Letter from the Editor

A world without insects would be no world at all. Depending on whom you ask, there are from over 900,000 to over 1.5 million named species and many more that we have yet to identify. Our world is a world of insects. In fact, for every person on the planet, there are some 200 million insects. And whereas humans have been around for about 130,000 years, insects have called Earth home for about 350 million years. This issue I will focus on the good, the bad and the magical of the insect world. Hope you enjoy.

Judy Keenan, Environment Editor

Mosquitoes—What’s to Love?
By Judy Keenan

Humans and mosquitoes have been at odds since time immemorial. Malaria, Yellow Fever, West Nile Virus and even the heartworms to which your dog is susceptible, are all carried by mosquitoes. Meanwhile, thanks to global warming, mosquitoes have more time to breed. That recent immigrant, the Asian Tiger mosquito, which preys upon us from dawn to dusk, also has been found quite efficient at carrying Chikungunya, an East African disease that causes contorted postures and painful, arthritis-like symptoms. Although this disease hasn’t yet arrived in Georgia, it recently spread to the Caribbean and has now been identified in Florida. It all makes you wonder why mosquitoes even exist in the first place.

Before you go draining your wetlands and spraying your yard with DDT, consider this: Many species rely on mosquitoes and mosquito larvae as an important food source. What’s more, mosquitoes feed on plant nectars, which makes them pollinators. Only the female mosquito bites, because she needs the protein from blood to lay her eggs. Don’t misunderstand, I am not about to start a “Save the Mosquitoes” crusade. I swat the little buggers every chance I get. That said, some methods of eradication do more harm than good. For example, it was once thought that draining wetlands would reduce mosquito populations. Researchers have learned that the opposite is true. Healthy wetlands do more to keep mosquitoes in check. (Note the use of the key word “healthy” in the previous sentence.) In fact, researchers have discovered that drained wetlands help nurture
mosquito "blooms" whenever it rains. The eggs lay dormant in the ground just waiting for some water to get them going. Meanwhile, drained wetlands also drain out mosquito predators, among other things.

Many products out there kill either the adult mosquito or it’s larva, but they, too, may pose hazards to either your health, your garden’s health or that of the greater ecosystem. Most sprays that kill adult mosquitoes also kill the beneficial insects that keep our gardens healthy. Some larvicides (used in water to kill the larva) also impact our aquatic friends. And finally, like most pesticides, some of it will ultimately end up in our ground and water supply.

Some simple steps can help you prevent mosquitoes while encouraging their predators. First, if you have a pond, consider installing a waterfall or an aerator. Remember, mosquitoes like still water, not moving water. Then add some predators, such as goldfish who will devour the larva. We bought a handful of so-called feeder fish at the local pet store for pennies apiece for our pond. They have now grown into respectably large fish and their numbers have steadily increased. Ponds also attract other predators, such as dragonflies and frogs, not to mention birds and bats, which all love the taste of mosquito. In short, if you have a pond, allow it to act as a healthy wetland.

The most important thing you can do to cut down on your mosquito population is to be sure to eliminate any standing water. That means clean out your birdbath and outdoor pet bowls at least once a week. Remember to check that your gutters are free of debris. Clogged gutters make excellent mosquito nursing grounds. And then there is the rain barrel. Make sure you put a screen on the opening of the barrel to prevent mosquitoes from laying eggs in it. All it takes is a small piece of screen and a zip tie or some wire to shut them out.

No matter what you do, some mosquitoes will inevitably find their way to your back yard. Wearing light-colored or white clothing helps to deter them from snacking on you, as does wearing lose, long sleeves and pants in the evenings. The next step to fighting off mosquitoes is to use repellants. Citronella candles or Tiki torches can help. Most experts suggest using products that contain Deet. Personally, I prefer to use more natural, citronella and peppermint-based repellants on my skin and risk a few bites. Finally, research has shown that some people actually attract mosquitoes more than others, so be sure to find out who that is and take the neighboring seat.
Out My Backdoor:
Fireflies Create Sparkling Backyard Wonderlands
By Terry W. Johnson

Like most of you, my backyard wildlife watching typically ends when the last cardinal leaves the sunflower feeder and heads to its nighttime roost. Such has not been the case lately, however. For the past few weeks after the sun has dipped below the horizon, my wife and I have enjoyed sitting on the deck watching slow-moving, blinking, soft lights drift across our backyard. Seeing these eerie lights never fails to bring back fond memories of the golden years of our childhoods.

These seemingly mystical lights are generated by a small beetle that biologists call fireflies. When I was growing up we called them lightning bugs. Other people around the globe know them as glow flies, golden sparklers, moon bugs, blinkies and even fire devils. Entomologists tell us that the world is populated by some 2,000 species of these amazing insects. Some 180 species cast their eerie, cool light over North America. Georgia is home to upwards of 40 or more species.

Mankind has long been fascinated by these remarkable insects. Native Americans would crush lightning bugs and adorn their faces and chests with the glowing insects. People living in the jungles of Africa have sometimes tied cheesecloth bags of fireflies to their ankles as they walk about at night.

