

The Nightly Magic of Lightning Bugs

BY AMY VOSS-DEVITO

If you're from around these parts, you call them lightning bugs.

We refer to those dear little insects whose twilight appearances are the essence of summertime magic. This month the *Mountain Courier* reports on our trip to the High Bridge Trail State Park Firefly Festival where, 120 feet above the ground, visitors gazed over sparkling treetops as far as the eye could see.

Whether you call them lightning bugs or fireflies, their nightly light shows will soon draw to a close. The brilliant, aerial pursuit of *Lampyridae* whoopie is a short-lived summer pleasure, lasting a few weeks at most. All the more reason to settle back in a lawn chair or porch swing now to savor the fleeting display of bioluminescent love lighting up your backyard.

(copy for jump) Bug Light: *The Mountain Courier* Visits High Bridge Trail State Park Firefly Festival

"If we named this thing after lightning bugs, it would have been something like the Lightning Bug Bash but we didn't.... I still like calling them that, though."

— Park Ranger and program presenter Craig Guthrie, High Bridge Trail State Park Firefly Festival

The fireflies and solar-powered trail lights flickered on at about the same time. For 750 visitors at the recent High Bridge Trail State Park Firefly Festival near Farmville, Virginia, it was an illuminating start to an evening filled with twinkles, science and good old-fashioned wonder as the crowd ranged along the 2,400-foot-long bridge, gazing at a light show only Mother Nature could have staged.

Timed for peak firefly season, the sold-out event was the park's ninth festival, and it has drawn *Lampyridae* devotees from as far away as New York and Louisiana. At 120 feet high and nearly seven football fields long, the reconstructed historic bridge offers a view of glittering treetops as far as the eye can see. It was a spectacle that Scott and Donna Boyd of Virginia Beach weren't about to miss.

They made the four-hour trip with five-year-old granddaughter, Sammie, who whiled away the hours before dusk riding her pink scooter and catching frogs.

"In King George County there are not so many fireflies," Donna lamented. Her observation was echoed by Robin Clark, who with her husband had driven from Richmond so their son, Matt, could see the show. Last year, "we saw maybe three or four (lightning bugs) over the whole summer," she said.

There was still plenty of light in the evening sky when Park Ranger Daniel Jordan welcomed the crowd at 9 pm. After a few remarks about the Civil War history of bridge and park, now a popular rail-trail, Jordan turned the mike over to fellow ranger and lightning bug aficionado, Craig Guthrie.

For the next half hour, the ranger talked Firefly 101 while listeners lounged against the bridge railings, marveling at the rapidly multiplying flashes below.

Nature's flashlight

A beetle, not true bug, there are 125 known species of *Lampyridae* in the United States, most of them east of the Rockies, Guthrie said. Humidity is essential to their survival and the park, bisected by the Appomattox River, is home to at least 30 species.

Some species spend almost two years as carnivorous larvae before emerging as adults with only a few weeks to mate before they die. (It wasn't your imagination. Those flashes really do dwindle by late summer.) Not all fireflies light up although all firefly eggs and larvae do glow, hence the nickname "glow worm."

"Fireflies have the most sophisticated light organism of any creature in the world," Guthrie said. The insect's light organ, called a lantern, is a veritable chemistry set including two unique components—luciferin and the enzyme, luciferase, which breaks down the luciferin molecule and releases energy in the form of light.

Scientists believe fireflies can trigger the duration and frequency of their flashes by the amount of oxygen they allow through little tubes, called tracheoles, leading into their lanterns. Not only does the light release almost no heat—so not to burn the insect—but such fine control allows male fireflies to create distinctive flashing patterns. Females have their own specific flash responses and can signal back directly to individual males who strike their fancy.

Eat the one you're with

Being unappetizing is a real plus in the insect world. However, despite a terrible taste Guthrie describes as "bitter and toxic," fireflies are still on the menu for three predators: wolf spiders, whippoorwills and photuris, a trickster species of firefly with a penchant for luring and dining on unwary males.

"The mockingbird of the firefly world," according to Guthrie, female photuris are adept at mimicking flash responses of many other firefly species. The game plan is dinner. Scientists speculate that photuris requires protein to lay her eggs, and males are a handy source. "Researchers find piles of dead male fireflies (on the forest floor) still faintly glowing," he said.

All together now: Synchronous fireflies

By 9:30 the treetops below the bridge were alight with frantic twinkles, and Guthrie was winding up his talk, answering questions about one of the most intriguing fireflies of all, *Photinus carolinus* or synchronous fireflies.

While most species flash on and off at individual intervals, *Photinus carolinus* males light up en masse, he said. Rare pockets of them are scattered throughout the southern United States, including a popular spot in Tennessee's Great Smoky Mountain National Park. Their pulsing clouds of light have so captivated firefly fans that park authorities have instituted a lottery system to manage the crowds making pilgrimages to Elkmont Campground to watch.

Firefly finale

Ten pm. The glints and flashes of love-sick *Lampyridae* reached its spectacular climax. Clouds of fireflies starred the dark crowns of oak and sycamore swaying in the breeze rising up from the Appomattox River. Observers quietly walked the bridge span, some pushing strollers with babies long asleep, others leading small children bedecked with glow necklaces by the hand.

Two hours before midnight, the moonless sky was far from dark. Richmond and Farmville glimmered on the horizon, a sobering reminder of the far reaches of light pollution, even in this midsummer night sanctuary. But at High Bridge, all was serene. High above the frog song, the sparkling pursuit of love continued.

Amy Voss-DeVito Mountain Courier Editor Amy Voss-DeVito spent her childhood with a glass jar in one hand, chasing lightning bugs around the backyard despite her mother's complaints

that she ruined the family's canning jar lids punching air holes in them. She and husband and co-publisher Jeff DeVito's bucket list includes seeing the synchronous fireflies of the Smokies someday.

Where the Fireflies Flicker High Bridge Trail State Park Firefly Festival

Father's Day weekend

Tickets required, online registration

Info under "Firefly Festival"

dcr.virginia.gov

1466 Camp Paradise Road

Rice, Virginia 23966

Synchronous firefly events Great Smoky Mountains National Park

Early June

Shuttle to Elkmont Campground

near Gatlinburg, TN

Online lottery for vehicle passes

nps.gov/grsm/learn/nature/fireflies.htm

Pisgah National Forest Cradle of Forestry Blue Ghost Firefly Tours

Tickets required, online reservations

Info: romancasheville.com

Pisgah Forest, North Carolina 28768

(box) A Twinkling Insect by Many Other Names...

According to Firefly.org, lightning bugs go by many different monikers. Here are a few listed on their website.

Glow worm — British

Glimworm — Dutch

Gluhwurmchen — German

(spot a pattern here?)

Luciernaga — Spanish

Hing Hoy — Thai

Hotaru — Japanese

Blinkie — Jamaican