

# Animal Ears



by Mary Holland

# Animal Ears

Hearing is an important sense for animals' survival. Ears give animals vital information to help them find food or listen for predators ready to attack. This continuation of Mary Holland's award-winning *Animal Anatomy and Adaptations* series features a wide variety of animal ears and how animals use them. Did you know that some animals have ears on their legs? Like the eyes, mouths, legs, and tails featured in previous books, animal ears come in a wide variety of shapes and sizes—a perfect match for each animal's needs.



Arbordale Publishing offers so much more than a picture book. We open the door for children to explore the facts behind a story they love.

Thanks to Tabbi Kinion, Statewide Education Coordinator for Colorado Parks and Wildlife, and Sarah Chatwood at the Montana Audubon Center for verifying the accuracy of the information in this book.

The *For Creative Minds* includes

- Animals use their ears to . . .
- Mix and Match
- How Do Ears Hear?
- Ear Questions

Visit [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com) for free resources and support: teaching activities; quizzes; reading levels; and alignment to Common Core, NGSS, and state standards.

Arbordale's interactive ebooks read aloud in both English and Spanish with word-highlighting and adjustable audio speed. Available for purchase online.

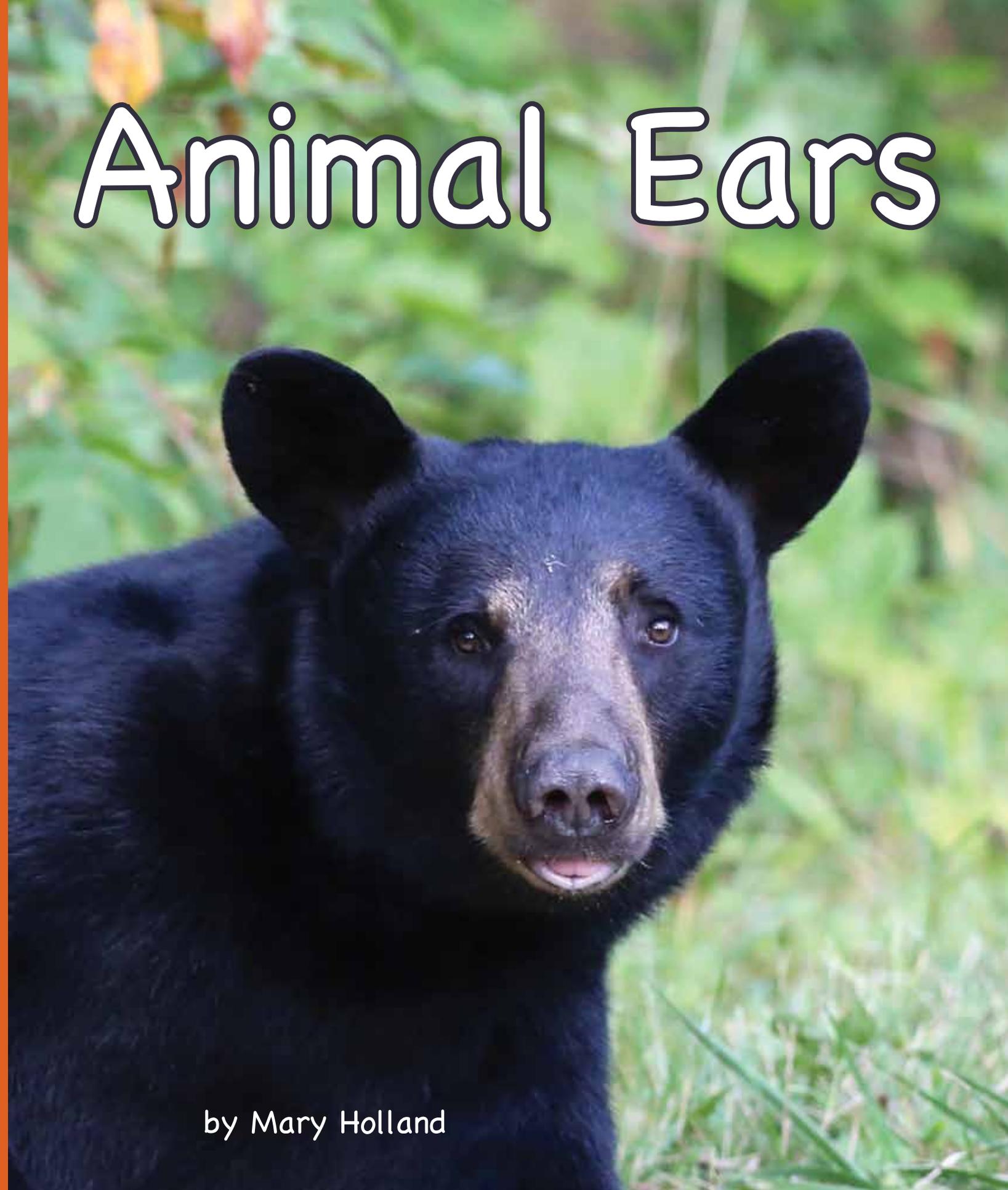
**Mary Holland** is a naturalist, nature photographer, columnist, and award-winning author with a life-long passion for natural history. After graduating from the University of Michigan's School of Natural Resources, Mary worked as a naturalist at the Museum of the Hudson Highlands in New York state, directed the state-wide Environmental Learning for the Future program for the Vermont Institute of Natural Science, worked as a resource naturalist for the Massachusetts Audubon Society, and designed and presented her own "Knee-High Nature Programs" for libraries and elementary schools throughout Vermont and New Hampshire.