As you might imagine, a number of fanciful legends swirl around these insects. For example, the Chinese once harbored the belief that these glowing insects were created when they burned grass. The Japanese, on the other hand, harbored the belief that the insects were the ghosts of valiant warriors that fell in the defense of their homeland.

After remaining a mystery for thousands of years, scientists were finally able to unlock the secret of how these insects are able to produce what many consider to be perfect light. It is deemed perfect because it produces very little heat (4 percent) while generating its “cool” light. Both incandescent and fluorescent light bulbs are far more inefficient. The standard incandescent light bulb, which is in the process of being phased out, converts only 10 percent of the energy it receives into light. Some of the new fluorescent bulbs convert 90 percent of their energy to light.

Fireflies seem to magically create light using special light-producing cells in the abdomens. Two chemicals – luciferin (named for the fallen angel Lucifer) and luciferase – are found here. Light is generated when luciferin is combined with the catalyst luciferase
in the presence of a chemical found in all of us, ATP.

The primary reason fireflies flash is to attract mates. Most of the lightning bugs we see in our backyard are typically males. In fact it is common for males to outnumber females 50 to 1. Females usually return the males’ flashes while perched on grass and other low-growing vegetation. Each species of firefly has its own distinct flash. If you carefully watch the fireflies flying about your yard, you will quickly notice that they often flash for different lengths of time, vary the length of time between flashes, fly certain distances between flashes and even display different colored lights.

When a female spots the correct pattern of flashing, she will flash back to her suitor. The male then flies to her in hopes of mating. Males are sometimes the unwitting victims of a deadly hoax. The females of some species of predatory lightning bugs imitate the flashing of other species. When an unsuspecting male of another species flies to the perpetrator of the ruse, it is eaten.

Fireflies will also flash in an effort to avoid being gobbled up by birds, snakes and other predators. It seems that the chemicals that enable the insect to create light are distasteful. Once a bird mistakenly eats a firefly, it rarely goes back for seconds.

Additionally, fireflies blink to defend their territory from other males, much in the same way birds sing to delineate their breeding territories.

When I was a boy, we enjoyed catching slow-flying fireflies in a glass mayonnaise jar. Now that I look back at this popular summertime activity, I realize that if I had tripped and fallen in the dark carrying a glass jar, I could have severely cut myself. With that in mind, I recommend that if you want your children or grandchildren to catch a lightning bug or two, give them in a clear, plastic jar or better yet a small insect net.

And if you want to keep your catch for a short period of time, place the firefly in a plastic jar with a lid with breathing holes poked in it. Also, place a damp paper towel in the bottom of the jar to ensure the insect will not dry out.

After you and your family have closely examined the insect, release it. When this is done, you won’t be reducing the firefly population in your neck of the woods. Like far too many of our wildlife neighbors, firefly numbers have been dropping for years throughout much of the world.

Biologists are uncertain as to why fireflies are disappearing. However, it appears that habitat loss and light pollution are probably the main culprits. For example, in Georgia thousands of acres of land are annually being converted to housing developments, roads, shopping centers and other commercial buildings, agricultural lands and other uses. Some of these lands are prime firefly habitat. Most fireflies seem to prefer forest, field, lake and stream borders. In addition, biologists also suspect that pollution and the indiscriminate use of pesticides are also taking a toll.

Light pollution is something that is often overlooked as a factor likely contributing to the demise of fireflies. Since fireflies use light to communicate with each another, the bright lights coming from street lights, signs and both inside and outside our homes and other buildings could easily be making it difficult for fireflies to "talk to one another."

As a result, in spite of the fact that many of us are living in areas where fireflies were once abundant, many homeowners rarely, if ever, enjoy watching them fly about their yards.

Here are a few tips that may help you increase the numbers of fireflies around your home.
Habitat Fireflies prefer yards with scattered trees and shrubs. If your yard lacks these plants, add them. Also let the grass grow in a few places such as along the border of your property. It also helps to refrain from mowing your grass too short. Fireflies often spend the daylight hours in grass.

Ground litter Leave dead leaves and other vegetative litter beneath trees and shrubs as well as flower gardens. Firefly larvae often live in rotten logs and the litter on the ground. I let the litter and grass grow up beneath a large weeping cherry in my yard. In the late afternoon, when I water hydrangeas growing beneath the canopy of the tree, the spray coming from the hose invariably flushes fireflies.

Light You might want to consider reducing the amount of light falling on your backyard by pulling down the shades in the evening. Choosing outside lights that are activated by motion detectors will also help.

Water If you don’t live near a pond or stream, you might consider building a small backyard pond. Fireflies seem to do well in the tall vegetation growing near open water.

Pesticides While it is always best to avoid using pesticides and herbicides around the house, if you must apply them, do so sparingly. Such chemicals can kill adult fireflies and their larvae.

The firefly is indeed a unique treasure. However, it one of those backyard inhabitants that is too often overlooked until it is gone. While the firefly may not be an important member of your backyard wildlife community, it certainly means a lot to those of us who enjoy watching them transform our yards into a sparkling wonderland on a sultry summer evening.

Mark Twain once wrote that he felt like he was 7 years old again when he saw fireflies. I must admit I do, too!

