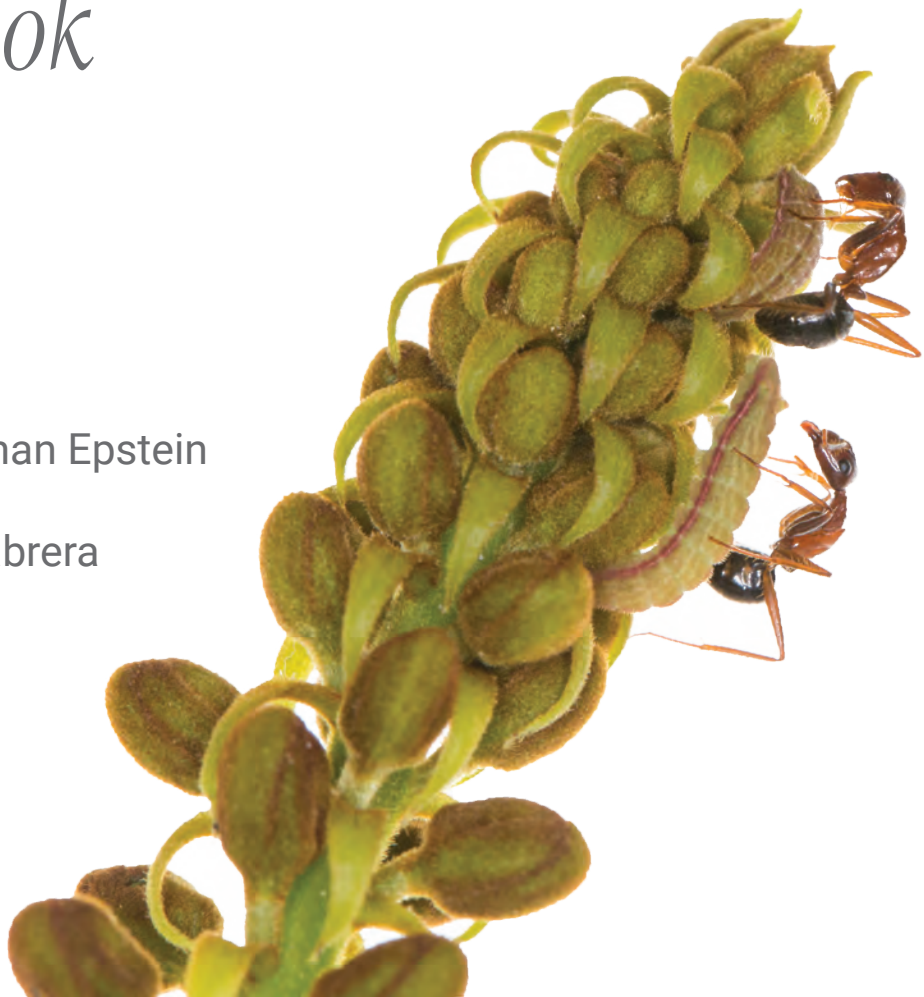
THE TINY and TOUGH miami blue butterfly

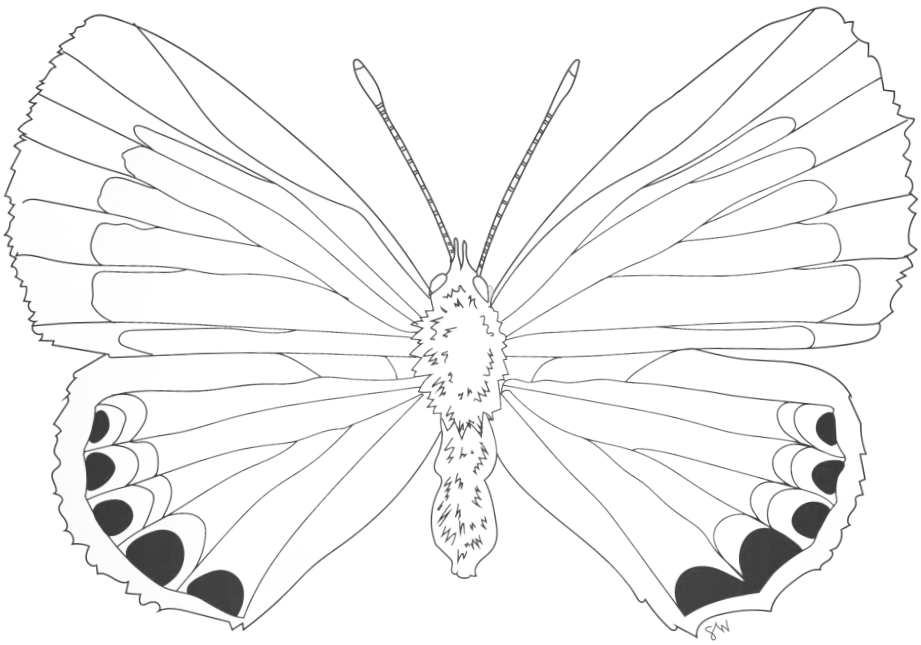
Coloring Book

Illustrated by Samm Wehman Epstein
Written by Geena M. Hill
Sarah Steele Cabrera



WHAT IS THE MIAMI BLUE BUTTERFLY?

The Miami blue *(Cyclargus thomasi bethunebakeri)* is a small, brightly colored butterfly native to Florida. The tiny caterpillars are regularly seen associating with ants which provide protection from various insect predators in return for sugary food rewards. The Miami blue is currently federally listed as endangered.



