

# *The Science in a Twinkle of Nighttime in the South*

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Fireflies seen at Shining Rock Wilderness Area in East Fork, N.C. Credit Spencer Black

GREENVILLE, S.C. — As dusk faded over the home of Jeremy Lyons and his sons on a recent evening here, one ritual of the Southern summer — the soft hiss of a can of mosquito repellent — signaled that the start of another was near.

And although Raine Lyons, 6, grimaced, coughed and flinched during his dousing with bug spray, he soon stood near a chain-link fence in his backyard and shouted, in speedy succession: “Found one! Found one! Found one!” Mr. Lyons, perched on his knee next to Raine, was almost completely silent as he tapped the screen of his cellphone again and again and again.

There, on a weeknight in a South Carolina backyard, a father and his son, in their different ways, were counting fireflies. But an evening among fireflies was not merely a modest round of summertime nostalgia; instead, it was part of a multiyear quest by Clemson University researchers to measure the firefly population and investigate whether urbanization, especially here in the fast-growing South, threatens the insects.

Scientists have for years been warning that the world’s estimated 2,000 species of fireflies are dwindling, partly because expanding cities are altering water flow patterns and yielding more light pollution, which researchers say can hamper the mating rituals of the insects.

“Fireflies are indicators of the health of the environment and are declining across the world as a result of degradation and loss of suitable habitat, pollution of river systems, increased use of pesticides in agro-ecosystems and increased light pollution in areas of human habitation,” according to the [Selangor Declaration](#), named for the Malaysian site of a 2010 symposium about fireflies. “The decline of fireflies is a cause for concern and reflects the global trend of increasing biodiversity loss.”

Enter the [Vanishing Firefly Project](#) of Clemson, a bare-bones effort that began the same year and asks people to step outside, peer into the darkness and, for a single minute, count the fireflies that sweep through their field of vision.

For experts like Alex Chow of Clemson, an assistant professor of biogeochemistry and environmental quality who is among the project’s organizers, fireflies are a relaxed way to attract so-called citizen-scientists to research that could answer broader questions about the state of the environment.

“It’s easy, and everyone can see how they’re changing,” Professor Chow said in a telephone interview from his office at the Baruch Institute of Coastal Ecology and Forest Science, near the South Carolina coastline. “I never see someone come in and say, ‘I’m seeing fewer butterflies than 10 years ago.’ But I have people say, ‘I’m seeing fewer fireflies.’ ”

Researchers say that such a study would not be possible without volunteers like Mr. Lyons, who has in turn used the Clemson project to pull his sons away, if only briefly, from video games.

“Kids are naturally drawn to fireflies, so it’s a good building block to teach them lessons about the environment,” said Mr. Lyons, who has a 2-year-old son in addition to Raine and freely recalled childhood memories of chasing fireflies in the woods of rural New York. “It’s a good little icebreaker activity for a kid, so then their attention is gotten and you can talk to them about it and they don’t even realize that you’re teaching them something.”

Coordinators of firefly projects elsewhere, like [the one](#) at the Museum of Science in Boston, share similar accounts, even though the studies are unrelated and, their sponsors acknowledge, prone to flaws because they depend on largely untrained participants. (Even a single household on a single night can produce divergent results: Mr. Lyons counted 17 fireflies one evening, while Raine tallied 13. They submitted Mr. Lyons’s appraisal.)

Researchers like Professor Chow, who said he strips away improbable reports, and science educators like Don Salvatore, who coordinates the Boston program, say that the counts still offer valuable data while gently tugging at memories held close and deep.

“It’s a way for them to get involved in a past summer ritual that they haven’t been able to do before because they’ve sort of forgotten about fireflies,” Mr. Salvatore said. “This gets them to go back outside and enjoy something that they used to enjoy.”

And while they do that, they sometimes pull their children in, too. It is not, for many parents, about science, even though that is a pleasing bonus. For these parents, it is

about carving out a few minutes under a star-speckled sky, away from life's constant pressures.

"Sometimes we go in the backyard, just him and I," said Melissa Cobb, who along with her 6-year-old son, Emery, lives in surrounding Greenville County. "I would love it if this is something that my child would remember when he gets older, that it's something that he did with his mommy."

Professor Chow has not determined when Clemson's project will end. Its continuation is partly a question of financial support; since its inception, Professor Chow said, the project has been supported by volunteers and a small grant.

"I hope to keep it going because in order to answer the questions, we do need long-term data, but that will really depend on the funding," he said. "This is a really interesting and fun project, but when you're looking for funding, it's a little bit tricky."

But to a 2-year-old child like Baker Lyons, those anxieties are unknown.

Just before Mr. Lyons and Raine descended the stairs off their back deck, Baker sat at its edge, clutching the wooden rails.

His father bent over him and asked softly: "Are you counting fireflies? Where are they?"

"They're up there," Baker replied, tilting his head upward.

"Up in the sky?"

"Yeah!"

Raine, meanwhile, was already screaming toward the trees. "I saw one! I saw two! I saw three!"