



NoCTURNALS
EXPLORE

UNIQUE ADAPTATIONS OF
Nighttime Animals



**LOW-RES
FOR REVIEW
PURPOSES
ONLY**

Tracey Hecht

Amazing
Color Photos
and Fun Facts!



Dear Readers,

Embracing curiosity and seeking answers is the key to learning. Tracey Hecht, the author of *The Nocturnals*, introduces you to the curious nighttime world of animal friends and foes throughout her series. While the characters in these books are based on real nocturnal animals sure to capture your heart and interest, their adventures are straight from Tracey's marvelous imagination.

The Nocturnals Explore: Unique Adaptations of Nighttime Animals offers answers as to how the unique characteristics, abilities, and adaptations of animals of the night help them survive. Prepare to learn the variety of features these nocturnal animals use for eating, sleeping, communicating, hiding, and even escaping from their predators!

Discoveries in this book include rich science vocabulary, stunning images, and an emphasis on the conservation of species, encouraging real-world connections and learning. The relevant learning and scientific information found in this book strongly supports the Next Generation Science Standards and will surely become a favorite in your nonfiction collection.

Naturally, after reading this book, your curiosity will get the better of you. Here are activities you can do to connect with the nighttime animals in your area:

- Head out on a nighttime walk and take time to watch the unique animals and insects you find. Try to identify their abilities and adaptations that make them successful creatures of the night.
- Learn about endangered nocturnal animals in your area, and find out what may be causing their decline. Share findings with friends and family and learn how you can help.


Promise that you'll never stop asking questions and being curious.

Here's to seeking your answers,

Erica Colón

Erica Colón, PhD

Nitty Gritty Science





NOCTURNALS
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UNIQUE ADAPTATIONS OF Nighttime Animals

by Tracey Hecht



FABLED FILMS PRESS
NEW YORK CITY

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info@fabledfilms.com

Published by Fabled Films LLC, New York

ISBN: 978-1-944020-72-9

Library of Congress Control Number: 2021953346

First Edition: October 2022

1 3 5 7 9 10 8 6 4 2

Book produced by WonderLab Group

Science writing by Emma Carlson Berne

Designed by Project Design Company

Photo edited by Annette Kiesow

Educational review by Lauren Woodrow

Copyedited by Lori Merritt

Proofread by Molly Reid

Indexed by Connie Binder

Character illustrations by Kate Liebman

Typeset in Stemple Garamond, Mrs. Ant, Pacific Northwest Rough Letters, and Filson Soft

Printed by Everbest in China

FABLED FILMS PRESS

NEW YORK CITY

fabledfilms.com

For information on bulk purchases for promotional use please contact Fabled Films Press Sales department at info@fabledfilms.com


NOTE TO READERS

Throughout the book, you will see important

vocabulary words in bold italic type.

You can find the meaning of these words in the Word Glossary on page 120.

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TABLE OF CONTENTS

Go Exploring with The Nocturnals	6
Introduction: Discover Animals at Night	8
Nocturnal Animal Features	10
Chapter 1: Foxes Everywhere	13
Chapter 2: Scaly Pangolins	23
Chapter 3: Glide, Sugar Glider!	31
Chapter 4: Tough Wombats	40
Chapter 5: Bandicoot Hide-and-Seek	44
Chapter 6: Woylies at Work	52
Chapter 7: Super-Sensing Owls	56
Chapter 8: Huge Crocs	62
Chapter 9: Kiwis on the Ground	68
Chapter 10: Don't Rush the Tuatara!	73
Chapter 11: Long-Fingered Aye-Ayes	79

Chapter 12: Jumping Jerboas	87
Chapter 13: Venomous Vipers	94
Chapter 14: Clever Coyotes	99
Chapter 15: Night-Flying Bats	104
The Nocturnals Adventure Comes to an End	110
Nocturnal Animal Glossary	112
Word Glossary	120
Research Tips	121
Index	122
About the Creators	126
Photo Credits	127



Saltwater Crocodile

Dawn raised her head, sniffing the fresh night air. In the sky, a full moon was rising. “Bismark? Tobin?” the red fox called out to her friends.

Bismark scampered down a nearby tree trunk. “Good evening, Dawn!” the sugar glider hollered. “I see by the moon that it is time for adventure!”

“Did someone say adventure?” Tobin asked as he emerged from the brush. The sleepy pangolin blinked his little eyes and smoothed the scales on his tail.

