

MOUNTAINS

Charismatic beetles light up the night



Word from the Smokies
Frances Figart
Columnist

Great Smoky Mountains National Park announced April 27 that its popular synchronous firefly viewing event in Elkmont Campground will resume this year June 1-8 after a hiatus last spring to prevent the spread of COVID-19.

In 2019, the spectacle had attracted more than 28,000 people from all 50 U.S. states and 19 countries to enter the lottery for the shuttle ride to view the fireflies.

“It’s wonderful (and rare) that an insect — rather than a bear, elk or other mammal — can captivate so many visitors,” says Smokies entomologist Becky Nichols. “Fireflies are among a handful of organisms in the park that can create their own light — a trait called bioluminescence. We usually think of a firefly adult, but in fact a firefly spends most of its life as an armored larva, crawling through leaf litter and feeding on things like snails, slugs, and earthworms.”

These larvae are successful when, at the end of their year or so of life, they “get their wings” and enjoy one “last hoorah.” In the case of *Photinus carolinus*, the synchronous firefly, this life-cycle finale provides the sensational choreographed light show that makes a lottery ticket for Elkmont so coveted.

Elkmont was the idyllic backdrop for summer vacations with family when Lynn Faust was a child. “When we watched them at our family cabin, we thought lightning bugs were all the same,” she says. “But now I know better.”

After the Elkmont fireflies piqued her curiosity, Faust ended up becoming one of the world’s firefly experts. Her book, “Fireflies, Glow-worms, and Lightning Bugs” features more than 70 species of luminous beetles, including historical



Starting up just after dark, males of the blue ghost fireflies (*Phausis reticulata*) can stay illuminated for up to a full minute. Look for their greenish-blue glow in wooded areas beginning in the next few weeks.

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backgrounds, a chart documenting flash patterns, and photos that illustrate the distinguishing physical characteristics of these captivating insects.

There are at least 19 species of firefly just in Great Smoky Mountains National Park. Although a few species are day-flying and don’t light up, most have a unique flash pattern to attract mates. For synchronous fireflies, the pattern is a flash train of 5-11 yellow flashes, then a 6-9 second pause. As more and more males join in, both the period of darkness and the flash trains become more synchronized.

Faust suggests that those who don’t win the park’s lottery — slated for April 30 through May 3 — seek out several other species emerging in the Southern Appalachians in the next few weeks, including three that are visible right now in many easy-to-access environments.

Spring treetop flasher (*Pyractomena borealis*): The earliest species to emerge, these beetles produce yellowish lights up in the tops of trees about

45-90 minutes after dark as the males attempt to attract females with a flash about once every two to four seconds.

Blue ghost (*Phausis reticulata*): Beaconing male blue ghosts can stay illuminated for up to a full minute. Look for their greenish-blue glow just after true dark hovering 18-36 inches above the ground in wooded areas of mountains or valleys.

Shadow ghost (*Phausis inaccensa*): The dark male shadow ghosts fly at night searching for ground-dwelling flightless females who glow from two tail spots as they perch on low vegetation or leaf litter just after sunset.

“In the biologically diverse southeast,” says Faust, “there are easily seven to 20 species of fireflies present at some point in the year in many dark, non-chemically-treated intact habitats.”

Like other insects, fireflies need high-quality habitat to survive and complete their life cycle. The ground-dwelling life stages are particularly vulnerable and need a moist, undisturbed

layer of leaf litter for shelter.

“You can help fireflies in your own backyard by taking three easy steps,” says Will Kuhn, director of science and research for Discover Life in America, a partner of GSMNP. “Turn off outdoor lighting, particularly during spring and summer when fireflies depend on darkness for their courtship. Reduce the use of pesticides, which will protect not only fireflies but also pollinators as well as birds, bats, and other wildlife. Finally, establish good firefly habitat by leaving a patch of yard to grow un-mowed and leaving leaf litter and dead vegetation in place undisturbed.”

Fireflies are part of the wonderfully complex web of life not just in the Smokies, but all around our region. Many times, all we have to do is go outside not long after dark and look.

“The options are fairly limitless for those who have caught the lightning-bug bug,” says Tim Pharis, who manages Rocky Fork State Park in Flag Pond, Tennessee, just 45-minutes north of Asheville on Interstate 26 West. “Our park is five miles’ drive from the Madison County, North Carolina, border and has blue ghost as well as synchronous fireflies. We will be showcasing both species in our programs with dates soon to be determined.”

The Rocky Fork lottery runs May 3-9 and will permit eight vehicles per each night of the programs. Learn the details at tnstateparks.com/parks/rocky-fork or contact Tim.Pharis@tn.gov.

