which boosts food availability. More food sounds good, right? The problem here is that the extra food allows non-cave creatures to exist in the cave and outcompete the native cave fauna.



Left: A freshly laid egg has begun to develop, with a millimeter ruler for scale. Center: An embryo nearing hatching. Right: An adult lab-raised Enigmatic Cavesnail measuring 3mm shell length. All photos were taken through the eye piece of a microscope at about 30X.

As long as my back and knees allow me to crawl around in caves and I have eager students willing to participate, I hope to continue researching the biology of cave life in southwestern Illinois.



EMERALD ASH BORER COMMUNITY MANAGEMENT MEETING

EMERALD ASH BORER (EAB) is a non-native invasive forest pest threat and it's heading towards YOUR community. Learn what you can do to protect, treat, and manage ash trees in your community.

Please join our community meeting in your area to learn more about the threat and impacts of EAB and how to design an effective management plan to help protect your ash trees. Urban and rural foresters, arborists, landowners, and community decision makers are invited to attend.



Locations:

- **February 21st:** Carbondale Civic Center, 200 South Illinois Avenue, **Carbondale**
- **February 22nd:** Metro East Parks and Recreation District, 104 United Drive, **Collinsville**
- **February 23rd:** Ballard Nature Center, 5253 US 40, **Altamont**
- **February 28th:** University Farm-Livestock Center, County Road 1100E, **Macomb**



City of Macomb

Meeting schedule: 9:00 a.m. to 2:00 p.m., lunch and refreshments included.

\$10 registration. CEUs are available

Register [HERE](#): or call The Morton Arboretum at 630-719-2468.



Save the Date!

Friday, March 16, 2018

Lewis and Clark Community College



5800 Godfrey Road
Godfrey, IL 62035



Native by Design: Woody Plants and Pollinators

7:30 am – 12:30 pm

Cost: \$35 – includes breakfast

CEUs available for Landscape Architects and IL MGs/MNs

Agenda:

- 7:30 am – Registration & Breakfast
- 8:00 am – Opening Keynote Presentation: Guy Sternberg
- 9:00 am – Break
- 9:15 am – Plenary presentations
- 10:00 am – Break
- 10:15 am – Plenary presentations
- 11:00 am – Closing Keynote Presentation: Jennifer Schamber

Presented by the Grow Native!
Southwestern Illinois Event Committee:



**Think Green.
Live Green.**

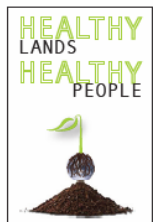
www.lc.edu/green



UNIVERSITY OF ILLINOIS
EXTENSION



**MCKENDREE
UNIVERSITY**



**The National Great Rivers
Research & Education Center**

For more information, call 888.843.6739 or
email grownative@moprairie.org

Grow Native! is a program of the Missouri Prairie Foundation

**Featuring keynote
presentations by
Guy Sternberg and
Jennifer Schamber**



Guy Sternberg is a certified arborist and a retired landscape architect. He served on the staff of the Illinois Department of Natural Resources for thirty-two years and currently is the owner and manager of Starhill Forest Arboretum, which holds one of the most extensive oak genus (*Quercus*) living reference collections in North America.



Jennifer Schamber is the General Manager of Greenscape Gardens in St. Louis, Missouri. She currently serves on the board of the Western Nursery & Landscape Association and is a writer for the Gateway Gardener Magazine. She received a bachelor's degree in Business Administration from St. Louis University and studied horticulture at St. Louis Community College-Meramec.