

What's Inside?



by Mary Holland

What's Inside?

Have you ever wondered what's inside that "thing" on the plant? What about what lives in the hole in the tree or what lives inside that "pile of leaves or sticks?" Explore and learn what some of these natural history objects are in this latest book by Nature Photographer and Naturalist Mary Holland.

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.

The *For Creative Minds* includes

- Organ Pipe Mud Dauber Wasp Nest
- Match The Animal With Its Scat
- Galls

Thanks to Kim Hargrave, Education Director at the Denison Pequotsepos Nature Center for reviewing the accuracy of the information in this book.

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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.

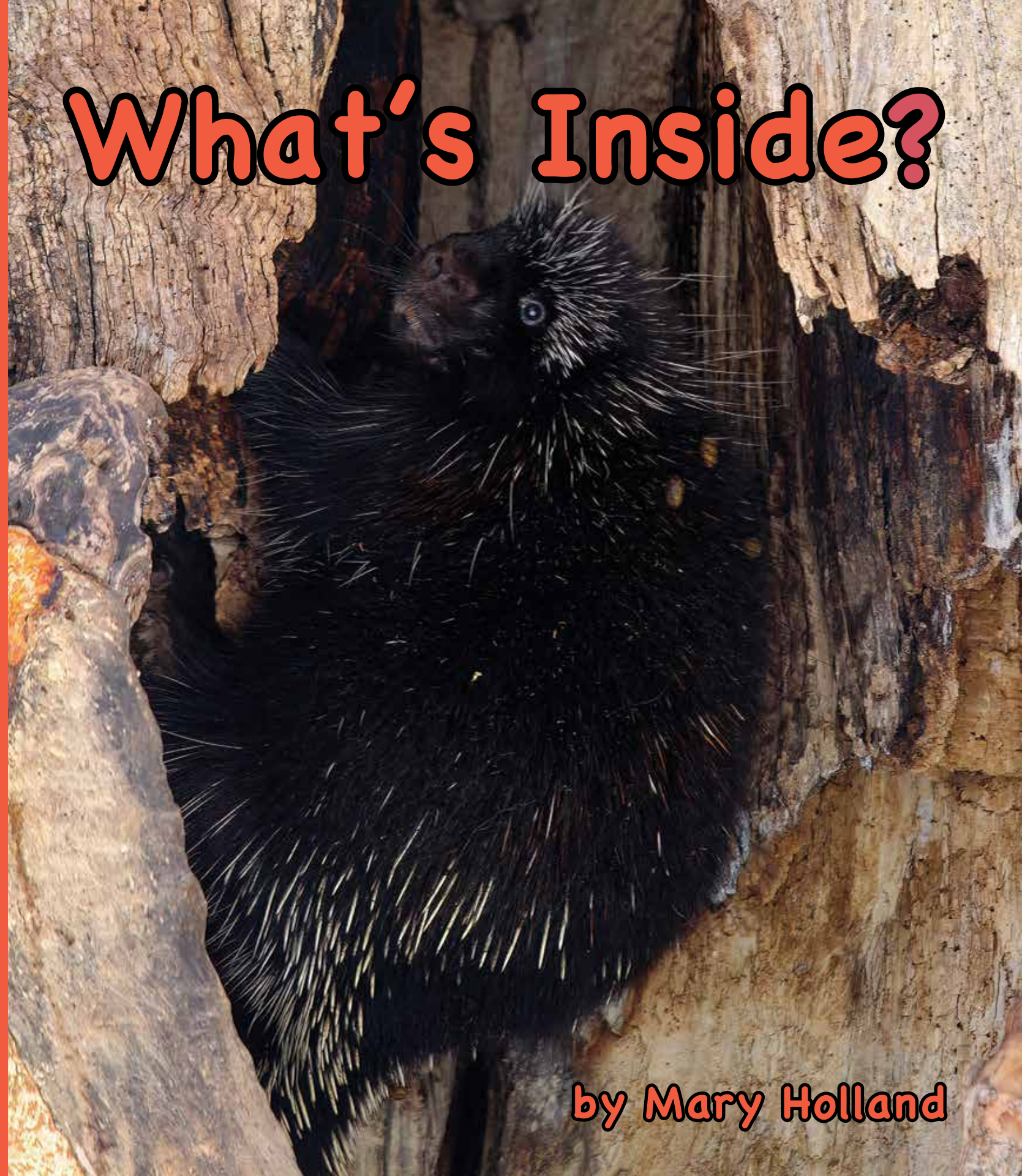
Her other children's books with Arbordale include *Animal Myths*, *Animal Homes*, *Animal Tracks and Traces*, *Otis the Owl*, *Ferdinand Fox's First Summer* (NSTA / CBC Most Outstanding Science Trade Book and Moonbeam Children's Book Award), *The Beavers' Busy Year*, *Yodel the Yearling*, *Animal Ears*, *Animal Skins*, *Animal Noses*, *Animal Tails*, *Animal Eyes*, *Animal Legs*, 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, Greta. Visit Mary's blog at naturallycuriouswithmaryholland.wordpress.com.



