



THE GREAT OUTDOORS! ➡

# Discovering Nature

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## KEY ICONS TO LOOK FOR



**Words to Understand:** These words with their easy-to-understand definitions will increase the reader’s understanding of the text, while building vocabulary skills.



**Sidebars:** This boxed material within the main text allows readers to build knowledge, gain insights, explore possibilities, and broaden their perspectives by weaving together additional information to provide realistic and holistic perspectives.



**Research Projects:** Readers are pointed toward areas of further inquiry connected to each chapter. Suggestions are provided for projects that encourage deeper research and analysis.



**Text-Dependent Questions:** These questions send the reader back to the text for more careful attention to the evidence presented here.



**Series Glossary of Key Terms:** This back-of-the-book glossary contains terminology used throughout this series. Words found here increase the reader’s ability to read and comprehend higher-level books and articles in this field.



**Educational Videos:** Readers can view videos by scanning our QR codes, providing them with additional educational content to supplement the text. Examples include news coverage, moments in history, speeches, iconic sports moments and much more!





*Deliast mysis onca*  
Pieridae



*Graphium agamemnon agatum*  
Papilionidae



*Hypolimnast belina*  
Nymphalidae



*Psychonotis casia*  
Lycaenidae



*Papilio olysses*  
Papilionidae



*Cirrochroa regina*  
Nymphalidae



*Graphium sarpedon choreades*  
Papilionidae



*Dichoragha nivea*  
Nymphalidae



*Gyneris polydorus*  
Papilionidae



*Phalanta alcippe cervina*  
Nymphalidae



*Aethopala aenea*  
Lycaenidae



*Jamides nemophilus nemophilus*  
Lycaenidae



*Triades priamus*  
Papilionidae



*Graphium wasslei*  
Papilionidae



*Dandaca buxus*  
Pieridae



*Graphium aristaeus poeas*  
Papilionidae



*Pantoporia venilia*  
Nymphalidae



*Gyneris polydorus*  
Papilionidae



*Fuerstia*  
Nymphalidae

# Discover Nature!



n the way home from the dentist one day, Frances Hamerstrom's babysitter took her to the natural history museum. Frances was fascinated by the cases full of insects. Each one was carefully labeled with its official Latin name. At home, Frances had six shoeboxes full of dead insects. Unfortunately, she only had one small guidebook to help her identify them. Here were the answers she wanted! Frances read through the labels, trying to remember everything. She did not have enough time to find out everything she wanted to know. She needed an excuse to go back. In her mind, that meant another trip to the dentist. Frances was ready to do whatever was needed. Finally, she convinced her mother to take her back to the natural history museum.

Frances was always interested in discovering more about nature. As a child, she took in wild animals and kept them as pets. She made secret hiding places in the tops of trees. She made “bedrooms” under their branches and slept there. She planted poison ivy near her garden so no one would bother her there.

Frances grew up to be a famous naturalist. Her research on the prairie chicken in Wisconsin helped save it from extinction. Her interest in nature, though, started with just a few trips outside her house. The land near her home remains a wildlife preserve today, thanks in large part to her efforts.



The greater prairie chicken was saved thanks to Hamerstrom's efforts.

