

# Discovering Alabama

## Teacher's Guide

## Insect Wonders

### Suggested Curriculum Areas

Natural History  
Environmental Studies  
Paleontology

### Suggested Grade Levels

4–12

### Key Concepts

Biodiversity  
Biosphere  
Ecosystem

### Key Skills

Curiosity  
Research  
Art Appreciation

### Synopsis

Many people tend to associate the word “insects” mainly with trouble, from the irritation of bites and stings to the transmittal of deadly sickness and disease. Certainly, such hard realities are part of the history of human interaction with insects, but these problems are the case with only some insects, and a relatively few, in fact. The larger world of insects, including the millions of insect species that bear no particular threat to humans, plays a crucial role enabling the essential processes of our planet’s life-support system. Yet we humans are responsible for many activities that are harming and destroying vital insect populations. “Insect Wonders” highlights the often amazing attributes and capabilities of insects, and underscores the importance of insects to the sustainability of life on earth.



*Discovering Alabama* is a production of the Alabama Museum of Natural History in cooperation with Alabama Public Television. For a complete list of titles in the *Discovering Alabama* series, as well as information about ordering videos and accompanying Teacher's Guides, contact us at either: Discovering Alabama, Box 870340, Tuscaloosa AL 35487-0340; phone: 205-348-2039; fax: 205-348-4219; or email: [orders@discoveringalabama.org](mailto:orders@discoveringalabama.org). Also visit our website: [www.discoveringalabama.org](http://www.discoveringalabama.org).

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## Before Viewing

- 1 Conduct a class brainstorm and have the students list as many kinds of insects they can think of to put on the list.
- 2 Place students in small groups to estimate how many kinds of insects might exist on earth and discuss thoughts about the ways insects can be good/positive and ways they could be bad/negative. Invite the groups to report a summary of their respective group ideas and conclusions.

## While Viewing

Have students watch for information related to the brainstorm and their group discussions.

### Video Mystery Question

Why are spiders not insects?  
(Answer: *The scientific class, Insecta, is defined to include creatures with three main body parts and six legs. Spiders are in a different scientific class, Arachnida, with a differing number of body parts.*)

## After Viewing

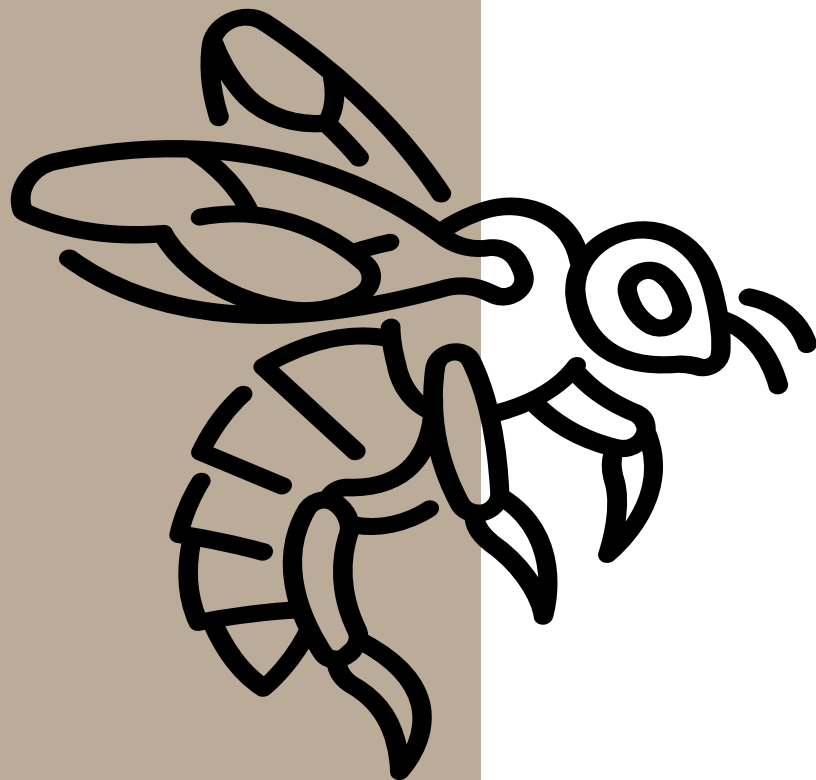
Discuss with the class new information about insects that was learned from the video.

## Extensions

- 1 View other *Discovering Alabama* programs that highlight aspects of Alabama's natural diversity and thereby provide ecological context for the larger world of insects. Examples include "Alabama Soils," "Alabama Wetlands," "Mobile River Basin," "Alabama Forests," and "Longleaf Ecosystem."
- 2 Assign individual group projects to select a particular insect and research its scientific classification, physical description, habits and habitat, and other aspects of natural history. (See **Additional References & Resources** for sources of research information.)

## Philosophical Reflections

Insects are classified scientifically as members of the kingdom Animalia. Being animals, should insects receive the same level of humane treatment as afforded to other animals? Are insects entitled to the kind of ethical regard given to other animals by animal rights organizations? What about mosquitos?



