



Clear Lake's Lightning Bugs

by Ellie Shultz



As an environmental educator in Florida, I've had the incredible pleasure of teaching tens of thousands of people about lightning bugs, many of whom have been Floridians that didn't even know that we had any lightning bugs in Florida, let alone 56 species of them! Sharing the dazzling forests of Blue Spring State Park (*below*) with first-time and seasoned firefly observers alike is such a privilege.



However, among the visitors who have seen lightning bugs before, there is a common theme: most of us remember seeing many more lightning bugs in our childhoods than we have more recently.

My childhood summers in the Midwest, including many magical nights spent at Clear Lake each year, were aglow with the bioluminescence of lightning bugs.

That bioluminescence—a chemical reaction that produces the flashing light inside the lightning bug's bodies to help them find another lightning bug to mate with—is still being fully understood by scientists, but it is an almost magical quality that rarely fails to endear even the most "bug-phobic" among us to them.

Entomology Etymology

Fireflies, also known as lightning bugs, are not actually flies, and they're technically not "true bugs," although you will often hear people—including myself—use the word *bug* to refer to anything in the category of creepy-crawlies.

So what type of insect is a lightning bug? Make a guess and then read to the end to find out!

Unfortunately, those of us who remember seeing a lot more lightning bugs in the past aren't imagining things: there has been a significant decline in lightning bugs around the world, with some species being officially listed as endangered, while others are severely threatened but ineligible for official status as endangered species due to lack of research.

There are 3 main reasons for their decline.

1. **Pesticide use** - Most pesticides are not targeted toward a specific insect, so when they get sprayed, they kill all of the insects in the vicinity, including the beneficial buggies such as butterflies, bees, and lightning bugs.

2. **Habitat loss** - A lot of visitors wonder what attracts lightning bugs to places like Blue Spring State Park, but honestly, that's the wrong question. Lightning bugs don't migrate, and Blue Spring doesn't import them from elsewhere; it's not that we've done anything to bring the lightning bugs to us, but rather that we just haven't done anything to drive them away, as they have been in areas where the natural habitat has been cleared away to build theme parks and malls and homes that are landscaped with non-native grasses.

When you look at the beautiful forests, prairies, and wetlands that are maintained naturally on CLTLC lands, that is what much of Indiana looked like historically, and these healthy ecosystems provided habitat to native insects like lightning bugs. With most of the lightning bug's lifespan (1-2 years) being spent as wingless larvae among the leaf litter and just underground, we are not giving them a chance to survive into their glimmering adulthood when we mow down their juvenile stomping grounds.



3. **Light pollution** - Despite the overwhelming threat of pesticides and habitat loss, most scientists agree that the largest threat to lightning bugs by far is light pollution. When lightning bugs flash, that is their way of communicating with potential mates.

While some lightning bug species (like the big dipper lightning bug found widely throughout the Midwest) are less sensitive to light pollution, other species simply can't see potential mates over the pollution of our artificial lighting, and their population numbers are in danger because they're not able to reproduce.

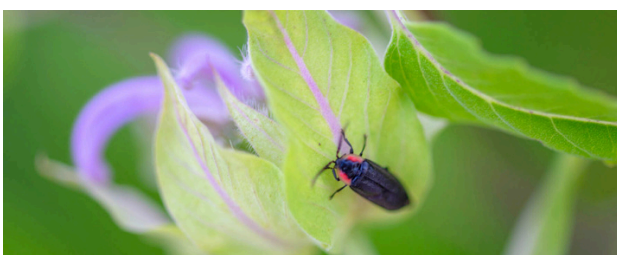
Species Info

There are more than 2000 species in the lightning bug family, with at least 179 species found in North America.

Indiana is home to 27 known species of lightning bug, but the most common species at Clear Lake is likely *Photinus pyralis*, also known as the big dipper or the common eastern firefly.

I know this is all sad stuff, but the great news is that we are able to tackle these issues as a community by taking a few simple steps.

