

Why fireflies light up the night

DEBORAH CATO

One of my favorite ways to exercise is to walk around my neighborhood. During these warm summer months my husband and I will often take a walk after dinner when the air is cooler and the sun is setting. An added bonus for walking at this time of day is that we often see fireflies (sometimes called lightning bugs) blinking in the shrubs and grasses in yards and neighboring fields. Watching and sometimes catching fireflies is a childhood memory many New Englanders cherish. Though most of us have seen fireflies, how much do you actually know about these amazing little critters?

Well, fireflies aren't actually flies at all, they're beetles. They have two sets of wings, a hard outer set and a second set that actually beats and allows them to fly. The light that they emit is the result of a chemical reaction that produces the bioluminescence that you see. It is estimated that there are more than 20 species of fireflies in Massachusetts and each has a flash with a specific color, flash pattern, and a time of night that they are active. Here in MA the most common fireflies are from the Genera *Photinus* having a yellow-green flash, *Pyrractomena* with an amber flash, and *Photuris* with a bright green flash.

Why do fireflies flash during dusk and evening from May to August? There are actually two answers to this question. One answer is that they flash to attract mates. Males often fly a few feet off the ground blinking as they fly. When a female, who is usually perched on a shrub, sees a blink she deems worthy of a mate, she'll blink back. Without the female flashing her response, the male wouldn't be able to find her. How do females choose a mate they deem worthy? It appears that the brightness and duration of the flashes determines which males will donate their genes to the next generation of fireflies. A female *Photuris* is quite a *femme fatale*. She can mimic the flash of a *Photinus* female. When the *Photinus* male, who is about half her size, approaches with amorous intent she captures and eats him! Not quite the date he was expecting.

The second reason that fireflies flash is to warn predators away. Fireflies are filled with a horrible tasting chemical called lucibufagens. If a predator gets a mouthful of this nasty chemical it will quickly learn to avoid any flashing

beetles. But frogs do eat fireflies and a frog that has a stomach full can be seen with a slightly glowing belly itself!

Fireflies are one of many organisms that you can find in your own backyard. What kind of habitat is suitable to a firefly? Scientists at Framingham State College, Tufts University and the Museum of Science have been studying fireflies for many years and there is much still to learn, but this a summary of what they have learned:

- During the day adult fireflies spend most of their time on the ground and their larvae (called grubs) spend all of their time in the soil.
- Frequent mowing can have a negative impact on these species. Leaving an area of your yard free of mowed lawn helps provide good firefly habitat.
- Sometimes people apply pesticides to their lawns to control insect pests, but pesticides also kill many non-pest species. Fireflies are among the many species that can be affected by these chemicals.
- Firefly larvae live in the soil and they need moisture to survive. Planting native wildflowers and shrubs provide shade and help keep the soil moist enough for the grubs to survive.

To learn more about fireflies go to the Boston Museum of Science website:
<https://www.mos.org/fireflywatch>

Ensuring a firefly-friendly backyard can also be a big step in certifying your own backyard with the National Wildlife Federation.

Our project, The Wild Backyards of Norton, is sponsored by the Land Preservation Society. Please join us by certifying your own wild backyard!

For complete information, go to the National Wildlife Federation website:
<http://www.nwf.org/In-Your-Backyard.aspx>

For local information, see the Land Preservation Society of Norton website:
<http://www.nortonlandpreservation.org/>

Deb Cato is member of the Land Preservation Society of Norton and Member of the Wild Backyards of Norton Team. You can contact Deb or the team leader at: zawasky@comcast.net