“I thought we’d meet some new friends,” Dawn said, sitting down and coiling her tail neatly around her paws. “Bandicoots, aye-eyes, tuataras, and jerboas. These are some of the animals we’re going to meet. They’re fascinating. And they’re all nocturnal.”

“Bandicoots and tuataras?” Bismark exclaimed. “Sounds like adventure to me!” Bismark jumped up onto Dawn’s back. “Let’s go!”

Tobin giggled.

“Off we go,” Dawn agreed. And the three nocturnal friends ventured into the night.

INTRODUCTION: DISCOVER ANIMALS AT NIGHT

Animals that are active at night are known as **nocturnal** animals. The nighttime life has a lot of advantages for these incredible creatures. The temperature is cooler, which is good for animals who live in hot **climates** like the desert. Small animals can hide more easily from **predators** in the dark. And predators don't have to compete with daytime animals for **prey**. They get the hunting all to themselves. To navigate the dark, many of these animals have developed special **adaptations** to help them survive and thrive.

Red Fox





Sugar Glider



Cape Pangolin

Day to Night

So what about animals that get up with the sun?

Any animals that are awake during the day and sleep at night

are **diurnal**. Humans and millions of other animals, like songbirds, chimpanzees, and elephants, are diurnal. Others, like coyotes and foxes, live in the in-between. These animals are **crepuscular**, and they are active in the low light of dawn and dusk. They are able to avoid predators in the semi-dark. Another group of animals are **cathemeral**. Their waking and sleeping patterns are a bit more irregular. They are sometimes active during the day and sometimes at night.

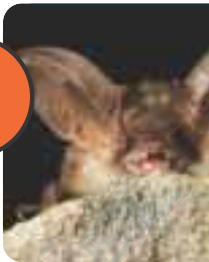
NOCTURNAL ANIMAL FEATURES

Nocturnal animals have special features that help them survive in the dark. As you explore the animals in this book, look out for these icons that will tell you about their special adaptations and other important info:



EYES

These nocturnal animals have big eyes and big pupils to let the maximum amount of light in.



EARS

Some nocturnal creatures have especially large ears. If they can't see super well in the dark, they can hear instead.



NOSE

Many nocturnal animals have sensitive noses and whiskers for sniffing out plants and insects. There's no need for sunlight when you can just smell your dinner.



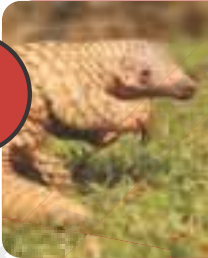
EXPERT HIDER

To protect themselves from predators, some nocturnal animals hide during the day or use camouflage.



INTO THE LIGHT

Most nocturnal animals only come out at night. However, a few will sometimes venture out during the day or the semi-dark hours of dusk and dawn.



ENDANGERED

Some nocturnal animals are safe in the wild, though look out for this icon, which means the nocturnal animal is in trouble.



Night Notes

As you read, find the flashlight to learn even more about an animal's special nocturnal features!

Once in China, Dawn spotted something and waved to Tobin and Bismark. “Do you see that animal covered with scales?”

“Wait a minute...” Tobin said, twisting to look at his own side.

Bismark thrust his paw in the air. “Let me guess what it is! Is it an iguana?”

Tobin laughed. “It’s not an iguana.
It’s a pangolin. Like me!”