Mary Holland investiga lo que hay dentro de una cabaña de castores

Cover: monarch butterfly chrysalis
Title page: porcupine in hollow tree den

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Praying Mantis Egg Case

Insects lay eggs in many colors, shapes, and sizes. Praying mantises lay lots of eggs in the fall and surround them with foam that comes out of the tip of their abdomen. When the foam hardens, it forms a case that protects the eggs all winter. In the spring the eggs hatch and hundreds of tiny praying mantises crawl out of the case.

egg case



praying mantis

Scat



Another name for animal poop is scat. Every animal's scat looks a little different. You can become an animal detective and tell what animal has pooped by the shape and size of its scat. Animal detectives can also tell what an animal has been eating by what's in the scat.

A black bear pooped after visiting a bird feeder. This black-capped chickadee is eating the bird seed out of the black bear's scat.

black bear scat

Bird of Prey Pellet



barred owl pellet

Owls, hawks, eagles, and falcons have trouble digesting the claws, teeth, bones, and fur of the animals they eat (prey).

After they swallow their prey, these hard-to-digest parts stay in their gizzard, a muscular part of their stomach. They are packed tightly together into a pellet and coughed up hours after eating.

By studying the bones and skulls inside a pellet you can tell what animals a bird has eaten.



barred owl coughing up a pellet



bones and teeth found in pellets

Spider Egg Case



black-and-yellow argiope egg sac



spiderlings inside egg sac



black-and-yellow argiope

Spiders spin several different kinds of silk. Some silk is sticky and is used to catch insects in webs. The silk sac that spiders spin to hold their eggs is not sticky, but it is very tough and waterproof.

Some spiders, like the black-and-yellow argiope, lay eggs in the summer and they hatch in the fall. The young spiders spend the winter inside the egg sac surrounded by very soft silk.

For Creative Minds

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Organ Pipe Mud Dauber Wasp Nests



organ pipe mud dauber wasp cells

Many wasps and bees build nests in which they raise their young. Some make their nests out of wax, some out of paper they make, and some use mud to build their nest. Organ pipe mud dauber wasps collect mud and build mud cells to hold their eggs. Several mud cells side-by-side look like the pipes of an organ, which is how this insect got its name.

You might be surprised if you could see inside an organ pipe mud dauber cell! Each cell contains one wasp egg as well as food for the young wasp when it hatches from the egg.

Young organ pipe mud dauber wasps like to eat spiders. The adult female wasp locates and then stings several spiders. The spiders are alive but can't move after being stung. The wasp carries them back to her newest cell and stuffs them into it. Then she lays an egg on top of the spiders and seals up the cell with mud. When the wasp egg hatches, the young wasp will eat the spiders. Because the spiders are still alive, they don't rot. When the wasp is all grown up, it chews its way out of the mud cell and flies away.



wasp delivering ball of mud and building cell



wasp returning with spider and putting it in cell



wasp cell stuffed with spiders and one wasp egg

Match The Animal With Its Scat

Different animals produce scat with different shapes and sizes. Once you identify whose scat you found, you can find out more about what that animal eats by looking at what is in its scat. Among other things, you might find feathers, seeds, bones, grass, hair, and insects. Can you match the picture of the animal and what it eats with its scat?



black bear -
apple



coyote -
white-tailed deer



beaver -
tree bark



raccoon -
wild strawberries



river otter -
fish



1



2



3



4



5

Answers: black bear-5; coyote-4; beaver-1; raccoon-2; river otter-3

Galls

Galls are abnormal growths that form on plants. Sometimes a plant reacts to an insect laying an egg on or in it and grows a bump around it. These bumps, or galls, come in different sizes and colors and shapes, depending on the type of insect that lays the egg and the type of plant it lays it on. Each insect has a specific host plant and a specific looking gall. There can be one or several insects living inside a gall. The gall serves as a shelter and sometimes as a source of food for the insects while they are growing.

Here is a close look at some galls and the insects that live inside them.

Now that you know what to look for, see if you can find galls when you are outside.



pignut hickory
gall with
aphids



blackberry
knot gall with
wasp larvae



red pouch gall
(on staghorn
sumac) with
aphids



coxcomb
elm gall with
aphids



goldenrod
spindle gall
with moth
larvae

A Bird Nest With A Roof!

A bird's nest is usually used to raise one family of birds. After most young birds have left their nest, neither they nor their parents ever return. Other animals make use of the materials that the nest was made out of and sometimes make use of the nest itself.

Deer mice and white-footed mice sometimes make a roof out of milkweed or cattail fluff over an abandoned bird nest in the fall and use the nest as a snug winter home.

This book is dedicated to Otis, Lily Piper, Leo, and children everywhere whose innate curiosity makes them look inside of and explore everything they encounter. Gratitude to Jody Crosby who came up with the concept about which this book was written—MH

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Bibliography

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