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# Kentucky Naturalist News

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## Affiliated Chapters

**Arches of the Cumberland Chapter** (Slade) meets informally, call President Dell Sasser for details, 606-666-7521 x73559, or (606) 233-8938, or via email ([dell.sasser@kctcs.edu](mailto:dell.sasser@kctcs.edu))

**Falls of the Ohio Chapter** (Louisville) meets every 3<sup>rd</sup> Thursday of each month except Jan, Jul, Aug, & Dec at 7:00 PM at the Louisville Nature Center, 3745 Illinois Ave, Louisville, 40213. Call President Chris Bidwell at (502) 458-1328, or via email ([mabteacher1@yahoo.com](mailto:mabteacher1@yahoo.com)).

**Wilderness Trail Chapter** (Pineville) meets the first Thursday of each month, March through December, at 7:00 p.m., generally at Pine Mountain State Resort Park in the Ray Harm Room, 1050 State Park Road Pineville, KY 40977-0610 (800-325-1712). Call President Tom Toole at (606) 248-3078, or via email ([tom.tdtoole@gmail.com](mailto:tom.tdtoole@gmail.com)).



*Lasiurus cinereus* (Palisot de Beauvois, 1796) (hoary bat) - Barry Nichols, 2007

## EDITOR'S NOTES

Early reports from the [KSNH Spring Meeting 2009](#) speak of a good time had by all. Unfortunately, due to the need for timely articles to be in the hands of members, I had to bump the meeting coverage to the next issue. The upside is that if you have meeting photos, minutes, stories, and/or articles, there is still time to get them into the newsletter. The deadline for next issue (Fall 2009) is August 1, 2009.

This issue contains THREE opportunities to assist in important survey work, namely **Firefly Watch** (Boston's Museum of Science), **The Lost Ladybug Project** (Cornell's Entomology Department) and **The Great Sunflower Project** (San Francisco State University). All three provide simple ways for anyone to make real contributions to biodiversity studies and each allows one to choose how much or how little they can participate.

In the unfortunate news department, researchers at the University of Kentucky [Department of Entomology reported in February](#) that the

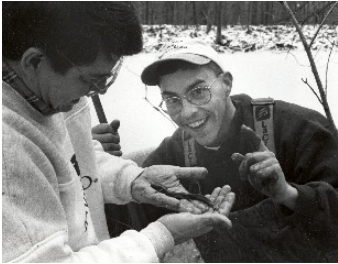
[hemlock woolly adelgid](#) (see the [Spring 2008 KNN – 66:1](#) pages 3-7) has spread west to Natural Bridge State Park (Powell County) and Big South Fork (McCreary County). Additionally, researchers in the UK Entomology Department are using widespread trapping in 2009 in [Kentucky](#) for [Agrilus planipennis](#) Fairmaire, 1888 ([emerald ash borer](#)) (EAB) because they are [now known](#) from sites in Shelby and Jessamine Counties. You can click and watch a [multimedia presentation on EAB in Indiana](#). I am currently working on an author for a newsletter article on EAB and hope to have more information for you soon.

If there is a topic you'd like to see covered in [KNN](#), whether it be a species, habitat, conservation effort, landform, geologic feature, mineral, celestial body, or basically anything related to natural history, please let me know and I'll do my best to find an author to address it. I've had a couple of requests and I'm working on it! Why not send in yours?

As always, please mail any articles, news, photos, etc to [kyfauna@iglou.com](mailto:kyfauna@iglou.com) –ed

## A MESSAGE FROM THE PRESIDENT – SUMMER 2009

by Joe Settles



Greetings everyone! I hope this newsletter finds you in good health and in good spirits. We had a fantastic time at the spring conference at Pine Mountain Settlement School (PMSS). I want to thank all of the wonderful folks at PMSS, especially Ben and Pat, for their gracious hospitality. PMSS is a very special place, and their hard work to showcase all that is Pine Mountain made it even better.

I also want to extend our thanks and praise to all of the field trip leaders and speakers listed below who made the weekend possible:

**Ben Begley**  
**Pat Begley**  
**Marc Evans**  
**Joseph Johnson**  
**James Kiser**  
**Kyle Napier**  
**Anna Thomas**

[Pine Mountain Settlement School](#)  
[Pine Mountain Settlement School](#)  
[KY State Nature Preserves Commission](#) (Retired)  
[UK Department of Forestry/Stantec](#)  
[Stantec Consulting Services](#)  
[KY State Nature Preserves Commission](#)  
[University of Kentucky - Department of Entomology](#)

Susan Wilson and Chris Bidwell put together a wonderful slideshow with photos of KSNH events from the past and present. The program was played during breaks in the evening programs, and everyone thoroughly enjoyed the pictures. Please send in any photos you have of people in the field during KSNH outings to Susan Wilson for inclusion in future slide shows.

I especially want to thank James Kiser for all of the hard work he put into rounding up the speakers and field trip leaders for the weekend. He puts a great deal of thought and effort into developing the interesting and informative programs we get to enjoy. His hard work paid off for the membership once again.

Marc Evans' (1988 KSNH Naturalist of the Year) presentation on the "Unique Natural Areas of Kentucky" was especially enjoyable for me. I have been blessed over my career with the opportunity to visit nearly all of the areas he mentioned, and each photo of a rare species or a natural area brings back special memories of those trips. I remembered the first time I saw [Gentiana puberulenta](#) (prairie gentian) and photographed those amazing flowers. The presentation also brought back the feeling of a being like a kid at Christmas when visiting Murphy's pond for the first time and the excitement of finding a red milk snake at [Three Ponds Bluff](#).

Those memories and experiences are owed to Marc and his counterparts that have worked so hard over the years protecting and preserving these areas. The take home message from his presentation is with all the hard work that has been done there is even more to do. As a reminder of the biodiversity Kentucky has to offer and needs to preserve, pick up a copy of "[Rare Wildflowers of Kentucky](#)" by Tom Barnes, Deborah White, and Marc Evans.

The fall meeting will be here before you know it. We will be in western Kentucky/northern Tennessee for this trip to the [Reelfoot](#) area in early October. We are already working on the conference agenda, and this meeting should have something for everyone from geology to birds to herps and everything in between.

New organizational leaders will be named in October, so please considering volunteering to serve or start thinking of nominees. As always, if you have any questions, comments, or suggestions regarding our organization please do not hesitate to call me at 859-745-9256 or drop me an email at [joe.settles@ekpc.coop](mailto:joe.settles@ekpc.coop).

I look forward to seeing you in October!

*Joe Settles is the Kentucky Society of Natural History's President for the 2008-2010 term.*

## FINDING TINY FRIENDS WITH THE LOST LADYBUG PROJECT

by Rebecca Smyth and Leslie Allee



father & son survey team from the Ladybug Blitz in Ithaca, NY, 2008

In North America, ladybug distribution is changing fast. Of the nearly 500 species of [Coccinellid](#) beetles found in North America (about 70 that we would all recognize as ladybugs) some have always been rare. But in the last twenty years, several species that once were ubiquitous suddenly disappeared from view. The causes and consequences of this precipitous decline are the inspiration for the [Lost Ladybug Project](#), a continent-wide citizen science project based in the [Cornell University Entomology Department](#).

The Lost Ladybug Project was set in motion in the year 2000 when we coordinated with 4H Cooperative Extension Master Gardeners to help us start surveying ladybug populations across New York State. Afterwards we collaborated with graduate students from the [Cornell Institute for Biology Teachers](#) to develop ladybug survey projects for children. Field-testing these projects with students at a small number of elementary schools in New York State began in 2004. One of the first major discoveries came in 2006 when Jilene (age 11) and Jonathan (age 10) Penhale found a rare [Coccinella novemnotata](#) Herbst, 1793 ([nine-spotted ladybug](#)) near their home in Virginia. They just happened to be in the company of parents of a Cornell entomology student who had heard just one presentation about our project. This was the first ninespotted ladybug seen in the eastern U.S. in 14 years! Their finding confirmed that the species was not yet extinct and that with enough people working together this and other rare ladybug species could be found. With this discovery, and after developing survey methods, a core database, and a beginning children's project, we applied to the [National Science Foundation](#) (NSF) to expand our activities. We were granted funding by the NSF Informal Science Education program in 2008. Now anyone in North America has the opportunity to join the exciting search for rare species and make a tangible contribution to the conservation of these beautiful and useful creatures.



survey assistant Katie Stephen (FL), 2008



*Coccinella novemnotata* - Karl Volkman (WA), 2008

made by trained personnel. This novel protocol will reduce errors in identification and create a virtual collection in which every data point is vouchered.

