

## Vampires in the Garden by Francie McGowan

It's not Halloween; this isn't Transylvania, but every time I go out into the garden I end up with less blood. To add insult to injury, the itchy welts last for days. Mosquitoes are the culprits, of course, and they seem to be everywhere. Why can't they just take my blood and not leave an itchy welt? Why do they bite me and not the person standing next to me? I tried to answer these and other questions in order to learn how to deal with these little blood-sucking pests.

Mosquitoes contribute to millions of deaths a year. They spread diseases, such as dengue, encephalitis, malaria, West Nile virus, yellow fever and the Zika virus. Luckily, according to the World Health Organization, they do not spread COVID-19.

Only the female mosquito bites. She needs the protein in the blood of mammals to lay her eggs. The male mosquitoes get nourishment from flower nectar and don't bite. After sucking out the blood through a proboscis, the female injects saliva into the bite which contains an anti-coagulant to help with the blood flow. But the proteins in her saliva are foreign and they trigger the body's immune system to fight them. The body releases a histamine, which is a compound that helps the white blood cells of the body fight the infection. The histamine is what causes the inflammation, itch and swelling.

After collecting the blood, the female expresses the water from the blood and keeps the protein. She will then fly to the nearest water source to lay her eggs. She will lay 100-300 eggs at a time. The eggs will hatch in about 48 hours into larvae. These are little, white, worm-like creatures that are about 1/16 of an inch in length. In 7-10 days, the larva will grow before changing into the pupa stage. It takes only 2 days for the pupa to develop into an adult mosquito.

Mosquitoes are attracted to carbon dioxide because this means that there is blood nearby. Humans and animals exhale CO<sub>2</sub>, so the mosquito flies in that direction. Some people exhale more CO<sub>2</sub> than others, which could explain why some people get bitten more than others. Heavy exercise also causes the body to exude more CO<sub>2</sub> which will attract more mosquitoes.

There are steps that help mitigate the spread of mosquitoes. According to the University of California Integrated Pest Management website, "The most effective control methods are those targeted against the larval stage of the life cycle. If you have an area or object that can hold water for more than a few days, drain it, fill it with soil or cement, or treat it with a mosquito control agent. Even small containers such as soda cans, glass jars, flower pot saucers, or tree holes can provide a habitat for mosquito development. If not maintained regularly, storm drains, water treatment basins, and wetlands can be places of prolific mosquito production near neighborhoods." UC also suggests cleaning all gutters and downspouts. Leaves, twigs, seeds, and other organic matter that block water flow can create standing water in which mosquito larva can grow. Bug zappers are counterproductive because they also kill bugs that prey on mosquitoes.

And what about the bites? The itching? There are some things to help with the itching and swelling. These won't cure them, but may provide some relief. Rubbing alcohol can help. Honey, an antiseptic and antibacterial, helps. But don't go outside with honey on you or you may attract more mosquitoes! Sometime a poultice of oatmeal applied to the bite can help. Wash it off after 15 minutes. Basil oil has been known to help as well as taking an antihistamine.

There are many mosquito repellents on the market to ward off the little vampires, but there is no way to completely avoid getting bitten. Apart from being perfect candidates for a horror film, it is hard to see why these things exist in nature. But mosquitoes actually are useful in nature. They pollinate and provide food for fish, among other things. So, like them or hate them, they are here to stay.

For more information on mosquitoes, visit the UC IPM website:  
<http://ipm.ucanr.edu/PMG/PESTNOTES/pn7451.html>

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*UCCE Master Gardeners of Tuolumne and Calaveras Counties can answer home gardening questions. Call 209-533-5912 or go to: <http://ucanr.edu/survey/survey.cfm?surveynumber=7269> to fill out our easy-to-use problem questionnaire. Check out our website at: [http://cecentralsierra.ucanr.edu/Master\\_Gardeners/](http://cecentralsierra.ucanr.edu/Master_Gardeners/) You can also find us on Facebook.*