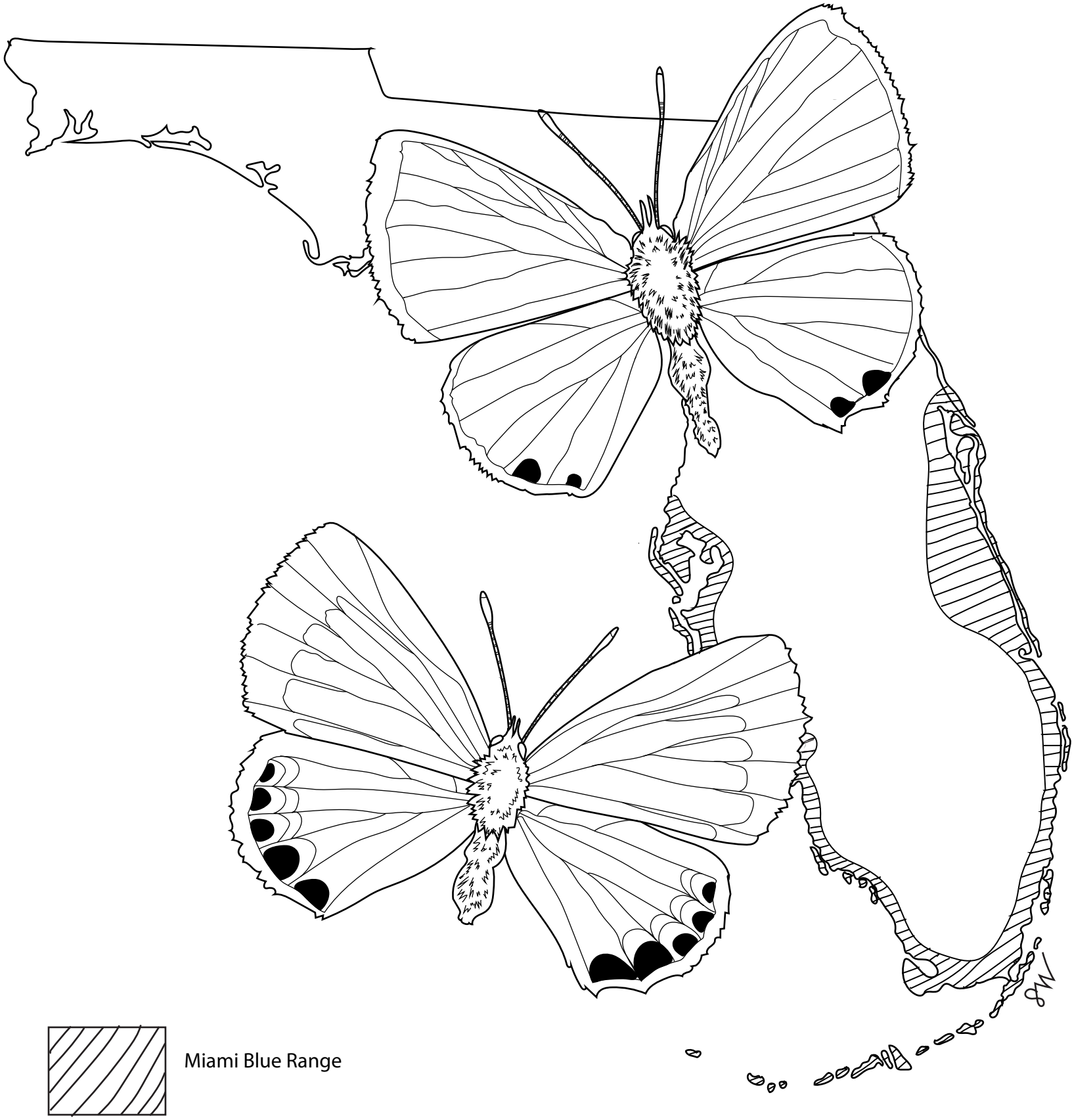
WHERE CAN IT BE FOUND?

Once common throughout coastal southern Florida, the Miami blue butterfly currently inhabits beachside scrub in the Florida Keys.

WHY DOES IT NEED OUR HELP?

The Miami blue now ranks among North America's rarest insects. Its population has declined due to habitat loss and fragmentation associated with expanding coastal development over the last several decades. Today, the Miami blue remains vulnerable to climate change, hurricanes, and drought.

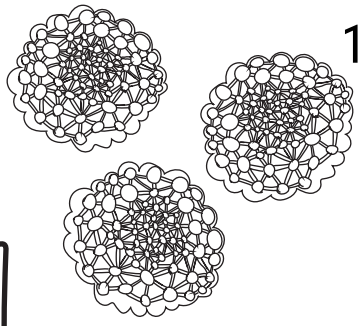
Many years ago, the Miami blue butterfly was common throughout coastal Florida. It is found nowhere else in the world.



