



Mosquito Control sprays at dawn; occurring between 6:30 - 8:30 am. Each fly-over by Mosquito Control helicopter sprays adulticide over a 70-foot-wide area.

Critters in Our Midst: The Mosquito by Carol Ellis

Welcome to summer... Hurricane season. It's muggy and buggy, and hot as a hairdryer. I love summer. Two things you need to live in the Keys: air conditioning and mosquito control.

How did the first settlers of the Keys survive the mosquitos? The Indians smeared mud on themselves, and created strong smelling pastes from mint and sweetgrass, or rubbed rancid alligator fat on their bodies to "hide" from mosquitos. They also used smoke from campfires to ward them off, and chose campsites that were windy and dry.

Mosquitos are two-winged flies that live everywhere except areas that are permanently frozen. The *Aedes aegypti*, known as the "container bred mosquito."



Only female mosquitos bite. They also inject into your body a substance that stops the blood from clotting. Photo by CDC.

prefers urban areas rather than forests. *Aedes aegypti* make up just 4 percent of the local mosquito population, but cause 100 percent of mosquito-borne illnesses, for which there are no human vaccines... Dengue, Zika, West Nile, encephalitis, and Chikungunya,

The black salt marsh mosquito *Aedes taeniorhynchus* lives in the coastal salt marshes of the Everglades and Florida Bay; they emerge in large numbers after it rains, and are not a major vector of disease... though they may drive you crazy. In 1980, an old-timer Ken "Blinky" Vechan, whose father helped build the Flagler railroad, once told me: "There are just enough mosquitos here to keep the people out."

One particularly unique structure in the history of the Keys is Perky's Bat Tower. once located on Lower Sugarloaf Key. Originally owned by an English sponge farmer named C.W. Chase, the tower property was sold to Richter C. Perky who wanted to establish a fishing camp there. In 1929, as a solution to the pesky mosquito problem, Perky built a bat tower to house the mosquito eaters.

Unfortunately, Mr. Perky's thousands of dollars flew off, as quickly as the bats did, when he placed the bats in the tower. The bat tower succumbed to it's final "swat" in 2017 by a lady named Hurricane Irma.

Another flying friend, the dragonfly, provides great natural mosquito defense. Dragonflies live to eat mosquitos and consume up to 100 a day! They live in areas near wetlands, ponds, or rivers and lay their eggs in mud or water. Invite dragonflies to your yard by installing a pond. You can also stock your pond with mosquitofish or *Gambusia* to eat mosquito larvae. Birds in



The idea of the Perky Bat Tower was to import bats to control the mosquito population.

turn, prey on the dragonflies, and Voila! ... you've reduced the number of mosquitos, and created a pesticide-free natural environment that is full of life.



Dragonflies live to eat mosquitos.

Citizens can exercise least toxic means to prevent mosquito breeding on their property by the following practices:

DRAIN: Empty flowerpots and trash containers. Flush outdoor plants such as bromeliads and crotons on a regular basis

DISCARD: Old tires, drums, bottles, cans, pots and pans, broken appliances

EMPTY and CLEAN: Birdbaths and pet's water bowls at least once or twice a week. Empty plastic swimming pools when not in use.

PROTECT: Boats and vehicles from rain with tarps that prevent them from holding water. Cover open gutters and plumbing pipes.

MAINTAIN: Maintain proper chemistry in swimming pools. Repair broken screens on windows, doors, porches, and patios. Place BTI (naturally occurring bacterium) in areas that hold water; it only kills mosquito larvae.

The Mosquito CONTINUED Photos by Carol Ellis unless otherwise noted.

Think of the accumulation of toxins along the way when chemical pesticides are used in the landscape to keep our grass chinch bug free. The birds leave due to lack of food, and insecticide residue makes its way to our waterways, and indirectly to

the fish and the lobster... our "bugs" of the sea.

Better living through science... how about genetically modifying the mosquito so it eventually dies out? In 2021, Oxitec released genetically modified mosquitos in the Florida Keys despite local opposition. During their study they collected 22,000 eggs, and found only male mosquitos made it to adulthood. They also found the Oxitec gene that killed female offspring lasted only 2-3



Mosquito Control workers collect water samples in our coastal offshore marshes.

months. Mosquitos never go away; the problem requires constant management. Despite local opposition in the Keys, the government in 2022 approved another release of 2.4 million more genetically modified mosquitos in two states, Florida and California. I can't help but wonder how many of these government decision makers have shares of Oxitec stock.

The big issue whenever you do any genetic manipulation is how will this impact the study species and the environment as a whole? Researchers from Yale visited an Oxitec experiment site in Brazil, surveyed the mosquitos and found Oxitec genetic markers in the reproducing population. That the gene is still in these mosquitos well after that trial was over suggests that they didn't all die out. The whole Jurassic Park hypothesis... the fear of what we could create? Perhaps a more resistant bug? Speaking of bugs... the modified mosquitos are treated with an antibiotic. Does that mean when they bite, they transmit that same antibiotic to you?

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Insect protective clothing offers chemical-free protection against the mosquito.

Call me old school... I'm willing to take precautions with wardrobe, repellent, mosquito coils, use netting to protect small children and even stay inside if need be.



How many mosquitos land to bite in one minute determine when spraying is necessary. I donated blood in 2003 to obtain this photograph.

HOW LONG ARE REPELLENTS EFFECTIVE?

The University of Florida's Florida Medical Entomology Laboratory has tested and published the results on the efficacy of the following repellents. Average Complete Protection Time is the time that elapses between the proper application of a repellent until the first mosquito lands on the protected area.

OFF! Deep Woods 23.8 % DEET		Sawyer Controlled Release 20% DEET	
OFF! Skintastic 6.65% DEET		Repel Lemon Eucalyptus Insect Repellent 30% oil of lemon eucalyptus	
Bite Blocker for Kids 2% soybean oil		OFF! Skintastic for Kids 4.75% DEET	
Skin-so-soft Bug Guard Plus: 7.5% IR3535			
Natrapel: 10% citronella			
Herbal Armor: 12% citronella, 2.5% peppermint oil, 2% cedar oil, 1% lemongrass oil, 0.05% geranium oil			
Green Ban for People: 10% citronella, 2% peppermint oil			
Buzz Away: 5% citronella			
Skin-so-soft Bug Guard: 0.1% citronella			
Skin-so-soft bath oil: unknown			
Skin-so-soft Moisturizing Suncare: 0.05% citronella			
Gone Original Wristband: 9.5% DEET			
Repello Wristband: 9.5% DEET			
Gone Plus Repelling Wristband: 25% citronella			