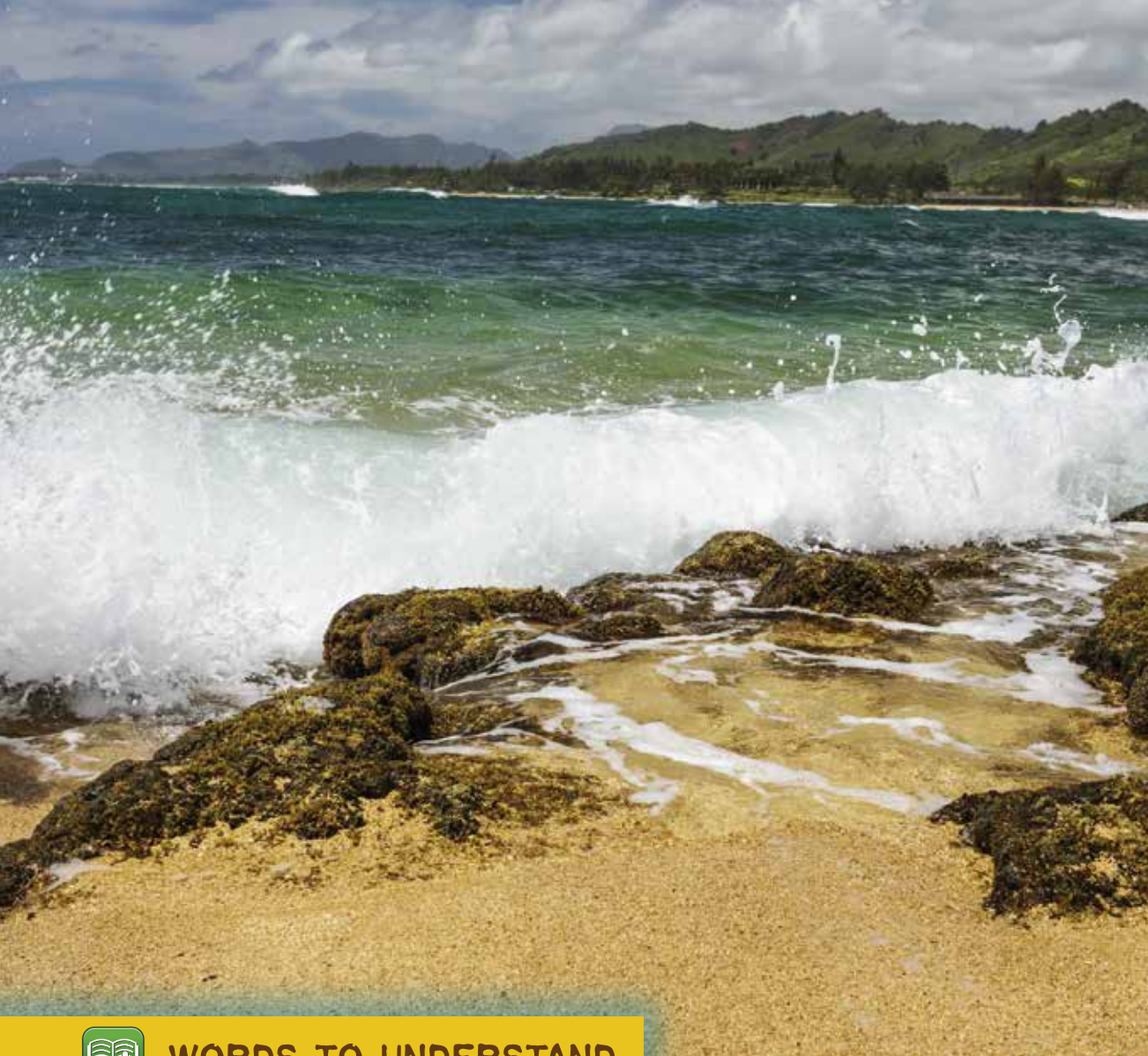




**Step one to discovering nature: Get outside and explore . . . bring friends!**

She also explored the Amazon and other parts of the world. But she always came home to the house where she lived for more than 50 years. It did not have running water and hadn't been painted since the Civil War. But for her, it was the center of a larger, wilder world. Every day, she explored the land nearby, always discovering new things about nature.

It doesn't really matter what's outside your home—nature is everywhere. Your explorations could start on your porch, on the lawn, or in an alley in a city. Wherever you go, nature is already there. Like Frances, you just have to notice it.



## WORDS TO UNDERSTAND

**botanist** a type of scientist who studies plants

**evolution** a scientific theory that explains how animals adapt to their environments and change over time

**habitat** the places where certain species live

**photosynthesis** the process plants use to turn sunlight into food and energy

**taxonomy** the system used to classify plant and animal species



# Into the Great Outdoors!



Keeping the Earth running properly is a big project. Nature is forever doing one thing or another in this endless job. Birds sing to attract mates. Squirrels scramble along the tops of fences and dash in front of cars as they collect nuts for the winter. Leaves fall off trees and break down to put nutrients back in the soil. Sometimes nature has a task that is steady and quiet, like the **photosynthesis** of a plant. Other times her job is sudden and loud, like a hurricane hurtling across the ocean. She may take thousands of years for waves to pound rocks into tiny grains of sand. Or she may just need a moment for a bolt of lightning to start a fire that burns millions of acres. Big or small, each thing influences everything else. Best of all, it is all on display—for us.



## Taking Notice

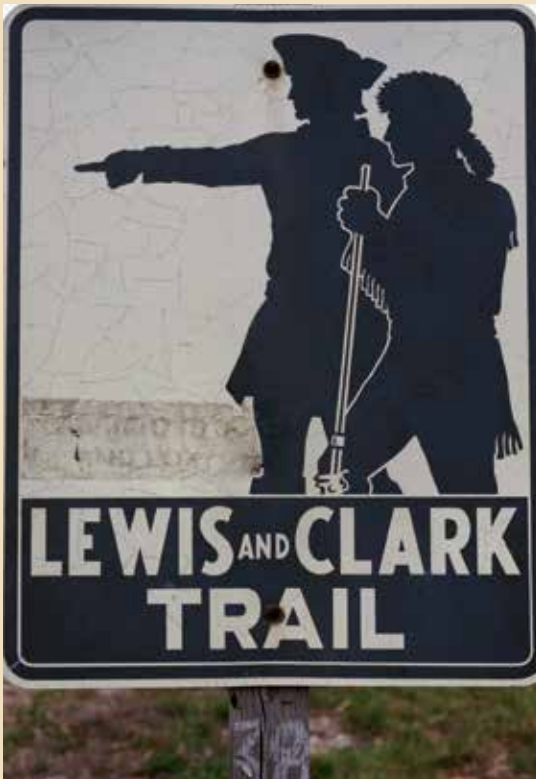


Thousands of years ago, people were more in touch with nature than they are now. They had to know about nature just to survive. By observing the lifestyles of animals, they figured out the best ways to hunt. They figured out how to protect themselves from predators. They learned which trees had good, hard wood for building shelters. They learned which berries and mushrooms were safe to eat, and which ones were poisonous. They observed processes and noticed patterns. Then they passed the information along to later generations.