At the Lost Ladybug Project we have gone to great lengths to combine scientific accuracy with ease of involvement. All anyone really needs is a camera (preferably digital) and a computer (or not) and a few notes about location, date, and habitat. Tips for finding, collecting, and photographing ladybugs as well as an online submission page can all be found at [www.lostladybug.org](http://www.lostladybug.org). All submissions must be in the form of photographs and the vast majority of these are digital. When this is impossible people can send hard copy photos through snail mail. Ultimately, every Lost Ladybug data point is permanently linked to a digital image and species identifications are



*Harmonia axyridis* - Tom Haglund (CA), 2008

Ease of participation is also an essential ingredient to another important objective of the Lost Ladybug Project, the inclusion of 5 to 12 year olds! With a little help from bigger kids, parents, teachers, and youth leaders, youngsters are fully able to become true citizen scientists. In many ways they find out that they are already scientists! By sending in their pictures and observations they become part of ongoing scientific inquiry and will contribute to discovering where certain ladybugs have gone and why they have gone. At [www.lostladybug.org](http://www.lostladybug.org) mentors can find organized curriculum for different age groups as well as educational materials ranging from poetry and games, to instructions for making homemade sweep nets. We offer access to the ladybug database of photos and tools to visualize and understand the data, including maps and mapping tools. We also devote outreach efforts to include youth from Native American, rural, farming, migrant or low-income communities. Early feedback from groups working with the Lost Ladybug Project revealed an impact in changing attitudes by showing that 1) ladybugs (and other insect groups) are beneficial, 2) ladybugs are a very diverse group, 3) this diversity is declining, and 4) everyone can help preserve ladybug diversity by participating in the program. We know that a single positive experience at this age can greatly enhance the potential that a child will maintain a lifelong interest in science and the diversity of life.



*Coccinella septempunctata* - sevenspotted - Emily Bung (CA),



*Adalia bipunctata* - Denis Doucet (NB), 2009

Not only is this a fun way to convey concepts of biodiversity and conservation but children are perfectly suited to be some of our very best data collectors! It's a two-way street. Of course kids have keen eyesight and talent for finding small critters like ladybugs. Yet they also can be excited about every single ladybug they see. This is ideal rather than just searching for novelty. But for the Lost Ladybug Project to have a reasonably accurate understandings of relative abundance and distribution we need a picture of every individual ladybug that is found. Simply put, and mathematically speaking, in order to know how rare the rare species are we need to know how common the common species are.

Two large introduced ladybugs dominate the North American landscape right now: the multicolored *Harmonia axyridis* (Pallas, 1773) ([multicolored Asian ladybug](#)) and *Coccinella septempunctata* (Linnaeus, 1758) ([sevenspotted ladybug](#)). Multicolored Asian ladybugs were introduced several times in the last century, primarily from Japan, for biological control of aphids. Though now many people consider them a nuisance when they are found in large numbers over wintering in homes, for farmers they are still beneficial.

Sevenspotted ladybugs were introduced from Europe and became established in North America in the 1970's, also for aphid management. One of the most intriguing aspects of the rarity of the ninespotted, twospotted, and transverse ladybugs is that until three decades ago they were among the most common ladybugs in North America. The [ninespotted ladybug](#) was so common and so rightfully revered for its role in the suppression of pest populations that it was named the State Insect of New York in 1985. Dominance by the exotic species may not persist indefinitely, and competitive displacement is only one possible cause of native population decline. Habitat loss, disease, and even hybridization could also play roles.



*Coccinella transversoguttata* - Benjamin Losey (SD), 2008

The good news is that even the rarest of North American ladybugs could turn up in anyone's backyard! A very special lure of the Lost Ladybug Project is the real possibility of finding a rare beetle. The search for rare species is normally almost exclusively the realm of trained scientists. Few of us as naturalists have had the opportunity to experience the thrill of searching for a truly rare creature. We don't have the means and equipment to climb the rocky cliffs of south Asia to see a snow leopard or penetrate the swamps of Arkansas to search for *Campephilus principalis* (Linnaeus, 1758)

(the [ivory billed woodpecker](#)). So far, with over 1100 ladybug submissions, 24 of the rarest species have turned up in the Lost Ladybug Project! Two more ninespotted ladybugs (*Coccinella novemnotata*), one from Nebraska and another from northern Washington State; 14 [Adalia bipunctata](#) (Linnaeus, 1758) ([two-spotted ladybugs](#)) from a wide variety of geographic locations; and 8 *Coccinella transversoguttata* Faldermann, 1835 ([transverse ladybugs](#)) all from Wyoming, South Dakota, Nebraska, and Colorado. These results represent more individuals of these rare species than have been reported in technical publications for the last 20 years. Still, for conservation efforts to take hold, we need many more. The Lost Ladybug Project is just beginning.

[Ed. Note: Go to the National Public Radio website for a 10-minute [audio on the Lost Ladybug Project](#) and [Audubon Magazine for a short video.](#)]

*Rebecca Rice Smyth* shares outreach and curriculum development for the [Lost Ladybug Project](#) with Leslie as well as handling data management and website development. Her background includes both research in Latin America and inquiry-based curriculum development for middle school biology students and she combines these skills to promote participation in the LLP among children in migrant worker families in New York State. She holds a PhD in Entomology from Cornell University (2002) and has been studying chrysomelid leaf beetle / plant interactions since 1998.

*Leslie Ladd Allee* is a co-founder of the [Lost Ladybug Project](#) and currently contributes to curriculum development and outreach to youth in underserved communities. She holds a PhD in Entomology from Cornell University (2001) and has focused her research on alternatives to insecticides, primarily in corn. The LLP gives her a way to combine her beetle expertise with her passion for outdoor play.

## Sex, Lies, and Fireflies

by Don Salvatore



There is nothing more peaceful than standing in a meadow on a July night, watching the stars twinkling above and the fireflies twinkling below. Nothing more peaceful to me, that is. Not so to the [fireflies](#). For the fireflies, serious business is afoot---business fraught with danger.

Fireflies are not flies, as their name would imply. Despite being called lightning bugs and glowworms, they aren't bugs, or worms either. They are beetles. And most of them are creatures of the night (some fireflies have evolved daytime habits and do not flash). As such, all their business must be carried out in the dark. This presents a problem when it comes time to find a mate. If it

is dark, how do you locate one? Nocturnal insects have solved this problem in different ways. Crickets and grasshoppers find their mates by their song. Moths use a type of perfume, called pheromone, to attract their mate. Mosquitoes rely on the buzzing of their wings. Fireflies attract mates with their flashing lights. Since there are about 200 types of fireflies in North America and any firefly meadow may be home to many species, the [light is their language](#), allowing them to distinguish their species from all others. The language is in the flash pattern. The flashes may differ in color, numbers of flashes, duration of each flash, and length of time between the flashes.

For instance, the flash of the male [Photinus pyralis](#) is light green. Each flash lasts



about 0.5 seconds and is repeated every 6 seconds. The female will reply with a 0.5 second flash about 3 seconds after one of the male's flash.

The flash of the male *Photinus marginellus* is also light green, but is 0.3 seconds in duration, and is repeated every 3 seconds. The female responds about 0.4 seconds after the male flash with a 0.2 second long flash. These differences are enough to allow each species of firefly to identify their own kind.

With a little practice, you too can [learn the language of fireflies](#).

