



LIVING LIGHTS

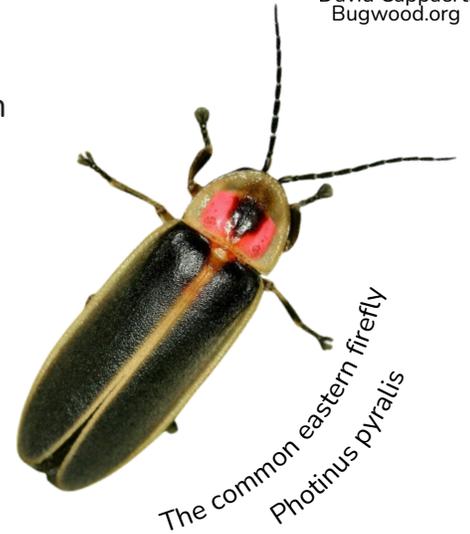
Spotting Bioluminescent Fireflies

Photo by
David Cappaert,
Bugwood.org

Bioluminescence

Bioluminescence (“bi-o-loo-mi-neh-sens”) is the ability of an organism to make light. Most bioluminescent organisms live in the ocean. Bioluminescent organisms that live on land are rarer, but you’ve probably seen one in your neighborhood - the firefly (or lightning bug). There are also bioluminescent fungi and other insects, too.

So what makes these organisms glow? Bioluminescence is caused by a reaction between luciferin (a compound that makes light), oxygen, and luciferase (an enzyme) or a photoprotein. This reaction is a little different in each species, but the result is light.



The common eastern firefly
Photinus pyralis

Fireflies

Fireflies are actually beetles, not flies. Fireflies live for 1-2 years and spend most of that time as larvae, living on the ground and eating small insects like worms, snails, or slugs. They’re only in their adult form for 3-4 weeks, usually in early to mid-summer. That’s when fireflies fly and begin their light shows.

Usually, the males fly and flash to attract the attention of females on the ground. Females will flash or glow in response. Every species has its own light pattern and color. This uniqueness may help fireflies tell each other apart. Check out the time lapse photos on this page of the blue ghosts that show the blue ghost movements over time.

Blue ghosts (*Phausis reticulata*) are found in a few areas in North Carolina. Their light looks blue or white from a distance, but it’s bright yellow-green up close.



These are timelapse photos, taken over a period of time. Adobe Stock Photo.



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TRY THIS: Be an Entomologist

Career Exploration

An entomologist is a scientist who studies insects. Many entomologists specialize in a certain kind of insect to learn more about how they live and grow. Some scientists want to learn more about bioluminescence by studying insects like fireflies.



With an adult, find a safe place to be outside in the early evening. Do you see any fireflies? If so, see if you can detect a pattern in their flashes. If not, can you see or hear any signs of insects? Describe or draw your observations below.

If you were a firefly, what would your light pattern be? What color light would you have? Draw the firefly and the pattern below.

How We Can Help

Fireflies can be harmed by habitat loss, light pollution, and other environmental concerns. You can help!



- Turn off outdoor lights during the summer when fireflies light up.
- Limit the use of pesticides and herbicides in your yard.
- Keep leaf litter and taller plants in some areas of your yard to provide habitat for fireflies.
- If hiking, stay on trails to avoid stepping on ground-dwelling larvae and adult females.

Rate this job! Based on what you learned and what you did, circle or color the number of stars you give this job.



Why did you give it this rating?