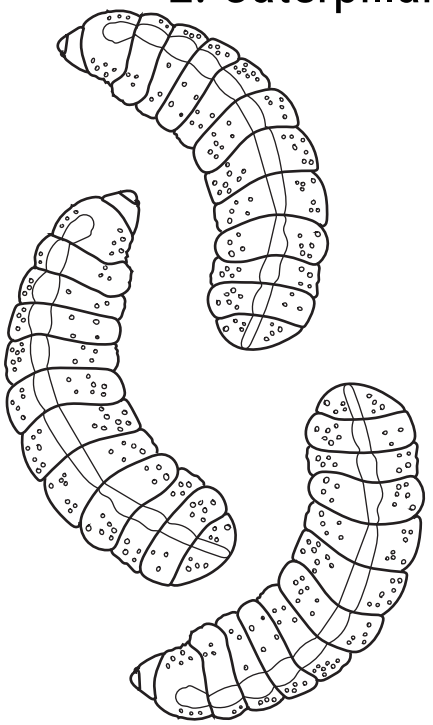
Miami Blue Range

LIFE CYCLE OF THE MIAMI BLUE BUTTERFLY

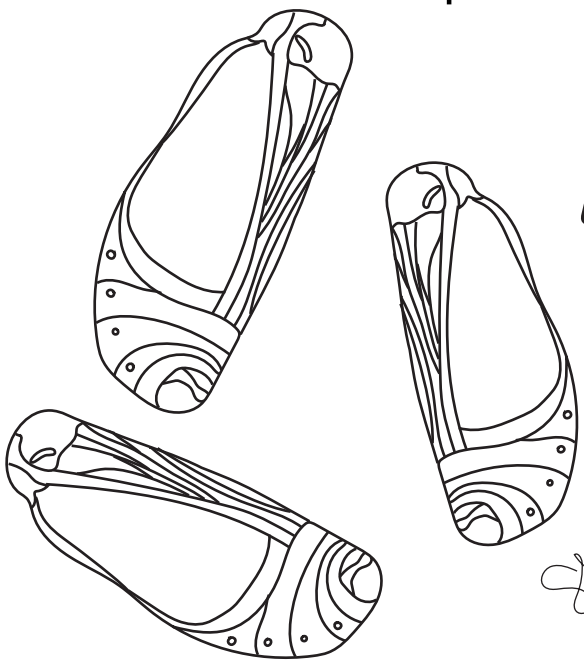
1. Egg



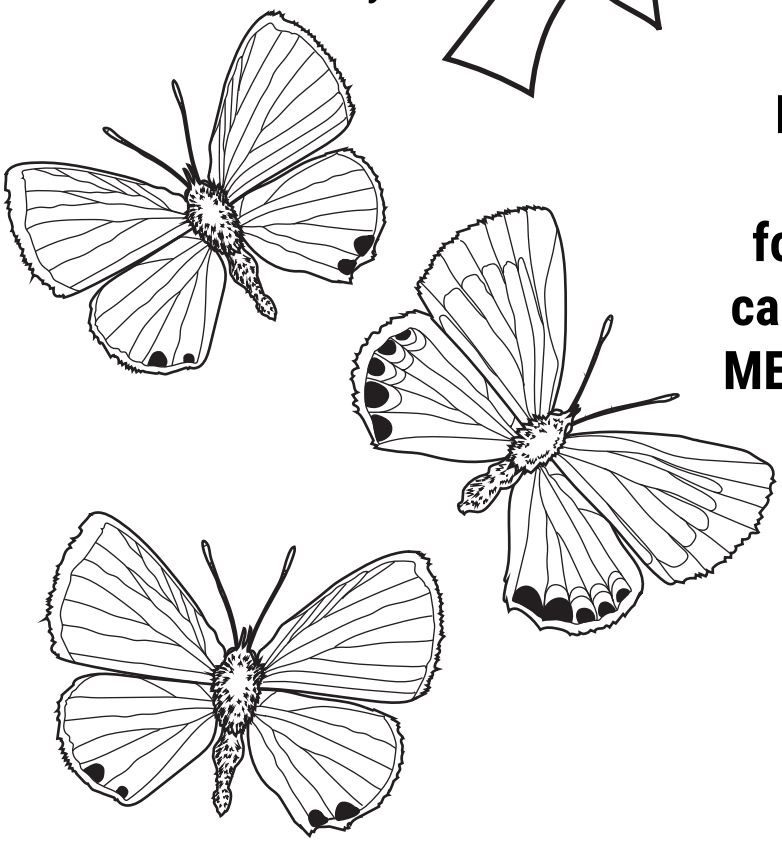
2. Caterpillar



3. Pupa



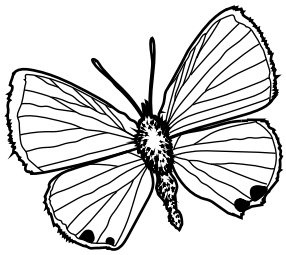
4. Adult butterfly

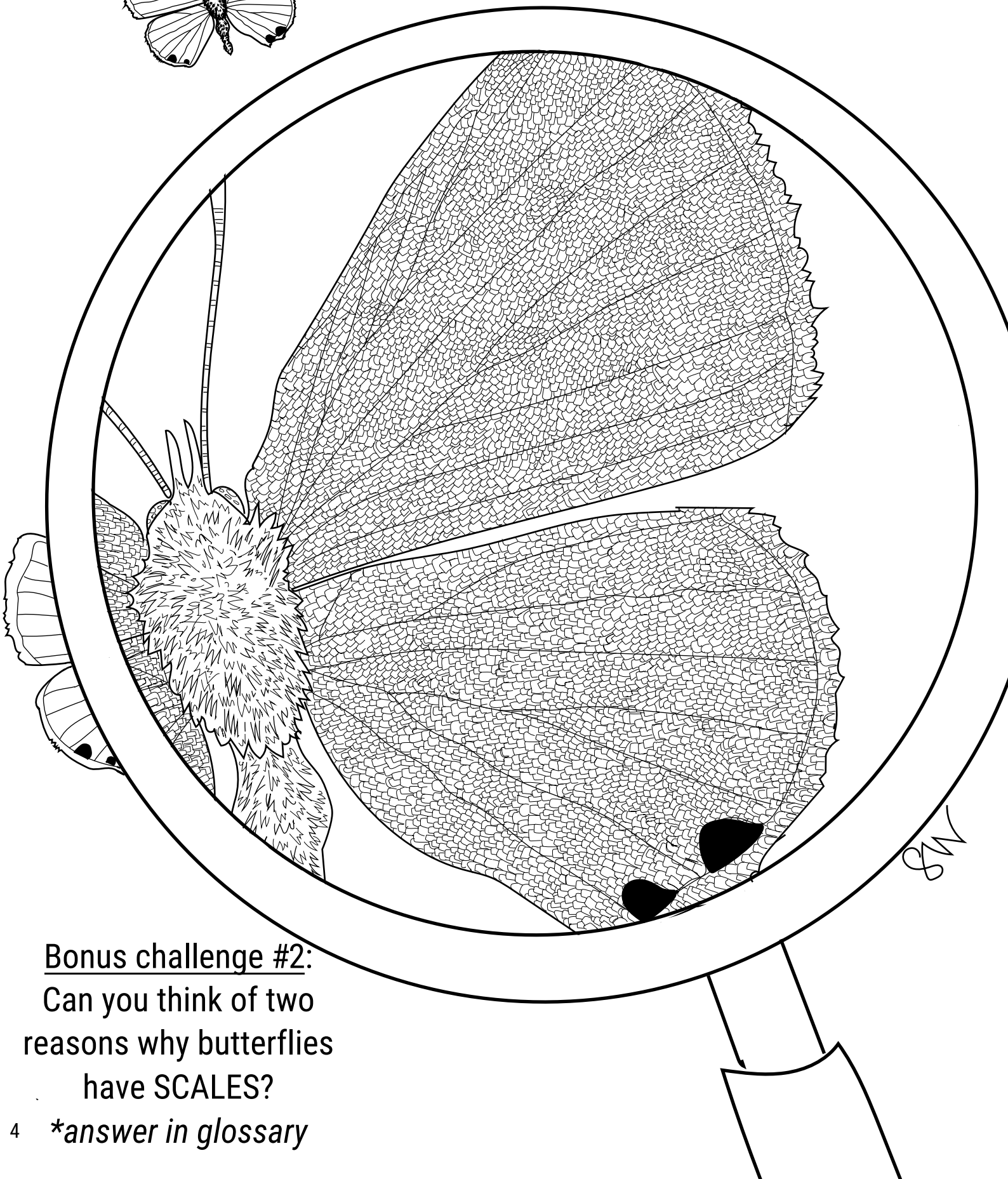


Butterflies go through four life stages, called COMPLETE METAMORPHOSIS

Bonus challenge #1:
What is caterpillar poop called?
**answer in glossary*

Butterfly wings are covered in tiny SCALES, similar to shingles on a roof.





Bonus challenge #2:
Can you think of two reasons why butterflies have SCALES?
**answer in glossary*

Miami blue caterpillars have special organs that help attract certain ants by sending out CHEMICAL SIGNALS.