Typically, it is the male fireflies that are flying. They will patrol an area, flashing their pattern and hope that they entice a female to respond. The females are sitting, perched on a shrub or in the grass, waiting for a male that appeals to her. She can afford to be choosy, since often there are many more males than females. If a particular male doesn't excite her, she only has to remain unlit. He can't find her in the dark. Only when she flashes the correct pattern in response to his flash will he be alerted to her presence and receptivity to mate. Now he must not waste any time approaching her because once she reveals her presence, other males in the vicinity will know where she is and may beat him to the prize.



There are some studies that show female fireflies are using the flash of the male to choose the best possible mate. When fireflies mate, the male transfers a protein rich [spermatophore](#) to the female. The spermatophore contains both a mass of protein and sperm. The protein is used to nourish the developing eggs. Adult fireflies don't feed, making this spermatophore critical for egg development. Therefore, it is advantageous to choose a male with a large spermatophore. In some species of fireflies, spermatophore size has been correlated with certain characteristics of the male flash. Therefore the female firefly can choose which male she wishes to mate with.



The flash of the firefly serves another purpose other than mating. It announces their whereabouts to predators. Seemingly, these slow flying insects would be easy targets for bats, spiders, toads and a host of other nighttime predators. However, most predators leave them alone. The fireflies have [noxious chemicals](#) in their blood. The chemicals are called [lucibufagins](#) because they are related to the chemicals in the parotid glands of toads in the genus *Bufo*. When threatened, the fireflies will extrude blood from their joints – a process called "[reflex bleeding](#)". This noxious blood is enough to deter many predators. So it is to the firefly's advantage to announce his presence and not be mistaken for some tastier night-flying insect.

So far, life would seem ideal for the fireflies. They fly around at night [looking for mates](#), secure that most predators will let them be. Their biggest concern is getting to a receptive female before some competitor beats him to her. But of course, nothing in life is ever that simple.

In North America, there are three genera, or main groups of fireflies, *Photinus*, *Pyractomena* and *Photuris*. Each genus (singular of genera) contains a number of species, with the *Photinus* the most numerous, and best-studied group. Both *Photinus* and *Pyractomena* measure about a half-inch long. *Photuris* is about two to three times as large. As stated above,



each species has its own distinctive flash pattern to prevent confusion. However, *Photuris* fireflies can not only flash the *Photuris* pattern, they can also imitate a number of female *Photinus* fireflies, some *Photuris* being able to imitate over 10 different *Photinus* flash patterns.

After the female *Photuris* has mated, she starts imitating the flash pattern of one of the *Photinus* females that are present in her meadow. When a male *Photinus* sees this flash, he thinks he has found a receptive female. He approaches her with mating on his mind. However, when he arrives, she grabs him and eats him. Not quite what he expected.



*Photuris* sp. larva - Don Salvatore, 2008

Like all other living organisms, the urge to mate is huge in fireflies. And time is short. Adult fireflies only live a week or two. Coupled with the competition from other males, the chances to mate may be few and far between. So a male has a choice. Does he rush headlong to the female, trying to arrive before the competition and take a chance that he is, in fact, approaching a female *Photinus* and won't get eaten, or does he take his time to make sure he is not approaching a *Photuris* imposter and hope some other less cautious male doesn't beat him to a receptive *Photinus*?

Not all female fireflies sit patiently on the ground waiting for a male to approach. Sometimes a *Photuris* female will locate a flying male *Photinus* and attack him in the air. This technique is called "**aerial hawking**". A male *Photuris* may use this to his advantage, to find a mate of his own. He may imitate the male *Photinus*, stimulating an attack by a female *Photuris*. When she approaches, he grabs her and mates with her. This, however can be a risky business since the female is intent on eating, not mating.

Feeding on the *Photinus* fireflies serves two purposes for the *Photuris* fireflies. First, they are a source of nourishment. But they also supply a source of the toxic **lucibufagins** that protect the *Photinus*. The *Photuris* fireflies don't manufacture these chemicals for themselves. They acquire them only through predation. Once they have acquired them, however, they are passed on to the eggs and larva of the *Photuris*, thus affording them the protection that the mother can not produce herself.

To us humans, all may seem peaceful in the evening meadow. But for the firefly, it is night full of sex and lies.

*Don Salvatore is a science educator at the Museum of Science in Boston. He is the coordinator of the Firefly Watch citizen science project. More nature stories by Mr. Salvatore can be found on his Backyard Biology web site.*

## FIREFLY WATCH CITIZEN SCIENCE PROJECT

by Don Salvatore

"Do you have many fireflies in your neighborhood? "

Adam South, a graduate student studying fireflies at [Tufts University](#) just outside of Boston, asked me that question when he heard that I lived only a few miles from the coast. The question surprised me. I expected that someone studying fireflies would know where they occurred. After all, if you asked someone studying butterflies if the [great spangled fritillary](#) could be found in the [Daniel Boone National Forest](#) in Kentucky, you would expect them to know. But it turns out there is a lot that is not known about fireflies. So Adam and I decided to do something about it.

I am a science educator at the [Museum of Science](#) in Boston. One of the main goals of the museum is to foster an interest in science and demonstrate how science works. Therefore, it seemed natural that the museum would be interested in [citizen science projects](#) – enlisting volunteers to help collect relevant data for scientific research. So, with the help of staff at the museum and two other firefly scientists, the [Firefly Watch](#) citizen science project was designed and launched last March.



*Photinus* sp. - Don Salvatore, 2008

Since this was our first venture into the world of citizen science and since we were working on a very limited budget, we thought it would be smart to start off small, learning as we go. So word of the project was distributed only to watershed organizations and bird clubs in Massachusetts. We expected about a hundred people to participate, with the numbers growing each year as we gained experience in running a citizen science project. What we totally underestimated was the power of the firefly. People who signed up for the project told their family and friends across the country. The story got picked up by a number of local and national news media. By the end of the summer, 1,400 people had signed up to participate – covering 36 states (just about every state with flashing fireflies) and 4 other countries. It seems that many people are concerned with the plight of fireflies and are willing to invest some of their time to help these amazing creatures.

The Firefly Watch citizen science project was designed with three goals in mind:

1. gathering scientifically relevant data for firefly researchers,
2. make people aware that choices they make can have an impact on the environment,
3. teach them some of the natural history of the firefly.

1. Scientists have believed for many years that firefly numbers are dwindling. However, as any good scientist will tell you, beliefs are not enough. What is needed is data that supports these beliefs. A good example of this is the data that exists on bird numbers. The [National Audubon Society](#) and other groups have been conducting bird censuses for over a hundred years. By comparing the data collected recently to that collected in the past, it is known which bird species are declining and which are increasing in numbers. No such data exists for fireflies. Hopefully, our Firefly Watch project will provide the data that scientists need to evaluate the health of firefly populations. Some of the questions we hope to answer are: Are fireflies disappearing from the landscape? What is the firefly season in different parts of the country? Is global warming having an effect? What types of habitats do fireflies prefer? What human actions are having an effect on fireflies? What can be done to help preserve firefly populations? To answer these questions will take many years of data input. We will need to recruit many more than the 1,400 volunteers we now have. And we will need to keep our volunteers committed to the project for the long haul. We have a long way to go before we can begin to understand what is happening with the firefly, but at least we have made a start.



2. It seems that everyone I talk to about fireflies is concerned about them. They ask, "I used to see loads of fireflies as a kid. I haven't seen them for years. What has happened to them?" While we can't say for sure why fireflies are disappearing, or even if they are, until we collect enough data, I find it instructive to ask a few questions. "Have you removed all of the shrubbery from your yard? How often do you mow? Do you apply pesticides, weed killers or fertilizers to your yard? Do you keep the outside lights on during the night?" These are questions we ask in the firefly survey. While we don't have the data yet to support the thought that any of these actually affect fireflies, by just asking these questions, we are raising people's awareness that their actions may have an effect on the environment: that they may be – in some very small way – contributors to the decline of fireflies. And, of course, if fireflies are in decline, it is safe to assume that many other species are in decline as well.

