

Fireflies

Is it a firefly or a lightning bug? Well, that usually depends upon where you grew up as different areas of the U.S. will call these beetles one or the other or, sometimes, use them terms interchangeably. Fireflies and lightning bugs refer to beetles in the same insect family, Lampyridae.

Larvae are nocturnal and feed on small animals, including snails. Larvae prefer moist environments, with some being subterranean or semi-aquatic. Some larvae are able to emit short glows which are used to warn predators that they are distasteful.

Adult beetles are around $\frac{1}{2}$ an inch long, slender, and fairly soft-bodied. They have a shield-like structure, the pronotum, which covers their head from above. The last few abdominal segments may be modified to emit light, but not all Lampyridae are bioluminescent.



Fireflies are bioluminescent which means they have a chemical reaction that occurs within their body causing them to light up. When fireflies combine oxygen with calcium, adenosine triphosphate (ATP) and the chemical luciferin in the presence of luciferase, a bioluminescent enzyme, light is produced. Light from a firefly does not give off heat which is important to ensure survival of the beetle. Fireflies control light flashing by controlling the oxygen that reacts with other chemicals needed to produce light.

Adults use flash patterns to identify those of the same species as well as determine location of the opposite sex. Female fireflies choose their mates based upon flash pattern characters; males with higher flash rates and increased flash intensity are preferred.



Adults feed on nectar, pollen, other fireflies, or many do not feed. One group of females in the genera *Photuris* lure in males in the genus *Photinus* by mimicking the flash pattern of female *Photinus*. When the male comes in to mate, imagine his surprise when he gets eaten!

No one seems to know exactly why firefly numbers seem to be decreasing. It is thought that disappearing habitat along with light pollution are playing a part in the decline. How can you help fireflies? Turn off lights at night to help reduce light pollution (you'll get the added benefit of less insects being drawn to areas where they can possibly get into your house). Create water features in your landscape to provide areas of moisture required for larvae. Target pesticide usage and make wise pesticide choices to reduce the possibility of effecting non-target organisms.

For more information or help with identification, contact Wizzie Brown, Texas A&M AgriLife Extension Service Program Specialist at 512.854.9600. Check out my blog at www.urban-ipm.blogspot.com

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