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Bees: Our Fuzzy Friends
By Judy Keenan

Let’s set the record straight right from the start. Bees are our friends. In case that wasn’t loud enough, let me say it again: BEES ARE OUR FRIENDS. “But what about when they sting?” you say. Most true bees won’t sting under normal circumstances. By normal, I mean bees don’t behave like muggers lurking in a dark alley waiting to attack, but rather more like the little old granny pushing along her cart on the way to the grocery store. Quite simply, if you mind your own beeswax, she’ll mind hers. Go mess with her hive and things could get ugly (if she’s anything like my granny was). And I don’t recommend stepping on anything with a stinger if you’re in your bare feet.
Oftentimes people confuse bees with wasps (those alley-lurking insects). Once upon a time, bees split off from their carnivorous cousins and became the nectar-loving flower children of the hymenoptera order. To further differentiate bees from wasps, wasps have smooth bodies, whereas bees have cute little fuzzy bodies that get covered in pollen. Which leads us to why they are our friends. Bees pollinate. In fact, we can thank bees for one out of every three bites of food we take.

Honeybees, native to Europe, came over with the Colonists, most likely for their honey and wax. Over time, they have become our most important pollinator for agricultural crops. (Interestingly, many vegetables native to the Americas, such as tomatoes and squash, rely on native bees for pollination.) Unfortunately, in recent years honeybee populations have drastically, and somewhat mysteriously, declined due to “Colony Collapse Disorder.” Several theories exist for this plight, such as parasitic mites, bee viruses, stress from overwork and pesticide use. Many experts also suggest that Colony Collapse Disorder may be attributed to all of these factors combined. Regardless, the loss of honeybees and other native bee pollinators could have drastic consequences for our agricultural production.

So what can we do to return the favor and become friends to bees and other pollinators, such as butterflies? First, limit your use of pesticides and try not to spray on windy days. Remember, even organic, environmentally friendly insecticides will kill bees—they are insects, after all. Insecticidal soaps offer a benign alternative to bees and other “good” garden bugs, while proving lethal to plant pests. I try to shoo the bees away before I spray the aphids on my roses and handpick the Japanese Beetles in place of spraying. We also can extend our hand of friendship by planting flowers and host plants that pollinators like. As a vegetable gardener, I’ve found planting a stand of zinnias amidst my produce draws in quite a crowd of bees and butterflies. Equally important is trying to achieve a continuity of blooms. By that, I mean try to make sure something is always flowering in your garden for three seasons. This provides the nectar bees need in the spring to replenish from the winter, plenty of food for making enough honey all summer so there is enough to share, and a last blast of nourishment before winter cycles back around again.

For more information on bees and bee keeping, check out the Georgia Beekeepers Association at www.gabeekeeping.com.
Yellow Jackets, Pesticides and Lab Rats, Oh My

By Judy Keenan

Recently we discovered a yellow jacket nest buried in our herb garden. Now I generally don’t like to use chemical pesticides, but when it comes to certain things, such as wasps, I sometimes turn a blind eye to my better, ecologically sensitive self. Not this time, however, because those nasty critters were nestled right beneath my oregano. It’s one thing to spray unpronounceable chemicals into the lawn, but not my food. After a quick intranet search, I discovered an environmentally benign way of killing the yellow jackets with a product made from peppermint and citrus oils that was available at the local garden store. In truth, my gallant husband usually offers to do the spraying. This time he mentioned to me that his hands didn’t get that numb feeling after spraying this product like it does when he sprays the typical chemical pesticides. “Wow,” I thought, “your hands go numb?” Now that’s scary!

When you really start to think about it, most of our food is covered in the stuff. Yes, the government tells us it is at “safe” levels, but does anyone really know what “safe” means? Most of the pesticides in use today have been developed in our lifetime, so in essence, we are the long-term lab rats.

Humans aren’t the only ones directly affected, either. Recently, the Atlanta Journal Constitution reported that trace pesticides found in garden plants from several of the big box garden and home retailers may likely be responsible for further depleting our honeybee and other pollinator populations. Think about it. We put in all these lovely blooms hoping to attract bees and butterflies and the next thing you know, our good intentions have killed them. Not such a big deal, until you come to realize that we are upsetting the whole apple cart of ecological balance. No pollinators, no food. It’s that simple. Kill off all the insects and you may as well be aiming a gun at our songbirds, too. If you are of my generation, you won’t have many childhood memories of bluebirds thanks to DDT. Only in the last decade have they become a common sight around our house. My kids just don’t understand why I still get a rush of excitement when a bluebird comes to the
feeder outside our kitchen window. To them, it’s just another bird. To me, it represent a little of that over-the-rainbow magic in all its Technicolor glory.

The good news is that Rachel Carson got people listening with her Silent Spring and we made a change. Let’s hope that we can all open our ears as the buzzing dials down the volume. In my yard, the buzzing of the yellow jackets has been muted. It took two treatments, but the hazardous nest met its doom and the good bees continue to buzz around unaffected. It took more effort and undoubtedly cost a few dollars more, but the other night when I made lasagna, I had no qualms about putting in a little fresh oregano and feeding it to my family.

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