

MARCH 2019

THE VANISHING AND REMATERIALIZING BUTTERFLIES OF SOUTH FLORIDA

THE MIAMI BLUE

BY: DR. RUSCENA WIEDERHOLT

The Miami blue, a beautiful silver and blue butterfly, has been flitting along the edge of extinction for decades. This Florida subspecies, endangered at both the federal and state level, started declining in the 1980s and 90s. It was once found as far north as St. Petersburg and Daytona in tropical hardwood hammock, tropical pine rockland and beachside scrub habitats. Due to these areas being a great location for prime real estate, most of them have been developed. In addition, tropical storms, pesticide use and invasive species may have also contributed to their decline. By the early 90s, the only known Miami Blue population was on Key Biscayne.

In 1992 Hurricane Andrew hit, and the butterflies vanished. For 7 long years, they were another species ignominiously driven to extinction. It wasn't until a British woman, Jane Ruffin, visited Bahia Honda State Park in the Florida Keys, and stumbled across a colony. Fortuitously, she was a butterfly photographer and recognized these butterflies were different. With the advice of county biologists, the location of the colony was kept a secret, in the hopes of protecting them from unethical collectors. Ultimately it was a short-lived secret and their efforts were in vain. Something else had already found the butterflies, green iguanas. Predation from these non-native reptiles on one of the Miami Blue's host plants, the gray nickerbean, along with cold temperatures and drought conditions likely decimated the population by 2010. The butterflies had vanished again. But this time, they hadn't put all their eggs in one basket. The butterflies were found living at the



Miami Blue Butterfly

Key West National Wildlife Refuge and a few years later, at the Great White Heron National Wildlife Refuge. But even in a tropical paradise all is not well. Sea level rise threatens these low-lying islands. And it's occurring more rapidly now than in the 1900s.

WHAT IS BEING DONE TO PROTECT THE MIAMI BLUE

Researchers from the University of Florida, along with the U.S. Fish and Wildlife Service and the Florida Department of Environmental Protection, are captively breeding butterflies and releasing the chrysalises to the Florida Keys. The idea is to boost their numbers and repopulate additional sites, which helps buffer the population from being wiped out by a storm or catastrophe. The outlook from this summer is tentatively hopeful. Just a short time after the release, the researchers found mating butterflies and eggs. Also, Miami Blues get a little help from the natural world too, several species of ant tend to butterfly caterpillars, protecting them from natural predators in exchange for sugar-rich excretions the larvae produce.

OTHER ENDANGERED SPECIES IN FLORIDA

The winking in and out of the Miami Blue across the Florida landscape may be unique to its history, but its status is not. Three other species of butterflies in Florida are endangered and numerous other species are declining.

Schaus swallowtail butterflies were at death's door 7 years ago with only 4 individuals remaining in the wild. Now, thanks to captive breeding, reintroduction and conservation efforts, these black and yellow beauties number in the hundreds in Key Largo and Biscayne National Park.

Another endangered species, the Florida leafwing butterfly, is found only in pine rockland habitat. Aptly named, this species conceals its bright orange coloration by folding up its wings and brown and gray on the undersides, to resemble a leaf. An impressive feat of camouflage, most of their native range of Miami-Dade and Monroe counties no longer conceals leafwing butterflies - this species hasn't been seen outside Everglades National Park since 2007. Batram's scrub-hairstreak butterflies resemble an abstract painting with gray wings crisscrossed by white and black lines, orange blotches and white spots. These butterflies are found only in pine rockland habitat in Miami-Dade County, the Everglades National Park and Big Pine Key. With over 90% of their habitat cleared for development, it's no wonder their numbers have plummeted.

Threats facing these imperiled species are habitat destruction and fragmentation, fire suppression, non-native species, storms and extreme climatic events, sea level rise, pesticide use and butterfly collecting.



Batram's Scrub-Hairstreak



Schaus Swallowtail Butterfly

FUN FACT

If you're like me, you may be wondering why these dainty insects are associated with butter. One idea is that an Anglo-Saxon word, *butterfloeg*, was inspired by the common, yellow brimstone butterflies in England. Another theory comes from early European colonists in the United States. They believed witches turned into butterflies at night and stole milk and butter. Rest assured, your dairy products are safe from butterflies, but mystical ideas about butterflies abound. Magical or not, they have been capturing our imagination for centuries.



