



The glowworm

Mississippi State
UNIVERSITY
Extension
SERVICE

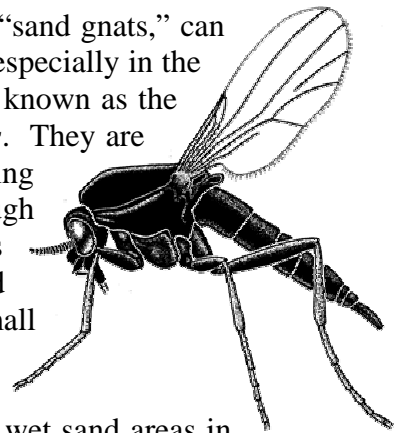
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It's May and 'blackberry winter' has arrived in north Mississippi. That's not all bad, because with the cool came some rain. Gardens are flourishing and we are beginning to catch different critters in the light traps than even 2 weeks ago. It's an exciting time to be a bug chaser. This past weekend the Grand Bay BioBlitz was conducted at the Grand Bay National Wildlife Refuge in Jackson County. Even though it rained most of Friday we still had a good day looking for and talking about insects. The 'no-see-ums' were especially thankful for the fresh food all the visitors provided. We observed a number of butterflies and moths as well as other 6 legged critters. .

Since I helped to feed some of the little critters this weekend, I thought I'd share a little about 'biting flies' mosquitoes and other like critters. Most of the biters are Diptera, and in almost all cases it's the female of the species which does the biting. They do it for a good reason; they need a blood meal to lay eggs.

NO-SEE-UMS - Also known as "sand fleas," "punkies," or "sand gnats," can make a morning or late afternoon at the beach unbearable – especially in the summer and early fall. They belong to a group of Diptera known as the biting midges most of which belong in the genus *Culicoides*. They are very sensitive to temperature and humidity. These tiny, biting flies are only 1/25" to 1/10", small enough to pass through screens. No-see-ums resemble mosquitoes, but the body is stouter, the proboscis is shorter, the legs are rather short, and the two hairy wings are shorter and broader. They have a small brown head. The males have plume-like antenna. They breathe by means of blood gills after the manner of fish.

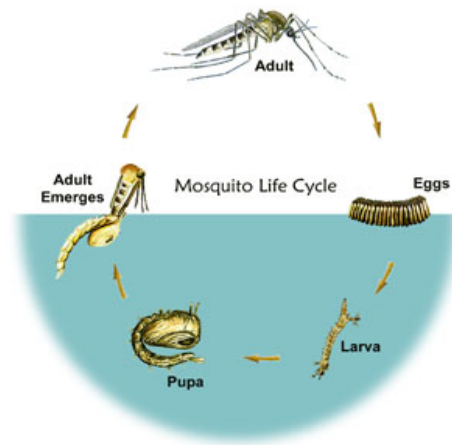


They lay their eggs on mud flats of marshes and live in the wet sand areas in both salt and fresh water habitats. Larvae eat decaying plant matter. Larvae mature in about four weeks, float to the surface, pupate, and adults are released to the water's surface. No-see-ums are important food for fresh-water fishes. The adult flies are ferocious biters that feed on blood. As with mosquitoes, only the females bite. Males either do not feed or only feed on nectar or honeydew secreted by aphids and scale insects. No-see-ums will bite humans, domestic and wild animals and birds. They have short mouthparts and feed by injecting saliva into the skin, which causes blood to pool just under the skin surface. They are attracted to light and will rest on the outside of buildings and enter homes through the slightest crack. Sometimes they fly into people's

eyes, ears, and mouth. Swarms produce a high-pitched whine from the thousands of tiny beating wings. Repellants are moderately effective against them.

MOSQUITOES - As with most animals, these critters are cyclic. We usually encounter more of these in years when there is a lot of rain. Many people have become more aware of mosquitoes in the last couple of years because of the presence of West Nile Virus, which they can readily transmit to people.

Mosquito habitats vary widely but all have one thing in common. They all require water for the larval and pupal stages of the mosquito's life cycle. Mosquitoes lay their eggs in a wide range of areas associated with water. Some may lay them in tin cans, barrels, horse troughs, old tires, ornamental ponds, swimming pools, puddles, creeks, ditches, or marshy areas. Others will lay them on damp soil where the eggs will hatch only when flooded with water. Mosquitoes prefer a habitat that is sheltered from the wind by grass and weeds.