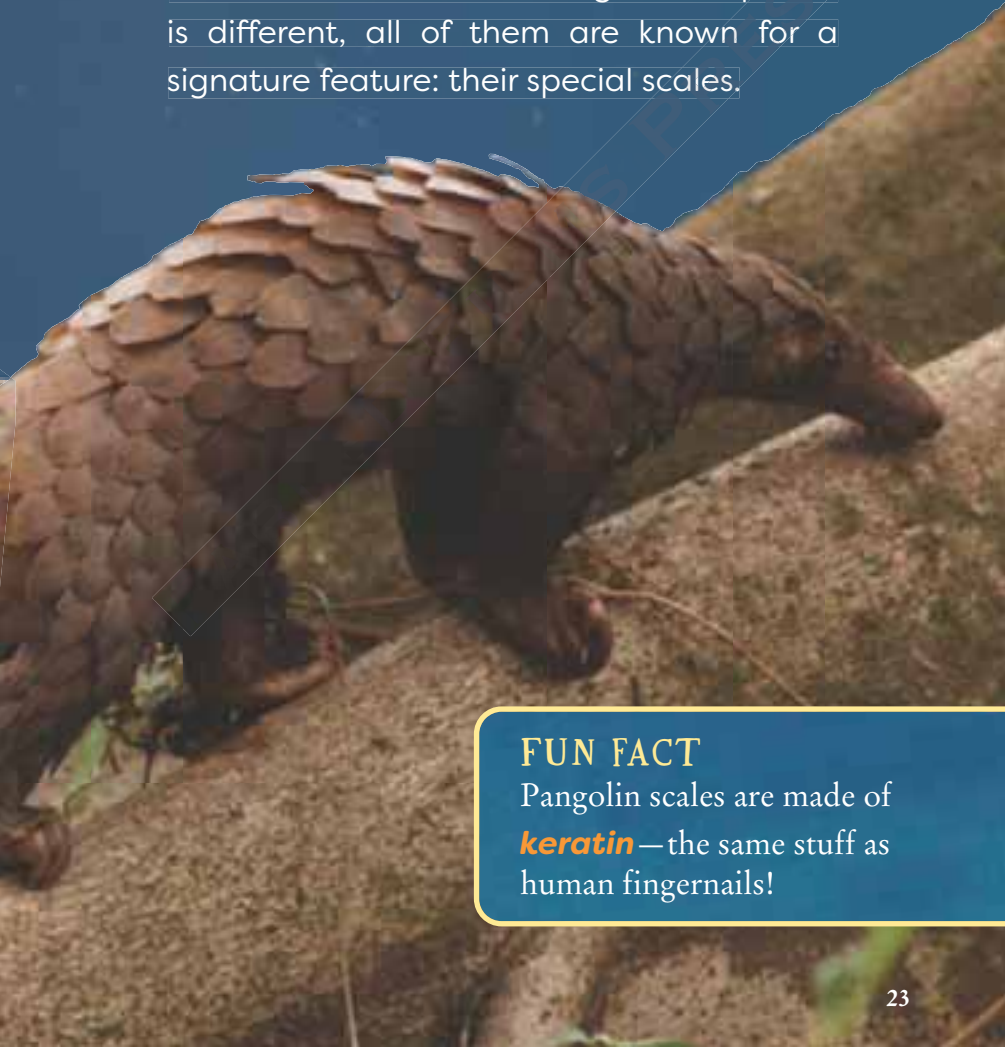
Tree Pangolin

Chapter 2

SCALY PANGOLINS



While pangolins might look like scaly lizards, these cute creatures are actually mammals. There are eight *species* of pangolin that live in either Africa or Asia. Though each species is different, all of them are known for a signature feature: their special scales.



FUN FACT

Pangolin scales are made of *keratin*—the same stuff as human fingernails!

Animals covered with scales may seem fearsome and bold; however, pangolins are just the opposite. These gentle anteaters prefer to hide. When afraid, pangolins will roll themselves into a scaly ball! This ball helps shield them from hungry predators.

Hungry for Bugs

Pangolins are master insect eaters—one pangolin can vacuum up around 70 million insects a year! They mainly dine on ants and termites but can eat earthworms and various kinds of larvae, flies, and crickets.

Indian Pangolin



Although nocturnal, pangolins aren't very good at seeing in the dark. However, they're great smellers. They sniff along the ground with their sensitive noses, and when they find an ant or termite nest, they dig into it with their front claws. Then, they use their long, sticky tongues to lap up the insects.



Night Notes

Nocturnal pangolins are so shy that scientists have a hard time studying them. During the day, some pangolins sleep in trees or hollow logs, while others dig huge underground burrows—big enough for adult humans to curl up in!

People are learning more about pangolins all the time. Recently, scientists finally figured out that we won't eat insect species we don't recognize. I always make sure I know what I eat!