3. Mention the word "firefly" to people and invariably you see a smile spread across their face. They are obviously remembering some warm summer nights of their childhood, running around with a net while collecting fireflies. Most everyone I talk to has these memories. Most everyone I talk to list fireflies as their favorite insect. So it is surprising to me that there are no good popular science books on fireflies. Most people know little to nothing about these fascinating creatures. The Firefly Watch web site contains a lot of information on their natural history. As people participate in the Firefly Watch citizen science project, they see the firefly as more than just the magical blinking lights that enchanted their childhood. Their appreciation for these insects takes on a whole new dimension.

If you would like to be a Firefly Watcher and help scientists gather information for their research, and at the same time learn more about fireflies, check out the Firefly Watch website at [www.mos.org/fireflywatch](http://www.mos.org/fireflywatch). Upon registration, participants are asked to fill out a questionnaire describing their habitat. Then, once a week, they count the number of fireflies they see in a ten second period, record the weather conditions and send us the data.

I would like to acknowledge the other [participants](#) in the Firefly Watch project:

[Maureen McConnell](#) - Past exhibit designer at the museum and citizen scientist  
Emily Bottis, Kate Cohen, Shai Herman, Kim Lapan, Mike Egan, Tomio Ueda – the museum Web Team  
[Kristian Demary, Ph.D.](#) – Adjunct Professor at [Boston College](#)  
[Christopher Cratsley, Ph.D.](#) – Professor at [Fitchburg State College](#)

[For more on Don and fireflies, visit the weekly environmental radio show Living on Earth's website. There is an article and podcast entitled "Where [Have All The Fireflies Gone?](#)"]

[Don Salvatore](#) is a science educator at the [Museum of Science](#) in Boston. He is the coordinator of the [Firefly Watch](#) citizen science project. You can find more nature stories by him on his Backyard Biology web site <http://www.backyardbiology.net>.

## BIG BONE LICK NATIONAL NATURAL LANDMARK CELEBRATED

by Berl Meyer



Diorama at Big Bone Lick State Park – Berl Meyer, 2009

A dedication ceremony was held May 1, 2009 to celebrate [Big Bone Lick State Park's](#) new status as a [National Natural Landmark](#) (NNL).

Almost all the mammal fossils found in Kentucky are from the [Quaternary Period](#). Quaternary clays, sands, and gravels are found in valley bottoms and terraces all over Kentucky. The most famous site for Quaternary mammal fossils is Big Bone Lick, which is now [Big Bone Lick State Park](#) near the Ohio River near Union, Kentucky. The first paleontological site in North America was probably at Big Bone Lick. French commander [Baron Charles Lemoyne de Louqueuil](#) organized a dig there in 1739. Bones retrieved by him were sent to the [Paris Natural History Museum](#) in France. Later, [Thomas Jefferson](#) sent [Captain William Clark](#), of [Lewis and Clark](#) fame, to dig the bones there in 1807. Jefferson sent these bones to the [American Philosophical Society](#) in Philadelphia (and he kept some of them at

the [White House](#), and later at [Monticello](#), his home). Much later, in the 1960's, the [University of Nebraska](#) conducted a dig at Big Bone Lick.

The following [mammal fossils](#) have been recovered at Big Bone Lick: possible wolf, possible [black bear](#), [modern bison](#), [ancient bison](#), two types of [musk ox](#), [American moose](#), [wapiti \(elk\)](#), common [Virginia deer](#), extinct [stag moose](#), caribou, [flat-headed peccary](#), extinct [North American horse](#), possible [tapir](#), [American mastodon](#), [woolly mammoth](#), and two types of [giant ground sloth](#). The most common fossil found at Big Bone Lick was the modern bison.

The herbivores (plant-eating animals) were attracted to [Big Bone Lick](#) because of [salt springs](#). The big mammals tramping through the water-laden, clayey deposits created a deep, sticky mire, which trapped all sorts of salt-starved mammals who came to [lick the salt](#). Bones are generally not articulated because subsequent trampling long after death caused the bones to be spread apart.

The [National Natural Landmarks Program](#) (NNL) recognizes and encourages the conservation of outstanding examples of the United States' natural history. It is the only natural areas program of national scope that identifies and recognizes the best examples of biological and geological features in both public and private ownership. The program was established on May 18, 1962 by [United States Secretary of the Interior Stewart Udall](#).

The program aims to encourage and support voluntary preservation of sites that illustrate the geological and ecological history of the United States, and to strengthen the public's appreciation of the country's natural heritage. As of June 2005,

587 sites have been added to the [National Natural Landmarks Program](#). The registry includes nationally significant geological and ecological features in 48 states, American Samoa, Guam, Puerto Rico, and the Virgin Islands.

The [National Park Service](#) administers the NNL Program, and if requested, assists NNL owners and managers with the conservation of these important sites. Land acquisition by the federal government is not a goal of this program; NNLs are nationally significant sites owned by a variety of land stewards, and participation in the program is voluntary.

The legislative authority for the [National Natural Landmarks Program](#) stems from the [Historic Sites Act of 1935](#) (49 Stat. 666, 16 U.S.C. 641); the program is governed by federal regulations. [1] The Natural Landmark program does not have the protection features of **Section 106** of the [National Historic Preservation Act of 1966](#). Thus, designation of a National Natural Landmark presently constitutes only an agreement with the owner to preserve, insofar as possible, the significant natural values of the site or area. Administration and preservation of Natural Landmarks is solely the owner's responsibility. Either party may terminate the agreement after they notify the other.

There are 587 sites across the U.S. that have been named to the program since it was created in 1962. [Big Bone Lick joined their ranks in February 2009](#), following a lengthy nomination process.



Teachers Lisa Lokesak and Traci Branstutter – Berl Meyer, 2009

[Big Bone Lick](#) will join the other National Natural Landmarks in Kentucky that include [Creelsboro Natural Bridge](#), [Henderson Sloughs](#), [Lilley Cornett Woods](#), [Red River Gorge](#) and [Rock Creek Research Natural Area](#).



Big Bone Lick dedication and the 3<sup>rd</sup> grade class from New Haven Elementary – Berl Meyer, 2009

The dedication ceremony celebrated that achievement and the people who made it happen, including an unlikely champion: a third-grade class from [New Haven Elementary School](#) in Union—hopefully future junior naturalists.

In September, the students adopted Big Bone's NNL nomination as a class project after teachers Lisa Lokesak and Traci Branstutter read a newspaper article about it.

NNL Program Director Margi Brooks said it was the first time students wrote letters in support of a nomination. She used them in her presentation to the National Parks Service advisory board in December.

The students have since learned about Big Bone Lick firsthand from Union archaeologist [Jeannine Kreinbrink](#), who co-wrote

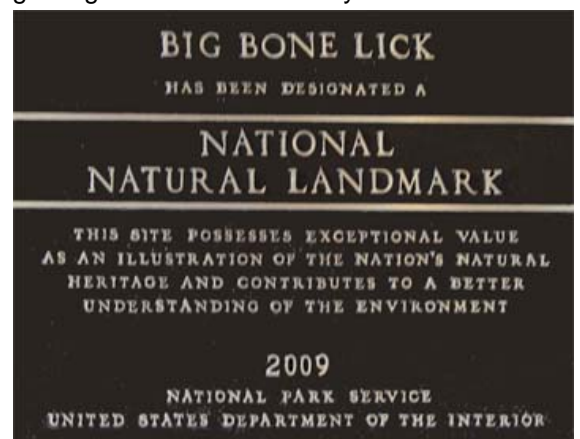
the NNL nomination paper with [Northern Kentucky University](#) professor [Dr. John Rockaway](#).

Lokesak said that the 19, 8- and 9-year-olds now get excited about writing assignments because they've seen what can come from their efforts.

They were also planning a trip to pick up trash at Big Bone Lick as a way to give back to the park but Lokesak said that the cleanup was not necessary because the park staff already keeps the park nearly spotless.