Most of these early naturalists were just ordinary people. They learned about nature because it helped them in their own lives. However, there have also been some important naturalists whose work has

had a larger effect. One was the Swedish **botanist** Carl Linnaeus. In the 1700s, he worked to classify plants and animals based on their characteristics. This is known as **taxonomy**. The system invented by Linnaeus is still used today.

You might have heard of Meriwether Lewis and William Clark. They were famous American explorers who traveled across the American West from 1804 to 1806. Lewis and Clark were also naturalists. They took notes on everything they encountered. They recorded the locations of rivers and mountains. They wrote down the kinds of plants and animals they saw. Their work helped people understand the natural world in the United States.



Lewis and Clark led the way west as naturalists and explorers.



## THE ENVIRONMENTAL MOVEMENT

By the late 1800s, more people were looking at nature on a large scale. They started to realize that people could have a huge effect on what happened in nature. It was not always good. During the Industrial Revolution of the late 1800s, factories pumped tons of polluted air into the environment. Ancient trees were cut down for lumber to make everything from houses to tooth-picks. This destroyed habitats for many birds and animals. These kinds of problems motivated people to try to prevent damage. It was the beginning of the environmental movement.

Another very influential naturalist was the Englishman Charles Darwin. In the 1830s, Darwin sailed around the world for five years. Along the way, he studied all kinds of plants and animals. Darwin is best known for proposing a theory of **evolution**. Evolution describes how species adapt to their environments and gradually change as a result. As a working naturalist, Darwin noticed the similarities and differences between species and wondered how they had occurred.

### Starting Out



If you want to discover nature, it is not necessary to take to the high seas as Charles Darwin did. You do not have to blaze a trail to the West like Lewis and Clark. Instead, some of the best training is to learn to recognize what is happening right under your nose.

Discovering nature starts with small steps and short trips. You might spend half an hour in your backyard garden, tracking the path of an insect. You could take a survey of the trees around your house, counting and identifying them. You might keep a record of the weather, and see how it affects the behavior of animals.

It's easy to read a field guide that will tell you what plants and animals live in what places. The TV news will tell you how many inches of snow there were. But that's the easy way out—and it's not nearly as



Be a Backyard Naturalist

fun. Making a point to notice things for yourself puts you in touch with what is happening around you. That's an important part of building your skills as a naturalist.

You can move from your backyard to a nearby park, a patch of woods, or even an overgrown parking lot. Every area has something to discover. Try to observe different types of **habitats**, such as woods or open grasslands. Look at the differences between puddles and ponds. A general nature walk can help you get the lay of the land. Then, once you've been out a few times, give yourself a specific goal. Maybe you will see how many different types of pine cones you can find, or how many bird calls you can identify.

It takes patience to be a good naturalist. Discovering nature isn't all sunny walks in the park. Nature is doing her thing everywhere, all the time. If you want to see the show, you're probably going to get dirt under your fingernails and snow down your boots. Bugs will bite you, and the pollen might make you sneeze. Sometimes you'll be too hot or too cold.

And then something will make it all worth it. What will it be?

That's what you have to find out!



## HUMAN NATURE

Most people think of nature as being everything except themselves. In fact, people are just as much a part of nature as everything else. After all, it's called "human" nature! It may not seem very exciting to watch people cross the street, or shop for groceries, or sit in class. However, there may be interesting patterns if you look closely. Who waits for the light to change, and who runs across as soon as the traffic clears? Pick a couple sections of the store and "spy" on the people who shop there. Do they spend more time shopping for chips or chicken? Who focuses on their work, and who looks out the window, ready to go outside? People-watching can tell you a lot about nature—your own!





Find ways to discover nature, from the smallest bugs to the biggest trees.



## TEXT-DEPENDENT QUESTIONS

1. How did Carl Linnaeus contribute to the study of the natural world?
2. Why did the environmental movement start?
3. What are two simple ways you could start to observe nature around your home?



## RESEARCH PROJECT

Look into the lives of several famous naturalists, and list some of their important contributions. How did they build upon each other's work?



## WORDS TO UNDERSTAND

**biodiversity** the amount of variety in plants and animals in a particular area

**ecosystem** the habitats of species and the ways that species interact with each other

**nocturnal** active at night instead of daytime