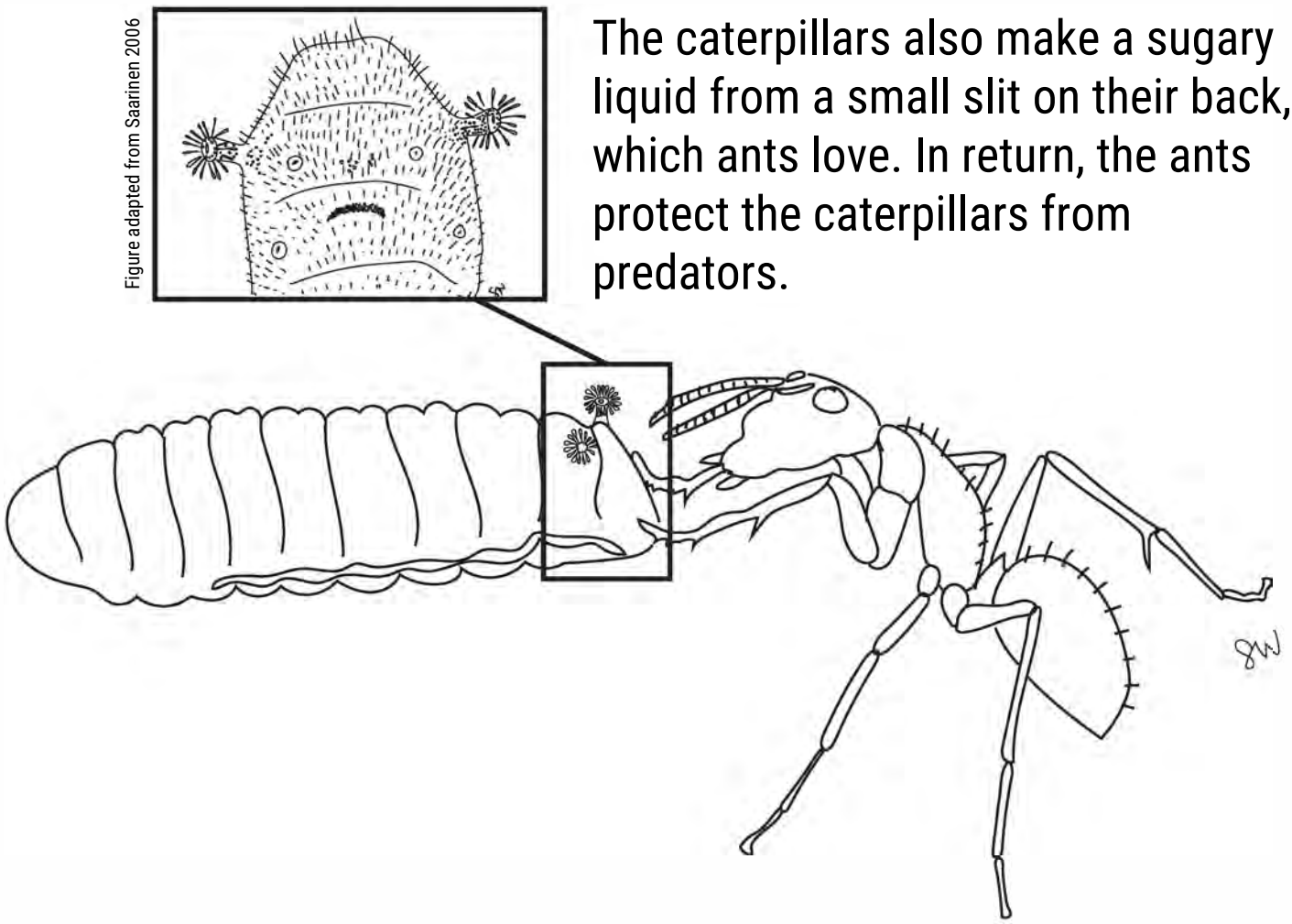
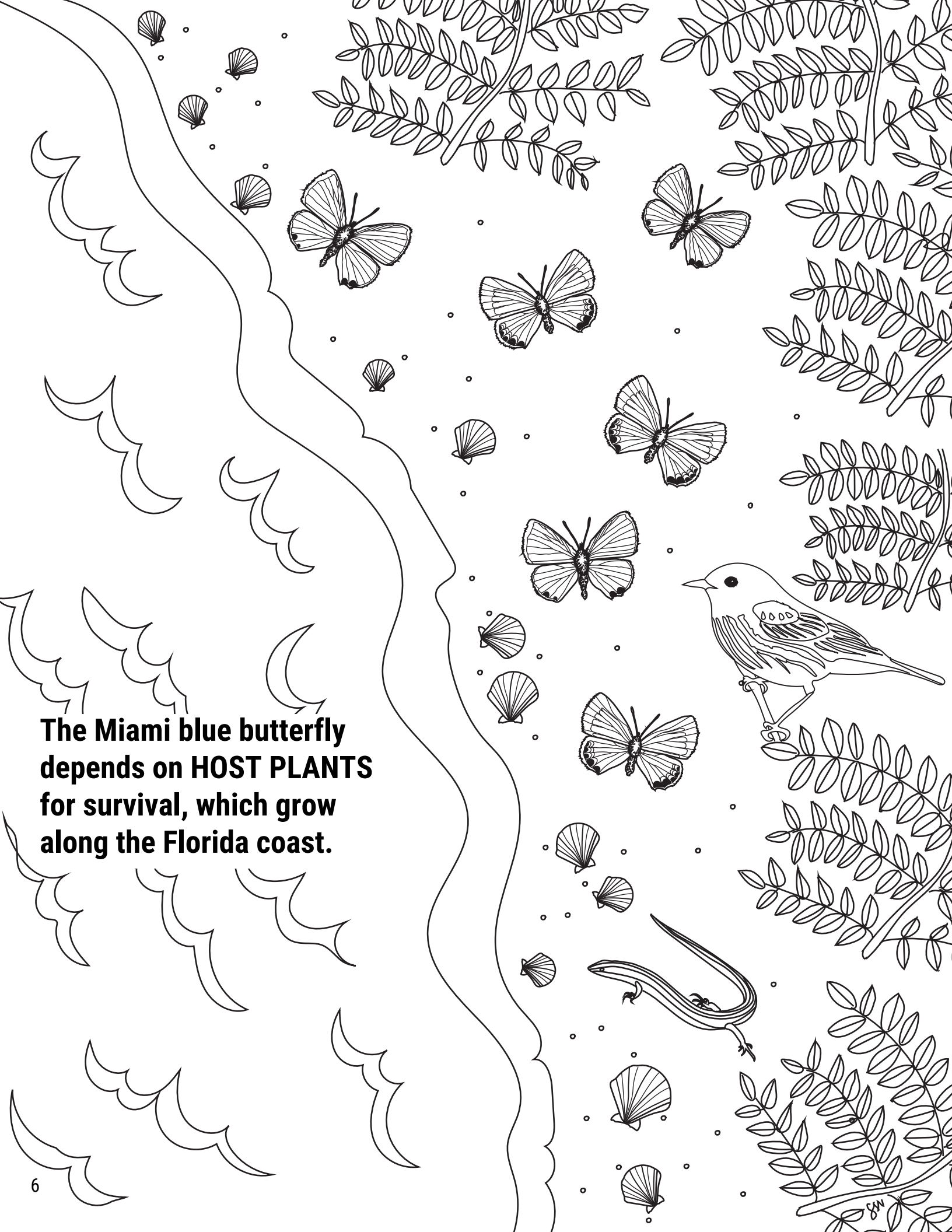