The students were honored guests at the dedication ceremony, which will celebrate the four years of hard work that went into [achieving NNL status](#).

Big Bone received a bronze plaque from the National Parks Service. The non-profit [Friends of Big Bone](#) has raised money to build a



permanent sign for it at the park. The students raised \$125 money for the sign from local donations.

Refreshments after the ceremony was sponsored by community business partner, Heritage Bank in Walton, which paid for the bus and the students' lunch.

Coming up in the fall issue of KNN will be an article on the [New Madrid Seismic Area](#) with the hope that this fall conference 2009 will be well attended. I have an all day excursion scheduled on October 11 to [New Madrid, MO](#) and a morning trip on October 12, for the "Bend" where the [Mississippi River](#) ran backwards plus other earthquake landforms.

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*Berl Meyer is the current Geology Coordinator for KSNH, the former KSNH webmaster, and the current webmaster of the [U.S.S. Constitution CVA/CV 64 website](#). Berl was stationed on this Naval Aircraft Carrier during the Vietnam War as an Aerographer (weather guesser).*

## **FORTY YEARS OF SMOKY MOUNTAIN MEMORIES**

by W. H. (Wally) Roberts



During the middle of June, 1969, my family and I were on vacation in the Smoky Mountains when the most famous unsolved disappearance in the Smokies occurred. [Dennis Lloyd Martin](#) disappeared from Spence Field on June 14, 1969, six days before his seventh birthday. The most intensive and longest [search ever conducted for a lost person](#), to that date, failed to turn up any trace of him. The search involved hundreds of professionals and volunteers and lasted nearly three months.

Dennis Martin, picnicking with family and playing with friends, ran into a clump of bushes on Spence Field and vanished. The search began within five minutes. It was daylight, and he was with his loving family. They heard no sounds, saw no strangers or animals, and were left to ponder why.

Having hiked and talked with experienced ranger searchers, J. R. Buchanan and Dwight McCarter, about this and other disappearances, they stated they had to accept the sad and sobering truths that the Smokies are full of secrets they refuse to yield to mere mortals. The [unsolved disappearance](#) of Dennis Martin is one of those secrets.

Thirty-one years later, Larry Houston and I were camping at [Cades Cove](#) and, for two reasons, decided to hike to [Spence and Russell Fields](#). One reason being it was mid-June and the [heath balds](#) would be covered with blooming laurel, flame azaleas, and rhododendron. The second reason was to see, for ourselves, the area of the unsolved disappearance of Dennis Martin.

The following was taken from our journal dated June 21, 1980: We awoke early, had a light breakfast, packed our backpacks, and walked out of our campsite at 6:45 a.m. Our hike would begin at the end of the Cades Cove Picnic Area on the Anthony Creek Trail, join the Bote Mountain Trail, continue on to Spence Field, followed by Russell Field, then back down Russell Field Trail to Anthony Creek Trail, and back to the campsite.

After hiking 3.4 miles and gaining 1860 feet in elevation, we intersected the [Bote Mountain Trail](#). Bote Mountain Trail was constructed for the Park Service by a Cherokee Indian labor force. To decide which route to follow, they conducted a vote and since there is no "v" sound in the Cherokee language, they indicated their vote by saying "bote". Consequently, the route they chose became known as Bote Mountain and the route not picked became known as [Defeat Ridge](#).

As we continued the last 1.5 miles to [Spence Field](#), we passed back-country campsite #9 and encountered our first bear beside the trail. We hurried along only to come upon a small wild boar piglet which caused our pace to quicken since "Momma Boar" was most assuredly nearby.

[Spence Field](#) was beautiful, full of blooms, and offered nice vistas of Fontana Lake, about 7 miles away down the south drainage. Larry and I explored the rock outcrop, upon which the Martin family held their picnic, and looked around the clump of trees where Dennis Martin was last seen. The site yielded no clues as to how his total disappearance could have occurred so close to a large party of family and friends.

After resting on the rocks and enjoying the views, we headed west on the [Appalachian Trail](#) towards the [Russell Field Shelter](#). About 1/2 mile from the shelter, we began hearing people calling for help. We hurried toward the shelter only to find a most unusual sight. Inside the three walled stone shelter with chain-link fence on the front, we found a Boy Scout leader and his troop being held hostage by a bear and her two cubs. It reminded us of a zoo in reverse, with the bears not willing to let the troop, with its food, out. Larry and I started yelling loudly, beating on our metal canteens, and waving our arms wildly. The mother bear turned and looked at us, looked again at the shelter, then slowly turned and walked away with her cubs. The Boy Scouts and their leader were greatly relieved, and we ate our trail lunch with them while they prepared and ate their breakfast. In June, 1980, the Russell Field shelter was perhaps the most picturesque of the AT shelters, set in a clump of green spruce/fir trees and surrounded by beautiful blooming [flame azaleas](#).

After bidding farewell, Larry and I headed down the Russell Field Trail 3.5 miles to intersect with our original Anthony Creek Trail and 1.5 additional miles back to the Cades Cove Picnic Grounds and on to our campsite. In total, with our explorations, we had hiked nearly 15 miles and it took us about 6 hours to complete the loop.

Approximately 10 million people visit [The Great Smoky Mountains National Park](#) each year, making it our most visited national park. The number of these people who meet with any type of misfortune is a fraction of the total visitor numbers. The personal stories of individuals that vanished during daylight and surrounded by other people make for great mystery. When one visits these sites, you leave more amazed and mystified than any words can ever convey. A mystery remains a mystery only as long as no one knows what truly happened. Perhaps some day someone will reveal the truth about little Dennis Martin's mysterious disappearance.

*Wally Roberts was Kentucky Naturalist of the Year 2002. He is a long-time biology instructor, interpretive naturalist, and nature photographer. He graduated with a BS in Biology from Morehead State University, and M.Ed. in Biological Education from the University of Louisville. He's been president of KSNH (3 times), former president of the Falls of the Ohio Chapter, and past president of the Board of the Louisville Nature Center. He's currently the Grant Coordinator for KSNH.*

## KENTUCKY SOCIETY OF NATURAL HISTORY STUDENT RESEARCH GRANTS IN THE FIELDS OF NATURAL HISTORY/BIODIVERSITY OF KENTUCKY

by W. H. (Wally) Roberts

[The Kentucky Society of Natural History](#) (KSNH) is pleased again to announce the offering of a funding source to help support natural history/biodiversity knowledge in Kentucky. The grants will be awarded to students attending a Kentucky College or University during the 2009-2010 school year. Grants up to \$1000 for graduate students, and up to \$500 for undergraduate students will be awarded. These grants may be used to pay for tuition, books, travel and living expenses, consumable supplies, and other materials and expenses. The grants may not be used to pay time or labor for any party. The successful applicants will be notified by the end of July 2009. Proposals will be reviewed by the KSNH Grant Committee.

### Proposal must include:

1. Current Curriculum Vitae, detailing course and work background.
2. A proposal (not to exceed two single-spaced typed pages) describing the proposed research and the role the grant would play in the research.
3. An itemized budget.
4. Two letters of recommendation, one of which must be from the applicant's major professor or project director (with telephone number and/or email). One of the two recommending sponsors must also be a KSNH member.
5. Include all other funding sources for your proposed research.

Applicants are encouraged to become [members of KSNH](#) (\$7.50/year for students), but membership is not required to be awarded a grant. The grant recipient is required to provide KSNH with a short summary of the funded research within one year of receiving the grant. The grant recipient is also required to present his/her work at either a spring or fall conference of the Kentucky Society of Natural History. Additional presentations at other meetings, such as the annual [Kentucky Academy of Science](#) meeting, are also encouraged.

Please submit three copies of all items listed above including letters of recommendation to:

W.H. (Wally) Roberts, KSNH Grant Committee Chairman  
9208-102 Hawthorne Pointe Drive  
Louisville, Kentucky 40272-2593  
email: [waldonroberts@bellsouth.net](mailto:waldonroberts@bellsouth.net)

Proposals may be submitted at any time. To be considered for the July 31, 2009, award date, all materials must be received by July 1, 2009. Any proposals received after that date will be held and considered for the 2010-2011 disbursement.