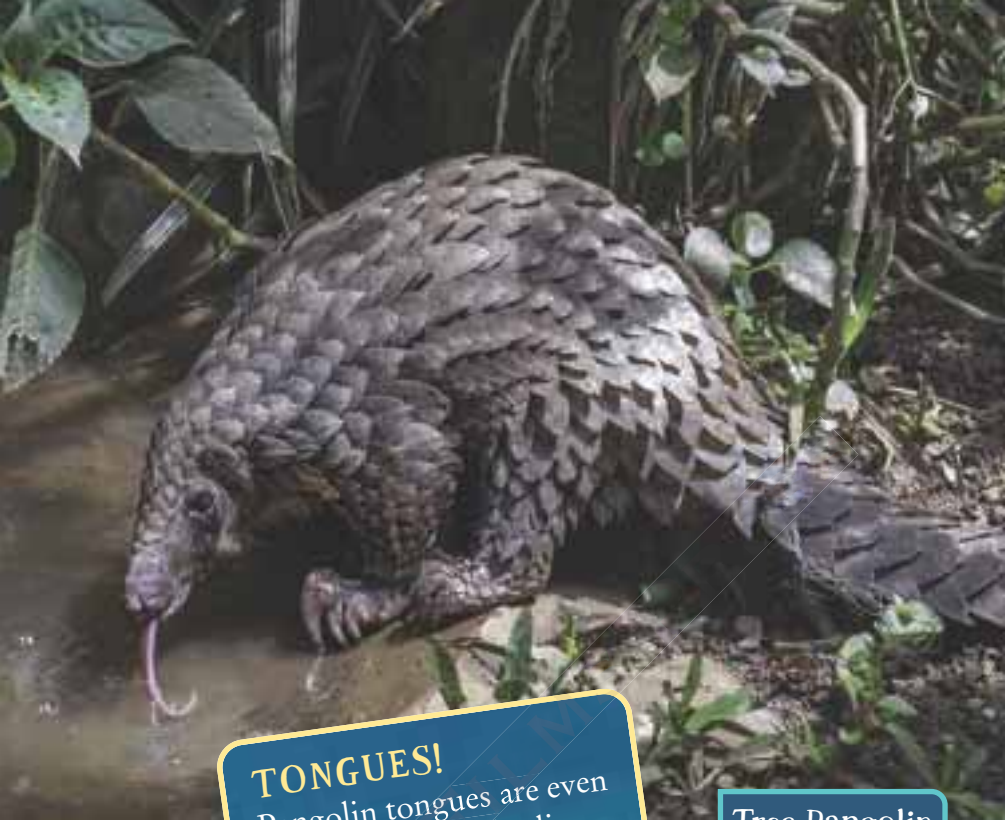
Dynamic Diggers

Pangolins use their entire bodies to help them dig their sleeping and nesting place. They shovel out the dirt with their powerful front claws and then roll and push themselves against the tunnel walls to mold the dirt. In the winter, they dig their burrows near termite nests so they can easily get to their food, even in the snow and ice. Rubbing against the dirt walls also helps pangolins keep their scales sharp. Perfect protection!



DID YOU KNOW?
Pangolins can close off their nostrils and ear holes while they are eating so attacking ants and termites can't climb in.

Cape Pangolin



TONGUES!
Pangolin tongues are even longer than their bodies.

Tree Pangolin

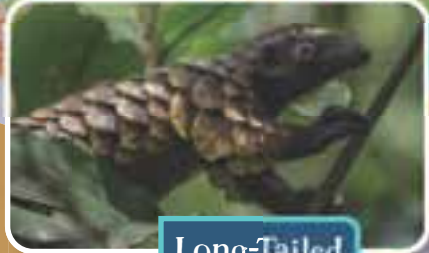
Baby Pangolins

Pangolins give birth to just one baby at a time. These little pangolins are called pangopups. The mother carries her baby on her tail—except when predators are close and she curls herself up around her pup to protect it.

PROTECTING PANGOLINS



Tree Pangolin




Long-Tailed Pangolin



Pangolins live in Asia and Africa. They make their homes in forests, grasslands, and shrubby bushlands—pretty much anywhere with lots of ants to eat.

Ants are no match for pangolins, but humans are. These endangered creatures are one of the most trafficked animals in the world. This means they are illegally captured or traded. Some people hunt them for their

PAKISTAN



Indian Pangolin

INDIA



Chinese Pangolin

PHILIPPINES



Sunda Pangolin



Cape Pangolin

scales, which are used as ingredients in traditional medicines.

Poachers aren't the only danger to pangolins. As land is cleared for farming or building, especially in parts of Asia, pangolins lose the trees, burrows, and insect nests they depend on. In fact, so many pangolins are under threat that all eight species are at risk of extinction and are protected by law.