Wishing You Lots of…Insects!

Insects are so important to our existence. Edward O. Wilson, one of the most outstanding conservationist biologists of our time, said, "If all mankind were to disappear, the world would regenerate back to the rich state of equilibrium that existed ten thousand years ago. If insects were to vanish, the environment would collapse into chaos." Dr. Jonas Salk, who developed the polio vaccine, is credited with saying, "If all the insects were to disappear from the earth, within 50 years all life on earth would end. If all human beings disappeared from the earth, within 50 years all forms of life would flourish." More than 75 percent of plants require pollination by insects. You get the picture. As someone else said, we need nature, nature doesn't need us. But fighting against nature, well that costs a lot of money and if we just understood the natural world a bit more, we might coexist with less conflict.

We've been led to believe that insects and other bugs are all pests. So untrue! Out of the 800,000 - 1,000,000 species of insects (the 6-legged invertebrates) that have been identified in the world to date, only one tenth of 1% (1,000) are regarded as serious pests. And to be conservative, you might say 1% because at times there are insects that are just a periodic nuisance. It is our tendency to declare certain bugs to be without value, mostly because we don't know anything about them. If we investigated a bit more and took a moment to be a little more tolerant, we'd likely be surprised and maybe we'll be slower to grab the pesticide can.

Let's start with a favorite phobic of focus – spiders. In *Science of Nature* journal, researchers estimate globally the cumulative weight of these eight-legged creatures to be about 25 million tons. The researchers went on to determine arachnids annually consume hundreds of millions of tons, (400-800 million) of insects and other creatures. Yes, we're talking tons. Spiders eat 10% of their weight daily. In a *Washington Post* article by Chris Ingraham, this was equated to a human eating 20lbs of meat per day. So, the take away is, spiders help control populations of insects and other small critters in a significant way. Spiders are valuable.

Ground beetles – we often think when we come across these in the yard that they are all bad and that we must kill the adult beetles and their larvae which we recognize as grubs. Every beetle was once a grub and some beetles we know are very beneficial. Ground beetles in the Carabid family eat other insects, such as aphids, slugs and caterpillars. They will eat up to their weight each day. Many are also granivores, which means that eat seeds and often seeds of agricultural weeds. They've been studied in commercial lowbush blueberry fields where researchers say the beetles should be conserved and be part of integrated weed management programs where the beetles could reduce costs and increase yields. A number of species have been identified as weed seed eaters that destroy seeds of things like common ragweed (the cause of fall hay fever).

Then there are some insects that show up in our gardens that have no detrimental effect (most of them). If you've planted milkweed in your garden for monarchs, then are accepting of the monarch's caterpillar eating away at the plant because it will result in a butterfly. The milkweed will survive. Later in the season, you may notice on the milkweed some golden aphids covering the stems. You can be equally accepting of these as they are oleander aphids. They too are specialists on milkweed but cause no harm. Ants may benefit by farming the "dew" exuded by the aphids and there is a parasitic wasp that seeks out these golden nuggets in which they lay their eggs. The aphid serves as the food for the developing wasp larvae, ultimately killing the aphid.

Some spectacular insects often seen in a garden are golden digger wasps. They are quite large, so probably most people would be intimidated by them, but they are there for the nectar to fortify themselves. These wasps are more than an inch long with a black head, orange and black body, orange legs, and iridescent amber wings. Their heads and thorax are covered in short golden hairs. Like many of our native pollinators, these wasps are solitary ground-nesters. The female excavates a hole in a bare area, often with other females, but each hole is for the offspring of a single wasp. They do not defend their nests and their stinger is only used to kill their prey, such as katydids, grasshoppers and crickets. These insects will be the food for the developing young. The males may sometimes appear aggressive, but they have no stingers. (As they say, the best defense is an offense.) So, what may look like a scary wasp is really quite harmless and has so much to offer toward your garden's success. Both the male and female help pollinate plants. Those golden hairs pick up pollen as they feed on the flower nectar, and the female wasps help keep the number of plant-eating insects in check. Further, by digging holes in the ground the wasps help to aerate the soil and improve water infiltration in the next rainstorm.

These are just three examples. Think of the thousands and thousands of insects and their interesting lives and roles they play in the scheme of life on Cape Cod and the planet. There's a balance that we humans have yet to figure out and some recent studies have suggested some very disturbing findings about an imbalance. In Germany, researchers found that insects populations have declined by 75% over the last 30 years. Not only loss of volume of insects, but also the diversity of species. The loss of large flying bugs has been linked to the decline in larger insectivorous birds, like Whip-poor-wills. Worldwide, more than 40 percent of insect species are declining. One third are at risk of extinction *(Biological Conservation*, 2019) and on in four of our native bee species in the U.S. is imperiled (Pollinators in Peril 2017 report, Center for Biological Diversity).

If you are over 50, you probably can attest that there were more insects around in your youth. Remember the insects that used to smear the windshields and car grills after a summer drive? Think about it, it's no longer the case. This is the result of many factors that include a changing climate, loss of habitat, and pesticide use. One in four of our wild bee species in the U.S. is at some risk of extinction. Children today see about 35 percent less butterflies than their parents did.

Avoid pesticide use. Think before you call the pest company, or fall for the "safe" yard treatments. Pesticides treatments kill all, not just the targeted species. Turn off your lights at night. Artificial light disrupts life cycles and is one of the factors in the demise of lightning bugs. Leave some wild areas in your yard, leave the leaves in the fall, and take a moment to observe and appreciate the hopping, flying, crawling critters in your yard. And may blessings be upon you and may you have lots of insects this year.

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