For additional information, go to our website [www.ksnh.org](http://www.ksnh.org) and click on [Grant Information](#).

## CRESTED CORAL ROOT – *HEXALECTRIS SPICATA* (WALT.) BARNH. (1904)

by Chris Bidwell



*Hexalectris spicata* (Walt.) Barnh. (1904) (crested coral root) - Chris Bidwell, 2008

This herbaceous perennial is in the [Orchidaceae](#) (orchid) family. [Crested coral root](#) has several other common names: spiked crested coral root, cock's comb, brunetta, leafless orchid, dragon's claw, and raiz-de-coral crestada. One will also see coral root as one or two words. The species has undergone many name changes over the years:

### [Hexalectris spicata](#) (Walt.) Barnh. (1904) **Synonymy:**

*Arethusa spicata* Walt. (1788)  
*Bletia aphylla* Nuttall (1818)  
*Hexalectris aphylla* (Nuttall) Raf. (1825)  
*Hexalectris aphylla* (Nuttall) Raf. Ex S. Wats. & J.M. Coult. (1890)  
*Hexalectris squamosa* Raf. (1838 "1836") nom. illegit.  
*Corallorhiza spicata* (Walt.) Tidestrom (1941)  
*Hexalectris spicata forma albolabia* P.M. Br. (1995)

The current generic epithet, *Hexalectris*, comes from Greek *hex*, meaning six and *alectryon* meaning cock's comb – referring to the 6 (actually varies from 5-7) longitudinal crests on the plant's floral lip. The specific epithet, *spicata*, refers to the spiked arrangement of the flowers along the stem. It comes from the Latin epithet "*spicata*" meaning spike/spicata as flowers arise on the axis. Crested coral root orchid was first described and named, *Arethusa spicata*, by Tom Walter of South Carolina in 1788. He placed it in the genus *Arethusa*, the dragon-mouth orchid, because of the coral root's resemblance to that genus.

[Rafinesque](#) reassigned it giving the orchid the current generic epithet, *Hexalectris*, in 1825.

Crested coral root is the most frequently used common name. This common name can lead to confusion with plant members of the genus *Corallorhiza* (coral root), whose rhizomes resemble coral and can even be a coral-pink color. *Hexalectris* and *Corallorhiza* are distinct genera. *Hexalectris* flowers are striped while *Corallorhiza* flowers are mottled, spotted, or uniform in color.

Crested coral root is found in temperate southeastern United States with some populations in the west and south. It has been found, historically, in 22 states: north to Maryland, west to Arizona, south to Texas and Louisiana, and east to the coastal states. It is found in shaded oak, hickory, pine xeric and mesic forests with shaded slopes, upland forests, dry rocky creek beds, open woodlands, and limestone glades and outcroppings being known habitats. It grows in areas where competition is minimal from other plants, especially invasives. The soil is usually rich in humus overlying sandstone, dolomite, or limestone rock. Loss of habitat is a leading factor in the plant's decline in many areas. [The Nature Conservancy](#) currently ranks crested coral root as a **G5** plant (w-3) indicating the species is secure worldwide. In the United States the species is given the [National Heritage Rank](#) of 4 (tentatively secure nationally). In Kentucky it is infrequent and the only [state ranked](#) as secure, so far. Crested coral root, like other orchids such as lady slippers, can take 10-16 years to mature (produce flowers and seed).

[Hexalectris spicata](#) is a soft/firm fleshy perennial that is smooth, leafless (has scaly bracts along the stem), rootless (has rhizomes), and is [mycotrophic](#) (~[saprophytic](#)), lacks chlorophyll, and is usually found in local populations. As an orchid its life history is most complicated and still not fully understood. Its chromosome number is unknown. Orchids must get nutrition from decaying organic matter or some other plant. But orchids are not capable of true parasitism or saprophytism. Crested coral root has a mycotrophic or mycorrhizal form of obtaining nutrition in which a parasitic/saprophytic fungus and its hyphae are retained in the coral root's rhizomes. It is from this living fungus that the crested coral root draws its energy. It is believed that the orchid contributes substances to the fungus which it cannot produce itself. Thus the fungus is saprophytic and parasitic but the crested coral root is in a mutualistic-symbiotic relationship with the living fungi and its hyphae. Any disturbance to this relationship such as habitat destruction or chemical contamination threatens the orchid. The primary fungus found in crested coral root rhizomes is a species of [jelly fungus](#) ([Basidiomycota: Agaricomycotina](#)). This saprophytic/parasitic fungus supplies crested coral root its necessary nutrients as the orchid does not have leaves or chlorophyll and can not photosynthesize. This orchid's rhizomes (also known as rootstalk or rootstock) differs from roots in that rhizomes grow horizontally underground, store food, and enables a plant to reproduce itself. Rhizomes do not die when they are cut. Rhizomes have nodes, buds, tiny leaves/bracts and have roots (which gather food) on their lower side and shoots from their upper side which generates new plants.

The aerial stems of the crested coral root are actually extensions of the plants rhizomes and can be 6-32 inches tall. The stems can be yellow-brown, pinkish-brown, or purple in color and makes it difficult to find and detect the plant. The rhizomes are thick and are encircled at intervals by growth scars of successive bracts which can aid in aging the plant. Flower inflorescences are racemes/spikes with 8-25 flowers toward the top of the plant. Bracts along the stem are lanceolate to ovate in shape and are 5-10 mm x 2-6 mm in size. Crested coral root's beauty is found in its magnificent flowers with 2 lateral petals, 3 sepals, and 1 lip (labellum) petal. The plant is leafless, has bracts, and does not contain chlorophyll.

The lateral petals and sepals are tan to purple with purple to brown veins. The distinct lip petal is yellow/cream/white with deep purple veins and has 3 shallow lip lobes. There are also 5-7 prominent crests or longitudinal ridges (lamellae) about 1 mm tall present on the lip. The ascending flowers with a single stem and pistil are separated by a column, known as the rostellum. The crested coral root blooms from July to August. The fruits are strongly ribbed, ellipsoid-shaped capsules, 16mm x 30 mm x 8 mm x 20 mm and contain thousands of minute seeds 0.1-.25 mm in length. The seed capsules can persist well into the next flowering season. The tiny seeds, as in most orchids, are wind dispersed.

Numerous insects, deer, feral pigs and mice all eat/destroy crested coral root. Slugs, rabbits, snails, and box turtles may also utilize the plant. Rabbits and slugs especially eat the emerging shoots. The reddish-purple color probably helps keep animal/insect predation in check as the color serves as a warning that the plant could be toxic or not palatable. The crested coral root is probably edible to humans and most animals as are most orchids. But, being one of Kentucky's most beautiful orchids and its infrequent status, it should be left alone for future plant lovers to marvel over. Hummingbirds and butterflies and other flying insects obtain the plant's nectar and serve as its pollinators. There is no detectable scent to act as an attractant to pollinators. Native American grave sites have been found decorated with crested coral root orchids. Whether by chance or intentional seeding/planting, it is not known for sure how the plants managed to be at these grave sites.

As one of Kentucky's largest and prettiest orchids, it is always a pleasure to come upon the crested coral root and marvel at its size, stature, and coloration. As it blends in so well with its surroundings one should stay on trails to avoid damaging existing fragile populations and their habitats. This July and August don't let the heat keep you from seeking this rare Kentucky plant gem. Realize that if you find the crested coral root orchid you are looking at a plant that could

well be over 10-16 years or more older. Have a great summer and enjoy all our summer wildflowers and Kentucky's scenic areas.