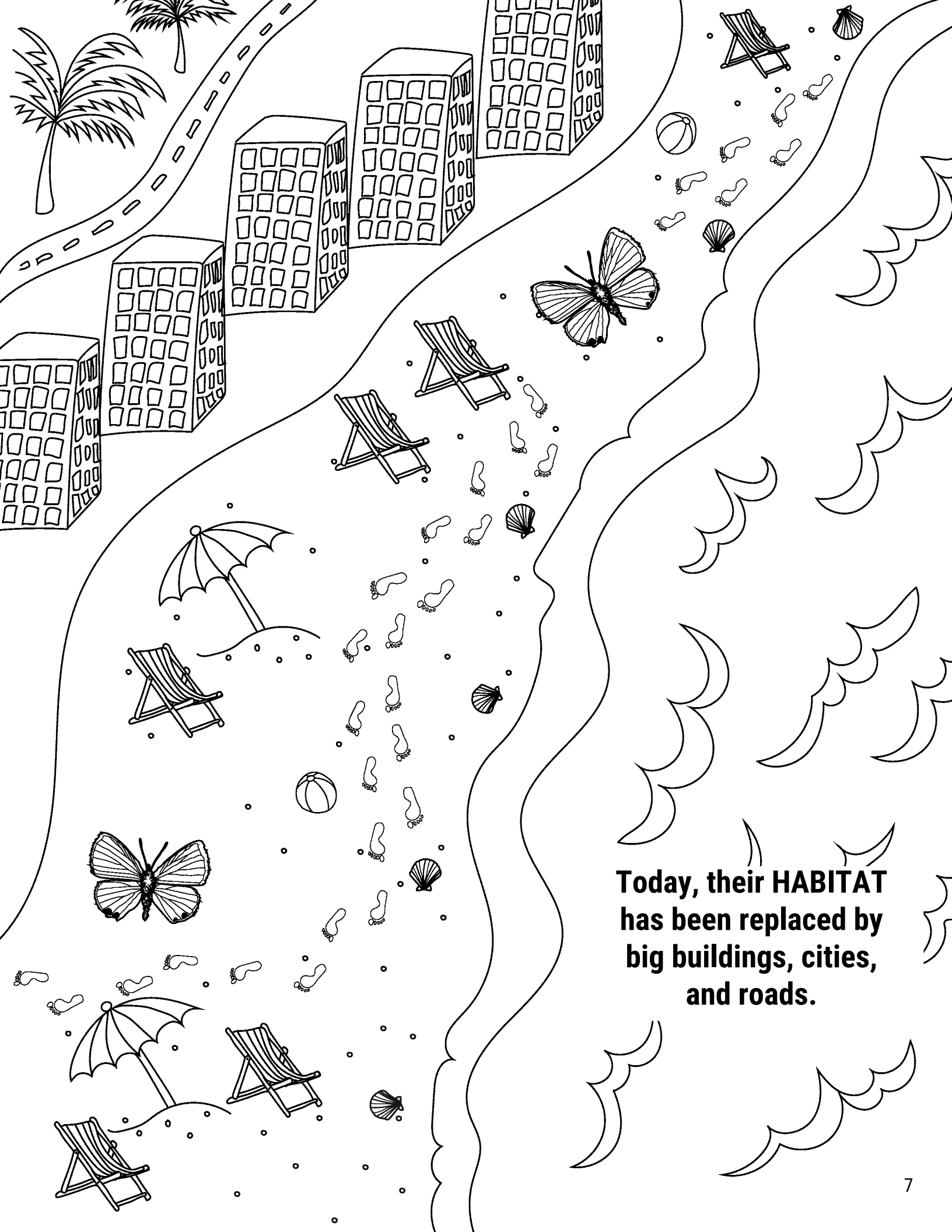
Figure adapted from Saarinen 2006

The caterpillars also make a sugary liquid from a small slit on their back, which ants love. In return, the ants protect the caterpillars from predators.

Bonus Challenge #3:
What is the word for a relationship where two organisms help each other?
**answer in glossary*



The Miami blue butterfly depends on HOST PLANTS for survival, which grow along the Florida coast.

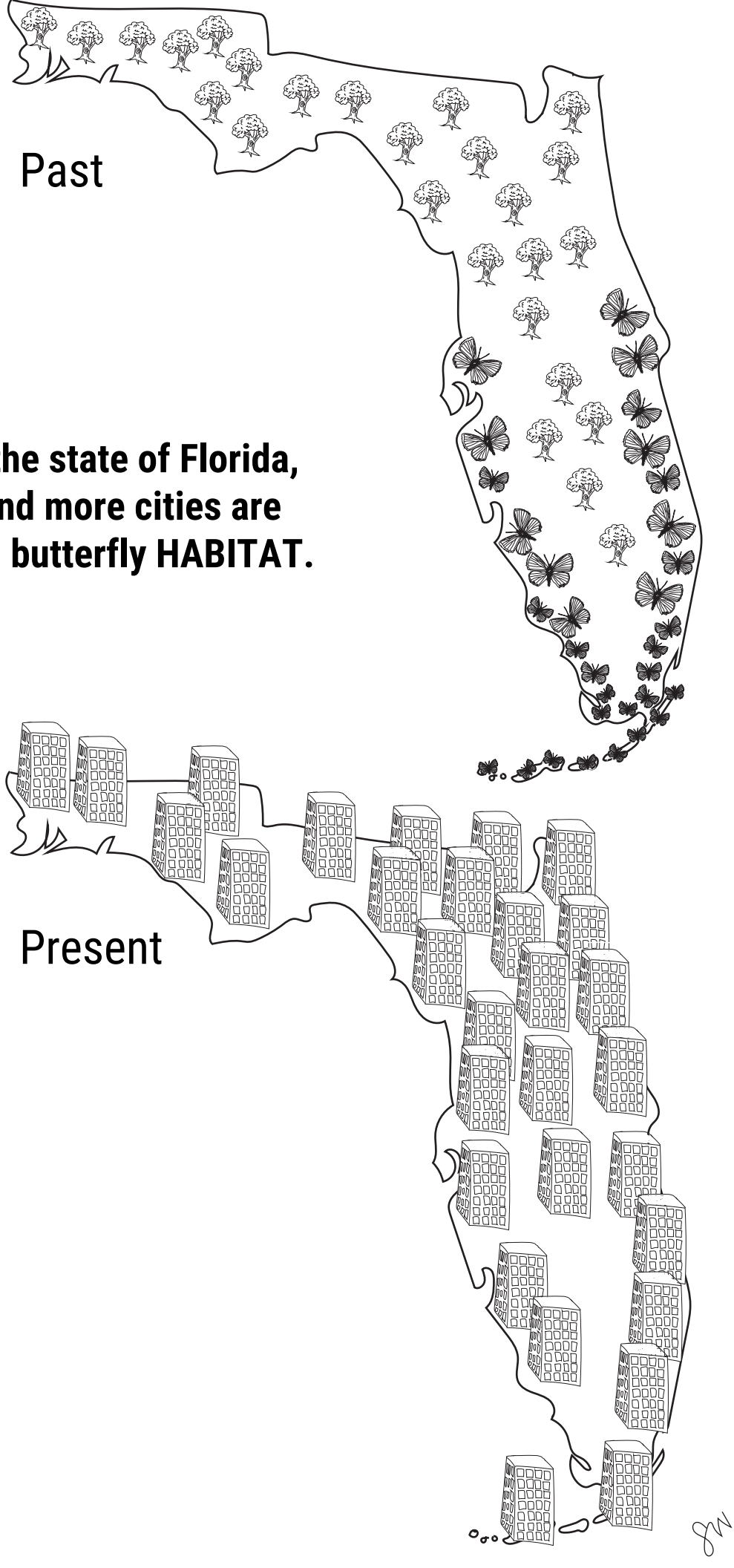


Today, their HABITAT has been replaced by big buildings, cities, and roads.