## Nature in Art

Note the insect pictures on the front and back of the DVD cover for “Insect Wonders.” These are taken from footage contained in the video and were selected for the cover because of their artistic expressive qualities. Challenge students to make their own photos that capture especially artistic or expressive insect features.

## Community Connections

Arrange a field trip to a farm or farmers market to investigate examples of food crops grown in your area and the variety of insects that farmers depend upon to pollinate their crops.



## Additional References & Resources

- *Insects of North America* (Princeton Field Guide) by John C. Abbott and Kendra K. Abbott. Princeton University Press (2023).
- *A Field Guide to the Insects of America North of Mexico* by Donald J. Borror and Richard E. White. Houghton Mifflin Company (1970).
- *The Audubon Society Field Guide to North American Insects and Spiders* by Lorus Milne and Margery Milne. Alfred A. Knopf (1980).
- *The Creation: An Appeal to Save Life on Earth* by E.O. Wilson. W.W. Norton and Co. (2006).
- Alabama Museum of Natural History: <https://almnh.museums.ua.edu/>.

## Parting Thoughts

“*Insect Wonders*” concludes by reiterating the amazing life-supporting capacity of the earth’s biosphere, and the fact that this unique capacity depends on the wondrous role of insects in sustaining essential ecological processes. The existence of this essential life-supporting relationship here on earth prompts me to wonder: If life is ever discovered on other worlds elsewhere in the universe, what form of creatures might be serving such vital roles comparable to those of earth’s insects? What will these creatures look like? How will they function? And will we discover that they too are frequently caught, collected, and put on display in museums?

Oh yeah, I almost forgot. The long human endeavor for survival and existence on planet Earth has involved numerous periods of serious insect threats. Among the more infamous are early periods of deadly malaria, especially prior to the development of mosquito controls. There are people alive today who remember the suffering and loss of these tragic times. And, of course, today also there is the more recent spread of other insect-borne illnesses, such as lime disease, that can cause severe problems for some people. So, for those of us who tout the wonders of insects, let us not become too self-righteous in our zeal.

Happy outings,

*Dr. Doug*





## Discovering Alabama

Activity/Information Sheet

### Insect Wonders

#### Studying Insects\*

You can explore and learn about insects through observation only, photography, or making an insect collection. Each has its own benefits, and they are certainly not mutually exclusive. Historically, focusing on taxonomy and studying the diversity of insects meant making a collection. This is still the primary way by which most entomologists work because it is necessary to study all but the best known or largest insects under a microscope to identify them.

Making a collection is still a great way for many to learn about and enjoy insects. Before the age of digital photography, this was how every insect enthusiast and professional invariably got started. We don't encourage collecting and killing insects just for the sake of killing, but one of the reasons that insects are so popular is their accessibility. They are literally everywhere, in all terrestrial and freshwater habitats that you can imagine. This, along with their reproductive strategy, which typically results in dozens to

hundreds or even thousands of offspring per individual makes them the perfect subject for every naturalist. Additionally, entomology is a field in which enthusiasts and non-professionals can make serious contributions. There are likely new species waiting to be discovered in your own yard or local park.

Physical collections are critical for the discovery and description of new species. They are also required for genetics studies that have proved so important in understanding the relationships of insects. If you do choose to make an insect collection, we encourage you to take it seriously; properly curated and labeled specimens are always welcome at a local university or museum collection. For those who choose to collect for themselves or academic collections, we encourage responsible collecting. Carolyn Trietsch and Andrew R. Deans came up with the Insect Collectors' Code\*\* based on the Hippocratic oath to "facilitate awareness and discussion of the ethics of insect collecting, especially amongst entomologists-in-training [students]." The authors of the code received input and advice from members of the Entomological Collections Network (<https://ecnweb.net>) and hope that it serves as a vehicle to instill ethical behavior in entomology.

Not everyone will want to make a physical insect collection, which is fine, because digital photography offers an amazing opportunity to collect insects in a different way. Nearly everyone has a great camera on their phone that they carry everywhere they go. If you want to take it to the next level, there are a host of more advanced digital cameras available. More importantly, many online resources let you share

your images, and get and give help identifying your insects. Social media platforms like Facebook are home to numerous groups that post and identify photos. Flickr ([flickr.com](https://www.flickr.com)) is a photo-sharing site that is also great for finding, posting, and discussing identified photos. The best place to get help with identifying photos of insects from North America is BugGuide ([bugguide.net](https://bugguide.net)). This is a community of knowledgeable professionals and enthusiasts dedicated to making the most accurate identifications as possible.

\* Excerpted from *Insects of North America* (Princeton Field Guides) by John C. Abbott and Kendra K. Abbott. Princeton University Press (2023).

\*\* "The Collectors' Code." *American Entomologist*, v. 64, no. 3, Fall 2018, pp. 156-158; <https://doi.org/10.1093/ae/tmy035>.