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*Chris Bidwell is an amateur naturalist and the current President of the Falls of the Ohio Chapter of KSNH.*

**THE GREAT SUNFLOWER PROJECT**

by **Gretchen LeBuhn**

As you sit at the table today, do you know where the water you are drinking came from? If you are in Washington, D.C., 90% of the drinking water comes from the Potomac River. How about the last prescription medicine you took? It probably originated from a natural source. Of the top 150 prescription drugs used in the U.S., 118 originate from natural sources: 74 percent from plants, 18 percent from fungi, 5 percent from bacteria, and 3 percent from a species of snake. And, where did the ingredients for your lunch and dinner come from? One of every three bites you took probably came from a plant pollinated by [wild pollinators](#). This is just the beginning of list of the services provided by healthy, natural ecosystems.

The [conservation of pollinators](#) is central to biodiversity and life on Earth, to food security and to the global economy. [Pollinators](#) provide essential ecosystem services to agricultural and natural ecosystems. For agriculture, as

much as 35% of the global food supply depends on [animal pollinators](#). Amazingly, with this much of the food supply at stake, agriculture relies almost exclusively on a single pollinator, [Apis mellifera](#), the [European honey bee](#). In the [United States](#) alone, the value of pollination to crop production by this single species is estimated to be \$14 billion. Our reliance on this species is still increasing. Demand for honey bee colonies increased approximately 25% from 1989 to 1998 and has continued since that time.

Unfortunately, over the past sixty years, honey bee colonies have declined by 59%, due to the effects of the [varroa mite](#) among other things. The [USDA](#) and [Apiary Inspectors of America](#) have reported that in each of 2006 and 2007 commercial bee-keepers in the United States lost a little over 30% of their honey bee colonies. Much of this loss has been attributed to [Colony Collapse Disorder](#), a disorder that results in the loss of a colony. While we know something about decreases in the number of honey bee colonies, we know very little about what this has meant for [pollinator service](#).



*Xylocopa* sp. (carpenter bee) - Ginny Stibolt, 2008

Pollinator service depends on both [honey bees](#) and other [native pollinators](#). The actual value of [native pollinators](#) for crop production is much more difficult to estimate because the value of specific pollinators differ for each crop and are dependent on geographic location, availability of natural habitat, and pesticide use. Studies in agricultural systems have shown that native pollinators can provide significant pollinator service directly and indirectly because the efficiency of honey bees is improved by the presence of native bees. We know native bees can have a significant role because increases in the number and species of [native bees](#) have been associated with increases in crop production. In addition to their role as pollinators of crops, animals pollinate approximately three-fourths of the [angiosperms](#). A recent study suggests that declines in pollinators are increasing the risk of extinction of many native plant

species, particularly in species-rich regions. In these systems, non-honeybee pollinators are of primary importance. For example, in the United States alone, there are approximately 3,500 species of [native bees](#) that may be involved in pollination.

There have also been local declines reported in native pollinators in Europe, Asia, Central and South America, Africa, and Australia and the United States and Canada, but there have been no regional or continental surveys of pollinators. This means that no one knows exactly how pervasive the declines in bee populations are and what affect these declines are having on pollination of plants. No one knows because never before has there been a survey at a large enough scale to understand what's happening with bees---until now.

[The Great Sunflower Project](#) is designed to do just this. Using sunflowers as standardized thermometers for each site where they are planted, the 50,000 participants time how long it takes for five bees to visit their sunflower, effectively creating an index of pollinator service. By also taking and uploading photographs of the visiting bees, the data collected can both be verified and will answer whether or not native bees are filling in where we have had a loss of honey bees through colony collapse disorder or other maladies. By counting seed set in seed heads sent in by participants, we can relate our visitation data to actual seed production. Using these data we can evaluate the state of pollinator service across the United States and Canada, determine what the environmental factors are important for pollinators at local, regional and continental scales and across rural, suburban and urban landscapes and evaluate whether native pollinators can fill in where European honey bees have declined. Do join us by signing up at [www.GreatSunflower.org](http://www.GreatSunflower.org)!

[Gretchen LeBuhn](#) is the Director of the [Great Sunflower Project](#) and Associate Professor of [Biology](#) at [San Francisco State University](#).

**SUMMER 2009 NEWSLETTER PHOTO CONTEST:  
THE TOPIC IS "KENTUCKY AMPHIBIANS AND/OR REPTILES"**



*Rana catesbeiana* Shaw, 1802 (American bullfrog) - Chris Knopf, 2008



*Rana clamitans* Latreille, 1801 (green frog) - Chris Knopf, 2008



*Bufo americanus* Holbrook, 1836 (American toad) - David Becker, 2006



*Notophthalmus viridescens* (Rafinesque, 1820) (eastern newt) - Kathy Dennis, 2008



*Rana sphenocephala* - Cope, 1889 (Southern Leopard Frog) - David Becker, 2008



*Bufo americanus* Holbrook, 1836 (American toad) - Kathy Dennis, 2008



*Lampropeltis triangulum* - (Lacepède, 1789) (milksnake) - David Becker, 2008



*Terrapene carolina carolina* (Linnaeus, 1758) (eastern box turtle) - Kathy Dennis, 2008

The Summer 2009 Newsletter Photo Contest had 12 judges.

Newsletter Photo Contest Topics for 2009+:

Fall 2009 – Fall Color,

Winter 2009 – Kentucky Winter Bird Residents,

**KSNH FIELD TRIP: ODNATES AT HORNER WILDLIFE SANCTUARY  
IN OLDHAM COUNTY, JUNE 6, 2009**

By Paul Florence

On June 6, 2009, there will be a KSNH Odonate Field Trip to **Horner Wildlife Sanctuary** in **Oldham County**. Paul Florence will lead a field trip focusing on the variety and biology of local damselflies and dragonflies. Topics covered will include how to tell the difference between damselflies and dragonflies, habitats and the different life stages that can be found in them, food sources utilized by the different life stages, and identification of local species. Details will be arranged later. Parking & attendance will likely be limited. Contact Paul at [paul.florence@kctcs.edu](mailto:paul.florence@kctcs.edu) or by phone at (502) 499-2714 to reserve a spot.

**CHAPTER NEWS**

**Falls of the Ohio Chapter by Chris Bidwell - Falls of the Ohio Chapter president**

I would like to wish everyone a wonderful summer. Our **2009 Spring Conference at Pine Mountain Settlement School** was just wonderful. There were several new members there and I had long talks with older members of this great organization. As spring is rapidly passing by I realized how time does really fly. I see our aging members trying to keep up with us “younger folk” and it is heart-wrenching to see some of my mentors and peers decline in health and ability to hike these many Kentucky scenic areas as they once could. At the same time, I can’t help but marvel at how some of our older members who so deeply love this organization manage to be part of our outings. For example, two of our octogenarian members, Mike Duncan (87) and Al Boice (81), drove themselves to Pine Mountain Settlement School and participated in many of the activities. What an inspiration to all of us. I just turned 60. I wonder if I can be that fortunate if and when I live to my octogenarian years. My hat is off to my fellow senior citizens and KSNH members. Age, as nature, knows no bounds.

**Falls of the Ohio Chapter Events** (see front cover for regular meeting times and place, field trip times may be found below or are to be determined. Contact Chris Bidwell for more information.)