Past

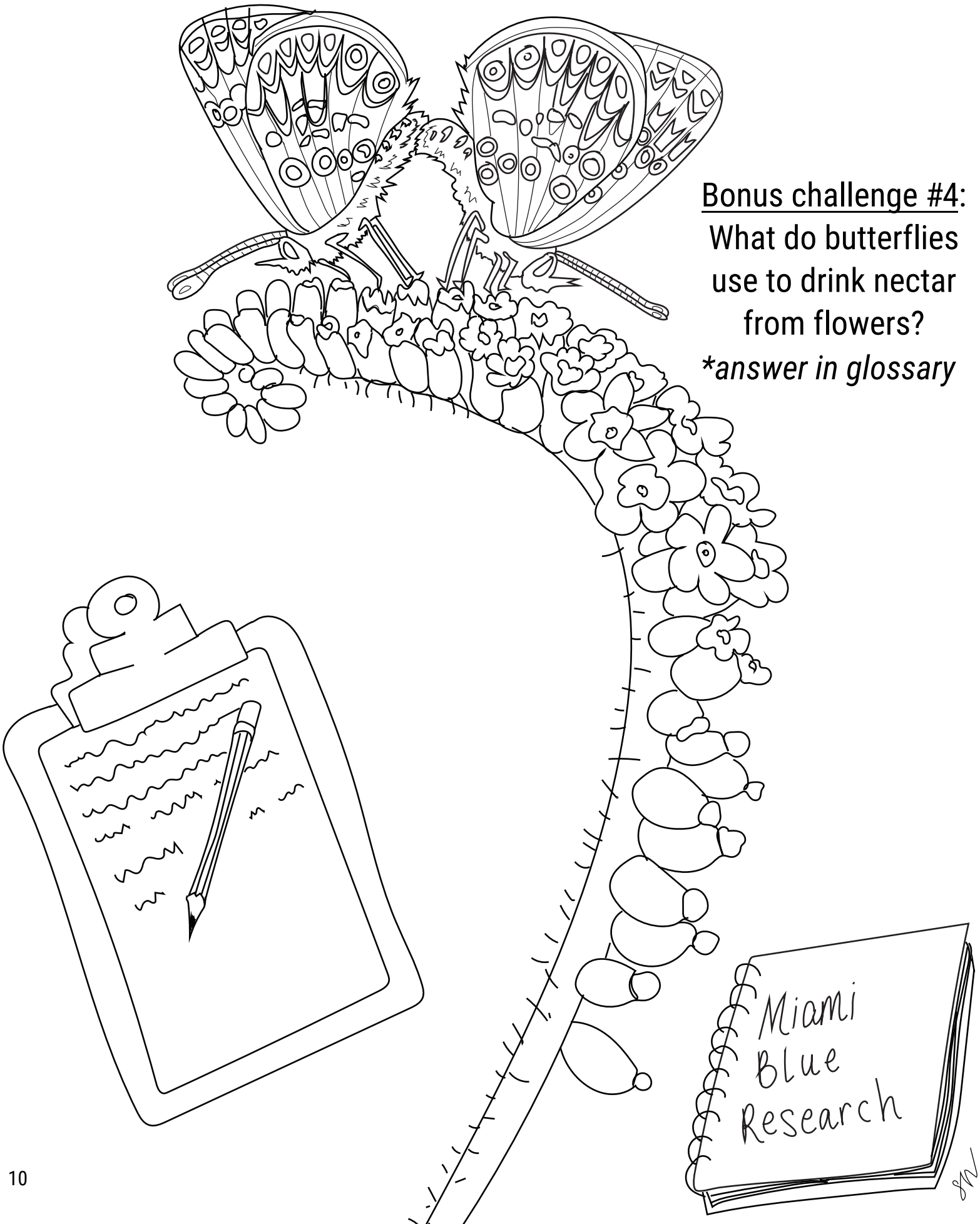
Across the state of Florida, more and more cities are replacing butterfly HABITAT.

Present



Now that Miami blue butterflies are ENDANGERED, they are threatened by severe weather and changes in their environment.

Scientists are studying the Miami blue butterfly to protect it from going EXTINCT.