Her other children's books with Arbordale include *Yodel the Yearling*, *Otis the Owl*, *Ferdinand Fox's First Summer* (NSTA / CBC Most Outstanding Science Trade Book and Moonbeam Children's Book Award), *The Beavers' Busy Year*, *Animal Eyes*, *Animal Legs*, *Animal Tails*, and *Animal Mouths* (NSTA / CBC Most Outstanding Science Trade Book). Mary's book *Naturally Curious: a Photographic Field Guide and Month-by-Month Journey Through the Fields, Woods and Marshes of New England* won the 2011 National Outdoor Book Award for the Nature Guidebook category. *Naturally Curious Day by Day* was published in 2016. Mary lives in Vermont with her lab, Emma. Visit Mary's blog at [naturallycuriouswithmaryholland.wordpress.com](http://naturallycuriouswithmaryholland.wordpress.com).



Mary Holland

# Animal Ears



by Mary Holland



Most animals have ears. They can be big or small, pointed or round. Part of the ear is always inside the head. Some animals have part of their ear on the outside of their head, where it can be seen by others.

Other animals, like snakes, have ears completely inside their heads. Snakes can hear sound, but they get most of their information from feeling vibrations on the ground with their jaw or their belly.



Ears come in all kinds of shapes. Frogs have ears that are covered with big, round ear drums.

Can you find this green frog's ear drum?

It keeps dirt and water out of the frog's ear and also collects sound. Frogs use their ears to hear the calls of other frogs. Their lungs help them hear some nearby sounds as well!

Not every animal's ears are on their head. Do you know where a katydid's ears are?

On its legs!





Most animals have two ears. An insect called a praying mantis has only one ear.

It is located in a groove on the underside of its body, between the two front legs.

# For Creative Minds

This section may be photocopied or printed from our website by the owner of this book for educational, non-commercial use. Cross-curricular teaching activities for use at home or in the classroom, interactive quizzes, and more are available online.

Visit [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com) to explore additional resources.

## Animals use their ears to . . .



## Mix and Match



chipmunk

green frog

Match the animals to their ears. What do you think each animal uses its ears for?



opossum

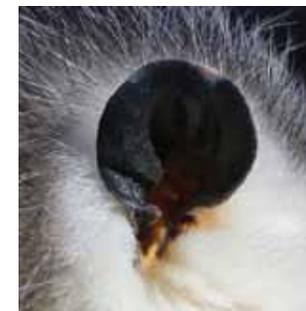
black bear

1

3

2

4



Answers: 1) opossum. 2) black bear. 3) green frog. 4) chipmunk.

## How Do Ears Hear?

Sound starts with movement. A molecule vibrates—it moves quickly back and forth. It bumps the molecule next to it and sets it vibrating. Molecules of air around them move as each one is bumped by another molecule. The vibration spreads out in waves. They move out away from the starting point like ripples when you drop a pebble in water.