2009 Dates	Event/Speaker	Topic / Outing	Photo Contest Topic
May 21	Meeting: <a href="#">Major Waltman</a>	<a href="#">Olmstead Parks</a>	Snails
May 23	Field Trip: TBD	Car Tour of the <a href="#">Olmstead Parks</a>	
June 18	Meeting: <a href="#">David Sakrison</a>	Ultralight-Led Crane Migrations. Sakrison is the author of <a href="#">Chasing the Ghost Birds: Saving Swans and Cranes from Extinction.</a>	Guess What This Is in Nature
June 20	Field Trip: Robert Bridges	Purple Martin Site Outing & Picnic @ <a href="#">Bernheim Arboretum &amp; Research Forest</a>	
July 16	Annual Picnic: <a href="#">Kurt Mason</a>	Soil Conservation	none
September 17	Meeting: <a href="#">Dr. Mark Wourms</a>	Tentative Topic: <a href="#">Bernheim Forest</a>	Moths & Butterflies
September 19	Field Trip: TBD	TBD	
October 15	Meeting: <a href="#">Dr. Art Parola</a>	Stream Restoration	Halloween’s Patterns & Colors in Nature
October 17	Field Trip: Carl Suk	<a href="#">Jefferson County Memorial Forest</a> & Non-Native Invasive Plants	
November 19	Meeting: TBD	TBD	A Fall Leaf (single leaf)
November 21	Field Trip: TBD	<a href="#">Muscatatuck National Wildlife Refuge</a>	
December 17	Annual Dinner:	TBD	none

KENTUCKY NATURALISTS' CALENDAR

(added as space and time allow)

**2009:**

**June 2-16, 2009: Junior Naturalist Programs @ John James Audubon State Park, 3100 US 41 North, Henderson, KY 42420.**

June 2, 2009; 9:00 a.m.-12:00 p.m. Junior Naturalist Programs Ages 10-12; Audubon Museum

June 9, 2009; 9:00 a.m.-12:00 p.m. Ages 8-9; Audubon Museum

June 16, 2009; 9:00 a.m.-12:00 p.m. Ages 6-7; Audubon Museum

June 16, 2009; 7:00 p.m. S'mores Celebration and Awards Ceremony for all Junior Naturalists and their families (Audubon Campground Shelter).

Open your eyes to the amazing wonders in your own back yard. Learn about how we protect these beautiful resources. Programs meet at the Audubon Museum. Kids who attend any one of these dates will receive a patch and certificate. Children ages 10-12 will meet on June 2, Children ages 8-9 will meet on June 9. Children ages 6-7 will meet on June 16. Pre-registration is required. Maximum 20 attendees per date. Contact Julie McDonald at (270) 826-2247 or by email at [juliea.mcdonald@ky.gov](mailto:juliea.mcdonald@ky.gov), or visit the park website at <http://parks.ky.gov/findparks/recparks/au/> for more. Program Fee: \$10.00

**June 6, 2009: KSNH Odonate Field Trip @ Horner Wildlife Sanctuary in Oldham County, Kentucky.** KSNH Invertebrate Coordinator Paul Florence will lead a field trip focusing on the variety and biology of local damselflies and dragonflies. Details will be arranged later (check the next newsletter). Parking & attendance will likely be limited. Contact Paul at [paul.florence@kctcs.edu](mailto:paul.florence@kctcs.edu) or by phone at (502) 499-2714 to reserve a spot.

**June 6, 2009: Creatures of the Night Adventure Trek/National Trails Day @ Audubon Museum, John James Audubon State Park, 3100 US 41 North, Henderson, KY 42420 (6:00 p.m. – 9:00 p.m.).** Venture out with our Interpretation staff on National Trails Day and discover the mysticism of nighttime creatures. Dress for the weather and bring a flashlight. Contact Julie McDonald at (270) 826-2247 or by email at [juliea.mcdonald@ky.gov](mailto:juliea.mcdonald@ky.gov), or visit the park website at <http://parks.ky.gov/findparks/recparks/au/> for more.

**June 10-14, 2009: In the Footsteps of Lucy Braun @ Pine Mountain Settlement School, 36 Highway 510, Pine Mountain, KY 40810.** This four-day forest study workshop is named in honor of one of the first and foremost conservationists of the 20th century, E. Lucy Braun. Dr. Lucy, as she was called by her colleagues, devoted her life to the study of plants and to conservation campaigns to save wilderness areas and other natural sites. The four-day workshop will combine field trips, lectures, and slide presentations in the study of forest types found in Eastern Kentucky. Daily field trips will include four- to eight-mile hikes. The workshop is geared toward adults. Fee based. Contact the Pine Mountain Settlement School at 606-558-3571 or 606-558-3542 for details. You can also visit their website at <http://www.pinemountainsettlementschool.com/>.

**June 21-24, 2009: 4th Hellbender Symposium @ Cumberland Falls State Park, in Corbin, Kentucky.**

**June 27, 2009: The Society of Kentucky Lepidopterists (SKL) Annual 4th of July Oldham County Butterfly Count @ Horner Wildlife Sanctuary.** For details see the SKL website at <http://bioweb.wku.edu/faculty/Marcus/KYLeps.html> or contact trip Leader Charlie Covell via email at [covell@louisville.edu](mailto:covell@louisville.edu).

**July 24-26, 2009: Midwest Native Plant Conference @ Hope Hotel at Wright-Patterson Air Force Base in Dayton, OH.** This event is hosted by the newly formed Midwest Native Plant Society, [Flora-Quest](#) and the [Greater Cincinnati Wild Ones](#). This conference will include educational programs and field trips designed to connect people and nature. The focus will be on native prairies and wetlands with emphasis on the importance of native plant communities. For more information see their website at [http://cincinnatibirds.com/wildones/MWNP\\_Society/preregister.php](http://cincinnatibirds.com/wildones/MWNP_Society/preregister.php) or call (513) 941-6497.

**August 12-16, 2009: In the Footsteps of Lucy Braun @ Pine Mountain Settlement School, 36 Highway 510, Pine Mountain, KY 40810.** This four-day forest study workshop is named in honor of one of the first and foremost conservationists of the 20th century, E. Lucy Braun. Dr. Lucy, as she was called by her colleagues, devoted her life to the study of plants and to conservation campaigns to save wilderness areas and other natural sites. The four-day workshop will combine field trips, lectures, and slide presentations in the study of forest types found in Eastern Kentucky. Daily field trips will include four- to eight-mile hikes. The workshop is geared toward adults. Fee based. Contact the Pine Mountain Settlement School at 606-558-3571 or 606-558-3542 for details. You can also visit their website at <http://www.pinemountainsettlementschool.com/>.

**August 28-30 or September 12-14, 2009: The Society of Kentucky Lepidopterists (SKL) Summer Field Trip @ Jackson Purchase (Western Kentucky).** For details see the SKL website at <http://bioweb.wku.edu/faculty/Marcus/KYLeps.html> or contact trip leader: [Gerald Burnett gdburnett@brtc.net](mailto:Gerald.Burnett.gdburnett@brtc.net).

The mission of the Kentucky Society of Natural History is to actively promote study and interest in Kentucky's rich natural heritage throughout the Commonwealth. Members are typically interested in a broad spectrum of natural sciences and related fields. Among the more prominent activities of the society, are the annual Spring and Fall Conferences, selection of a "Naturalist of the Year", nature photography contests, and a variety of knowledgeable speakers and field trips. We invite anyone who shares our interests to join us. For membership information or the address of the nearest affiliated chapter, please contact:

**KSNH, P.O. Box 72777, Louisville, KY 40272-0777, or visit our website <<http://www.ksnh.org>> for the membership form. Membership dues are: Individual \$15, Family \$25, Full Time Student \$7.50, Life: \$300.**

**The Kentucky Society of Natural History is an official 501(c) (3) tax-exempt nonprofit organization** which was formed in 1939, and incorporated in 1943 in Louisville, Kentucky. All contributions to THE KENTUCKY SOCIETY OF NATURAL HISTORY are tax-deductible to the full extent of income tax laws.

Published quarterly, The [Kentucky Naturalist News](#) is the official newsletter of KSNH. Unsolicited contributions are encouraged. Please send articles to: **Barry Nichols, KNN Editor, P. O. Box 21182, Louisville, KY 40221.** You can also email newsletter submissions by sending them to [kyfauna@iglou.com](mailto:kyfauna@iglou.com).

**Kentucky Naturalist News Deadlines:**

<u>Issue</u>	<u>Deadline</u>	<u>Tentative Publish Date</u>
Summer Issue	May 1, 2009	June 1, 2009
Fall Issue	August 1, 2009	September 1, 2009
Winter Issue	November 1, 2009	December 1, 2009
Spring Issue	February 1, 2010	March 1, 2010

For submissions, please cite references. To assist, you may use: <http://www.lib.ncsu.edu/lobo2/citationbuilder/citationbuilder.php>.



**Kentucky Society of Natural History,  
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