1. Clear Lake is lucky enough to have relatively low light pollution to begin with, but we can give lightning bugs an additional advantage by **being mindful of our light output during the summer**. This could be as easy as closing our blinds after sunset to keep our inside light on the inside, and you could also turn off your outside lights when they're not in use or even install motion-sensor lighting so the lights are only on when in use. Lightning bugs don't seem to be as sensitive to red light, so you could consider using red lights to help you see outside at night during lightning bug season.



2. A challenge of today's world is that we often manage our land with only human preference in mind, which comes at the detriment of wildlife. For those who are willing to make a little bit of compromise to help our 6-legged friends, there can be a really big payoff.

Creating a firefly-friendly habitat on your property doesn't have to be a huge overhaul of how you currently manage your land, but it could involve simply taking a small area of your land and committing to "leave the leaves"—designate this lightning bug habitat as a place where you plant some native plants and then leave the rest to nature: no mowing, no raking or leaf blowing, no pesticides, and no fertilizers. This will help not only those beautiful butterflies from my last article, but also our luminescent lightning bugs!



3. And finally, it's worth reiterating that **reducing our use of pesticides** can help not only the insects we like, but also the other critters throughout the food chain (including those that rely on insects as a food source). This includes **making sure not to handle insects such as lightning bugs when wearing bug spray** or other insect repellents.

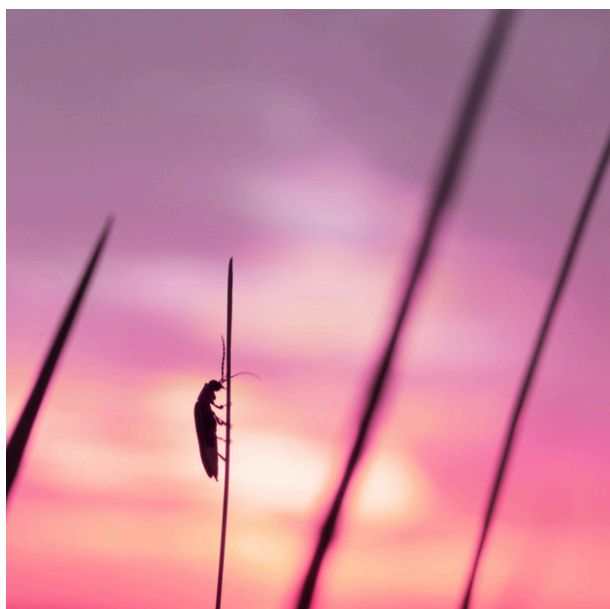
Just look at the return of the bald eagle population from near-extinction since the 1970s as proof that adjusting our relationship with pesticides can be a game-changer for our wildlife!

Beetlemania

See the lightning bug's black and tan wings on page 2? Those are actually wing covers called "elytra," which cover and protect their actual wings underneath. All beetles have elytra, and you can probably picture the elytra of a lady bug, which is often red with black spots and covers up the actual wings. A quarter of all animal species on earth are beetles!

When fireflies flash to attract a mate, they are essentially singing love songs to each other, using light as their music. Different firefly species create different flash patterns, essentially using a distinct rhythm that acts as a love language that will hopefully result in hundreds of tiny glowing eggs being laid to begin a new generation of fireflies.

An article has been circulating this year, claiming that we may be the last generation to see lightning bugs before we cause their extinction. However, I am more hopeful.



Clear Lake is such a special place that brings people from all over to enjoy the serene experience of lake life, and I would be willing to guess that a love of lightning bugs is something that just about every Clear Laker has in common!

I believe that we can work together to cause fewer interruptions to the lightning bug love songs that float across our lawns each summer.

In doing so, we'll be ensuring that future generations of Clear Lake residents and visitors are treated to the same summer light show that we've all had the privilege of viewing!



Ellie Shultz is an environmental educator, artist, and writer. She grew up in Ohio and Indiana, with many holidays and school breaks spent visiting her grandparents at Clear Lake. She still spends as much time there as possible every year!

Aside from science communication as a whole, her interests include entomology, manatees, and fire ecology. More of her work can be found at ecologyellie.com.