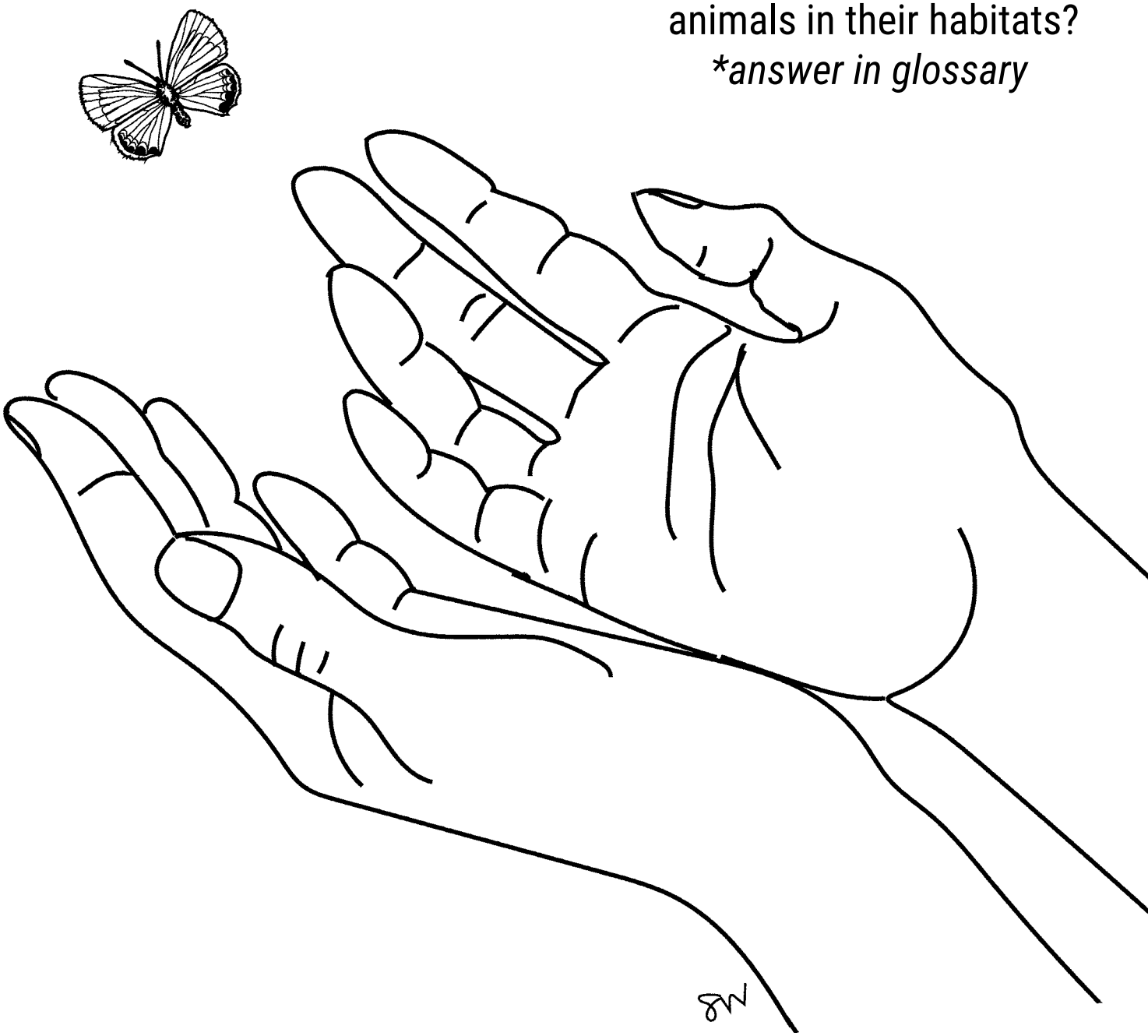


Bonus challenge #4: What do butterflies use to drink nectar from flowers?
**answer in glossary*

Today, Miami blue butterflies are being raised in a CAPTIVE COLONY, so that they can be released into the wild.

<u>Extra credit:</u> draw in your own butterflies here!

<u>Bonus challenge #5</u>:
What is the practice of protecting plants and animals in their habitats?
**answer in glossary*



GLOSSARY (find the CAPITALIZED words in the pages!):

CAPTIVE COLONY: animals raised by humans in a laboratory for the purpose of protecting them from extinction (pg 11)

CHEMICAL SIGNALS: a way for insects to communicate using special chemicals – they "smell" the chemicals with sensory hairs on their antennae! (pg 5)

COMPLETE METAMORPHOSIS: the growth process in which the form of the animal changes completely; the process for insects involves four distinct stages: egg, larva, pupa, and adult (pg 3)

CONSERVATION: the practice of protecting plants and animals, and other organisms in their habitat (pg 11, *Bonus challenge #5)

ENDANGERED: organisms that are in danger of going extinct (pg 9)

EXTINCT: no longer in existence; having no living representatives on Earth (pg 10)

FRASS: insect waste or excrement (e.g., caterpillar poop) (pg 3, *Bonus challenge #1)

HABITAT: the location where a living thing is normally found that provides for all of the living thing's needs (e.g., food, shelter, air, water) (pg 7, 8)

HOST PLANTS: the specific plant that an adult butterfly lays eggs on and that provides food for the caterpillar (pg 6)

MUTUALISM: a relationship where two or more organisms help and benefit each other (pg 5, *Bonus challenge #3)

PROBOSCIS: a tube-like mouth part that some insects use to suck liquid when feeding (pg 10, *Bonus challenge #4)

SCALES: tiny overlapping structures on butterfly and moth wings. The functions of scales are (1) to give butterflies and moths their specific color, which may help when attracting a mate or avoiding a predator, and (2) to provide insulation and protection. (pg 3, *Bonus challenge #2)

ABOUT THIS COLORING BOOK

This coloring book tells the story of the **MIAMI BLUE**, a critically endangered butterfly found only in the Florida Keys. Florida Museum of Natural History researchers are leading collaborative conservation efforts for Miami blue butterflies by monitoring wild populations, breeding the butterfly in the laboratory, and closely studying its ecology to learn how to effectively re-establish populations in the wild.

AVAILABLE AS A FREE PDF IN ENGLISH & SPANISH: www.floridamuseum.ufl.edu/discover-butterflies/brochures

LEARN MORE ABOUT ONGOING RESEARCH:

www.floridamuseum.ufl.edu/daniels-lab/

This work was supported by the Thompson Earth Systems Institute at the University of Florida, and the Disney Conservation Fund.

TESI
Thompson Earth Systems Institute
www.floridamuseum.ufl.edu/earth-systems/

FLORIDA MUSEUM®

UF UNIVERSITY of FLORIDA