There are tiny hairs inside a person's ear. They are too small to see without a microscope. These hairs vibrate when the sound touches them. The brain understands that vibration as sound.

Ears don't just hear sound, they can also tell where the sound is coming from.

Humans have one ear on each side of their head. When a sound wave travels, it touches the ears at different times. This difference is so small you probably don't think you can notice.

But the brain notices that difference! It uses that time difference to tell where the sound came from. If the sound touched the left ear before it touched the right ear, then the person knows the sound came from the left.



*This boy heard a sound and turned toward it. Do you think the sound came from his right or his left?*

### *Did you know?*

Millions of people in the United States are **deaf** or **hard of hearing**. They cannot hear sound, or can only hear some sound.

Many people lose their hearing as they get older.

Can you hear? Do you know anybody who cannot hear, or who cannot hear well? Do you know any older people who cannot hear as well as they used to?

## Ear Questions

Why do some animals have very small ears?



Moles, voles and shrews have small ears compared to the size of their bodies. These animals live underground and have to travel quickly and easily through tiny tunnels. If you lived in a small tunnel under the ground and had large flaps on your ears, what would happen to them as you ran through the tunnel?

hairy-tailed mole

How do owls hear so well?



Many owls have feathers that form circles around their eyes (facial discs). The feathers in the disc direct sounds to the birds' ears.

Some owls have one ear that is higher on their head than the other ear. This helps them tell what direction a sound is coming from.

great grey owl

Can ears do anything but hear?



Yes. Some animals, such as rabbits and hares, use their ears to cool their bodies. Heat escapes from their ears. Ears help animals, including humans, keep their balance. Many animals use their ears to communicate their mood.

red fox

Thanks to Tabbi Kinion, Statewide Education Coordinator for Colorado Parks and Wildlife, and Sarah Chatwood at the Montana Audubon Center for verifying the accuracy of the information in this book. / Con agradecimiento a \_\_\_\_\_ por verificar la información de este libro.

Cataloging Information is available through the Library of Congress: / Los datos de catalogación en información (CIP) están disponibles en la Biblioteca Nacional:

9781607184478 English hardcover / portada dura en Inglés ISBN  
9781607184522 English paperback / portada suave en Inglés ISBN  
9781607184638 Spanish paperback / portada suave en Español ISBN  
9781607184805 English ebook downloadable / libro digital descargable en Inglés ISBN  
9781607184850 Spanish ebook downloadable / libro digital descargable en Español ISBN

Interactive, read-aloud ebook features selectable English (9781607184904) and Spanish (9781607185161) text and audio (web and iPad/tablet based) / Interactivo libro digital para leer en voz alta con función de selección de texto en Inglés y Español y audio (utilizando web y iPad/ tableta)

Título original en Inglés: (THIS IS ONLY INCLUDED IN THE SPANISH VERSION)  
Traducido por Rosalyna Toth en colaboración con Federico Kaiser.

Translated into Spanish: (SPANISH TITLE GOES HERE)

Lexile® Level: \_\_\_\_

Keywords: physical adaptations, ears, hearing, senses, sound (FCM)

Animals in this book include: coyote (cover), black bear (title page), red-bellied snake, green frog, katydid, praying mantis, barred owl, male rose-breasted grosbeak, yellow-bellied sapsucker, big brown bat, eastern cottontail, bobcat, red fox, beaver, human (author's grandson, Otis Brown).

Bibliography:

Hickman, Pamela M. *Animal senses*. Toronto, Kids Can, 2015.

Holland, Mary. *Naturally Curious: A Photographic Field Guide and Month-By-Month Journey Through the Fields, Woods, and Marshes of New England*. North Pomfret, VT: Trafalgar Square Books, 2010.

Text Copyright 2018 © by Mary Holland

The "For Creative Minds" educational section may be copied by the owner for personal use or by educators using copies in classroom settings.



To Otis, who is such a good listener!—MH

Manufactured in China, December 2017  
This product conforms to CPSIA 2008  
First Printing

Arbordale Publishing  
Mt. Pleasant, SC 29464  
www.ArbordalePublishing.com



If you enjoy this book,  
look for other Arbordale books in this series:



Includes 4 pages of  
learning activities.  
Look for more free activities  
online at  
[ArbordalePublishing.com](http://ArbordalePublishing.com)