Adult mosquitoes prefer to rest in areas that are damp and provide protection. These may include wooded areas, bushes, underneath houses and decks, tall grass and etc.

The mosquito goes through four separate and distinct stages of its life cycle: Egg, Larva, Pupa, and Adult. Each of these stages can be easily recognized by its special appearance.

Egg: Some mosquitoes lay their eggs on the surface of the water one at a time or stuck together in rafts of 200 or more. Other mosquitoes lay their eggs on damp soil that will be flooded by water. Most eggs hatch into larvae within 48 hours. Water is a necessary part of their habitat.

Larvae: The larvae live in the water and come to the surface to breathe. Larvae shed (molt) their skins four times, growing larger after each molting. Most larvae have siphon tubes for breathing and hang from the water surface. The larvae feed on microorganisms and organic matter in the water. Mosquito larvae, commonly called "wigglers", must live in water from 7 to 14 days depending on water temperature. Also, some species have naturally adapted to go through their entire life cycle in as little as four days. On the fourth molt the larva changes into a pupa.

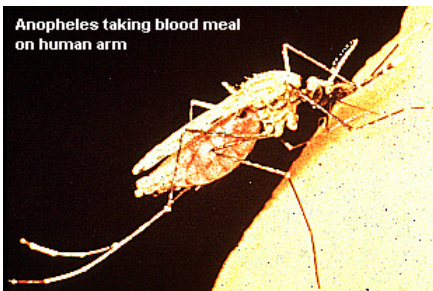
Pupa: The pupal stage is a resting, non-feeding stage. This is the time the mosquito turns into an adult. It takes about two days before the adult is fully developed. When development is complete, the pupal skin splits and the adult mosquito emerges.

Adult: The newly emerged adult rests on the surface of the water for a short time to allow itself to dry and all its body parts to harden. The wings have to spread out and dry properly before it can fly.

Dr. Brigid Echols (Mississippi Department of Health) reports there at least 50 species of mosquitoes found in Mississippi. The majority of these species have little impact upon our daily lives. Most mosquitoes prefer to feed on animals other than humans and are rarely encountered. However, mosquitoes that do feed on humans can not only cause local skin irritation, but sometimes transmit disease. Scientists have found that only three or four species of mosquitoes are the main disease transmitters to humans or other animals. There are at least four viruses carried by mosquitoes in Mississippi: West Nile (WNV), St. Louis encephalitis (SLE), LaCrosse encephalitis (LAC), and Eastern equine encephalitis (EEE). Because it is difficult to tell different mosquitoes apart and it is impossible to determine how many mosquitoes are infected with a disease at one time, it is important to try to avoid being bitten by any mosquitoes.

One disease not listed above is malaria. While malaria is not a problem in Mississippi, as it once was, it is important to remember that it is reputed to be the number one killer of people in the world. Malaria occurs in over 100 countries and territories. More than 40% of the people in the world are at risk. The World Health Organization estimates that each year 300-500 million cases of malaria occur and more than 1 million people die of malaria. About 1,200 cases of malaria are diagnosed in the United States each year.

People get malaria from the bite of a malaria-infected *Anopheles* mosquito. When a mosquito bites an infected person, it ingests microscopic malaria parasites found in the person's blood. The malaria parasite must grow in the mosquito for a week or more



Anopheles taking blood meal on human arm

before infection can be passed to another person. If, after a week, the mosquito then bites another person, the parasites go from the mosquito's mouth into the person's blood.

This is a female *Anopheles* mosquito feeding on a person. Only the female mosquito feeds on blood. Notice how the body of this mosquito is held at an angle to the skin.

News and notes: It's almost deadline time for the first Entomology Camp. Other deadlines are quickly approaching, so it's important that we get busy. Remember, Senior 4-Hers, bring your collection to 4-H Club Congress – June 1-3. Juniors should also bring their collections to Project Achievement Days during the week of June 12-16. Only two or three counties have submitted Linnaean Questions, all teams competing in the Games must submit questions before the contest. If you are going to compete in the 4-H Insect Judging Contests you should practice pinning insects before coming to contest. You will have to pin specimens at your contest.

Happy Buggin'

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