Frances Figart lives in Flag Pond, Tennessee, right beside Rocky Fork State Park. She is the editor of Smokies Life magazine and the Creative Services Director for the 28,000-member Great Smoky Mountains Association, an educational nonprofit partner of Great Smoky Mountains National Park. Purchase her new book, “A Search for Safe Passage,” (which includes a rhyming firefly) at smokiesinformation.org, and reach the author at frances@gsmas-soc.org.

Great Smokies synchronous fireflies return

Karen Chávez Asheville Citizen Times
USA TODAY NETWORK

Even though visitors weren’t allowed a seat in the so-called theater last year, the Great Smoky Mountains synchronous fireflies were still showing off.

This year, the public is once again invited to one of the best natural shows on Earth, after being barred last year due to the COVID-19 pandemic.

The park will host the annual synchronous firefly viewing opportunity at Elkmont June 1-8. This is a hot ticket, so the park in recent years established a lottery to maintain visitors to a manageable number.

The public may enter the viewing lottery for a vehicle pass through at recreation.gov. The lottery opens for vehicle pass applications at 10 a.m. April 30 through 11:59 p.m. May 3.

Every year in late May to early June, thousands of visitors gather near the popular Elkmont Campground to gape in hushed awe at the naturally occurring phenomenon of *Photinus carolinus*, a firefly species that flashes synchronously.

Since 2006, access to the Elkmont area has been limited during the eight days of predicted peak activity in order to reduce traffic congestion and provide a safe viewing experience for visitors that minimizes disturbance to these unique fireflies during the peak mating

period.

“I’m pleased that we’re able to once again offer an opportunity for visitors to experience synchronous fireflies at Elkmont in a safe manner,” Superintendent Cassius Cash said in a statement.

“Last year, we canceled the viewing opportunity due to concerns about using shuttle operations during the pandemic. Our staff worked hard to develop a new operational plan that allows limited parking for passenger vehicles directly at the site for 2021.”

A total of 800 vehicle passes, 100 passes per night, will be issued through the lottery process. Results of the lottery will be available by May 7. Each vehicle pass provides admission for parking directly at Elkmont for one passenger vehicle with a maximum of seven occupants.

The last time a public viewing was held in 2019, the park received 29,000 applicants for the lottery from around the world but gave out only 1,800 passes.

During the application process, lottery applicants may enter two possible dates to participate in the viewing opportunity over the eight-day period.

The number of passes issued each day is based on parking capacity and the ability to safely accommodate a large number of viewers on site, while minimizing resource impacts.

The lottery system uses a random-

ized computer drawing. The application fee is \$1. Successful applicants will automatically be awarded parking passes, and a \$24 reservation fee will be charged to the same credit or debit card used for the application fee.

The fee covers the cost of awarding the passes, on-site portable restrooms, supplies, and nightly personnel costs for managing the viewing opportunity at Elkmont. Parking passes are non-refundable, non-transferable and good only for the date issued. There is a limit of one lottery application per household per season. All lottery applicants will be notified by email by May 7 that they were “successful” and awarded a parking pass or “unsuccessful” and not able to secure a parking pass.

What makes this such a hot ticket?

Becky Nichols, a Smokies entomologist who has been studying fireflies and other insects in the park for more than 20 years, said there are 19 species of fireflies in the Smokies, one of the most biodiverse places on Earth. Of those, 13 species flash.

“The synchronous firefly really does synchronize its flash pattern. It may look somewhat random at first, but the period of darkness in their flash behavior really does look synchronous. And when they get warmed up later in the

Sign up

Visit recreation.gov for more information and to enter the lottery or call 877-444-6777 to enter the lottery. Online application is preferred. For more on synchronous fireflies, please visit the park website at nps.gov/grsm.

evening, even the flash pattern lines up,” she said.

Only the males do the flashing as they fly between 2-6 feet above the forest floor, trying to signal to the female that they are the right species for mating, Nichols said. The female firefly does flash, but it’s a very faint flash from where it’s crawling on the ground. The females don’t fly.

During the viewing period, access to Elkmont is restricted after 4 p.m. to passenger vehicles with a parking pass, registered campers staying at the Elkmont Campground, or backcountry campers with a valid permit.

Visitors are not allowed to walk or ride bicycles on the Elkmont entrance road or Jakes Creek Road after 4 p.m. due to safety concerns. Overnight parking at Little River Trailhead, Jakes Creek Trailhead, or the Appalachian Clubhouse is not allowed without a valid backcountry permit for backcountry campsites associated with these trailheads.

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