Pineland Croton, Exclusive food source for Florida leafwing and Bartram's scrub-hairstreak caterpillars

HOW TO ENGAGE WITH BUTTERFLIES

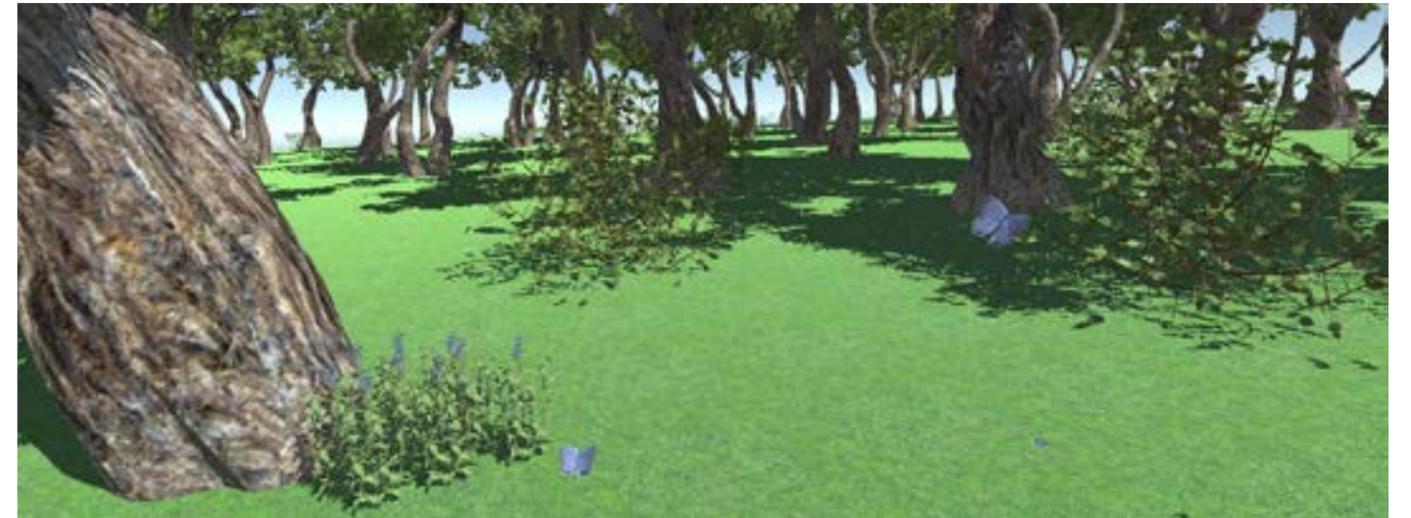
On a lighter note, butterfly viewing is a great outdoor activity to do in Florida. Our state has 187 species of butterflies, which can be found in tropical hardwood hammocks, pine rocklands, botanical gardens, corridors like forest trails and power line cuts, parks and yards. Butterflies are likely to be found by flowers, mud puddles, stream banks, larval host plants and nectar plants. Some butterflies are even attracted to rotting fruit, animal dung, dead animal remains or tree sap. Butterfly viewing in Florida is best in spring and fall from 10 a.m. to 5 p.m.. Alternately, you can create your own butterfly garden by planting native species in your yard. This is a great way to attract butterflies and create much needed habitat.

If you want to avoid swarms of mosquitoes, but still see rare and imperiled butterfly species, then that experience is coming soon. A team of researchers at Florida International University, Dr. Jaeson Clayborn and Alban Delamarre, have developed a virtual reality game where



A Schaus Swallowtail Butterfly on *Frontier Earth: Butterfly World 1.0* (Click image to watch video)

participants explore a dry forest ecosystem in the northern Florida Keys. You, the player, are armed with a net thrower, magnifying glass, and camera. These tools help you identify and record different species of butterflies before release back into the virtual dry forest world. Along the way, players must remove invasive ants (which eat butterflies) and identify host plants for caterpillars. Recently, I played the virtual reality game (*Frontier Earth: Butterfly World 1.0*), and despite my lack of gaming experience, I caught several butterflies, even a Schaus' swallowtail, and touched a poisonwood tree (don't do that in real life!). Their goal is to share this game at schools and for the public where players learn about different species of butterflies and plants, and conservation issues facing endangered species in a fun, interactive way.



Frontier Earth: Butterfly World 1.0, a virtual reality game created by researchers, at Florida International University.

Frontier Earth: Butterfly World 1.0

[Patreon.com/butterfly_world](https://www.patreon.com/butterfly_world)

Schaus Swallowtail Butterfly C

U.S. Fish and Wildlife Service Southeast Region [CC BY 2.0 (<https://creativecommons.org/licenses/by/2.0/>)], via Wikimedia Commons

Miami Blue Butterfly A

Robert Eibl (MiamiBlue at en.wikipedia) [Public domain], via Wikimedia Commons

Batram's scrub-hairstreak

Jaeson Clayborn

Pineland Croton

Jaeson Clayborn

Virtual reality game pictures & video

Jaeson Clayborn