Animals of the Dark



Nocturnal animals "shine" in the darkness!

Sharon Parsons

Nelson Literacy Directions

ANIMALS of the Dark

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Dear Reader

Have you ever felt a heavy python winding itself around your body? I have. That's me in the image on this page! Here is how it happened: when I was writing this book, I needed to take images of snake handler, Sean McCarthy, working with students at a primary school.

> **"IT WAS FASCINATING TO WATCH SEAN CAREFULLY WINDING THE PYTHON AROUND THE STUDENTS, ONE BY ONE."**

Afterwards, it was my turn! All I could think about was, "I'm glad this snake is not venomous!"

Another fascinating topic in the book is about bed bugs – they're often in the news because they can annoy hotel guests around the world. Find out more about these blood-sucking nocturnal insects on pages 20–23.

I hope you enjoy reading this book!

Sharon Parsons

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1 Nocturnal, Diurnal and Crepuscular Animals

All animals belong to one of three categories, depending on their level of activity at certain times: at night, through the day and during twilight.

TWILIGHT

Twilight refers to the early morning or early evening when the Sun is below the horizon and it is not quite light or dark.

Nocturnal Animals

Nocturnal animals are usually less active or asleep during the day and become more active at night in search of food.

Nocturnal Animal ID

Nocturnal animals have physical characteristics and needs that require them to be more active at night. For many nocturnal animals, there is also less competition for food in their habitat at night. For smaller animals with more predators, there is a greater chance of survival when hunting for food at night.













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Diurnal Animals

Diurnal animals are more active during the day and are less active or sleep at night.



Diurnal Animals Can Be Nocturnal

Some diurnal animals, such as seabirds and sea turtles, check on their eggs in breeding sites at night-time to avoid predators.









Ostriches are diurnal but on moonlit nights they are active.

Crepuscular Animals

Crepuscular animals are more active during twilight. Crepuscular animals include: platypuses, rodents, wombats, deer, rabbits and rattlesnakes. Crepuscular insects include moths, flies and mosquitoes.



Crepuscular Animals Reduce Risks

Scientists believe that crepuscular animals reduce their risk of meeting predators during twilight because most predators are not active at this time. In hot climates, twilight conditions also help desert and rainforest animals to preserve their energy and reduce their need for extra water.





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2 Nocturnal Senses



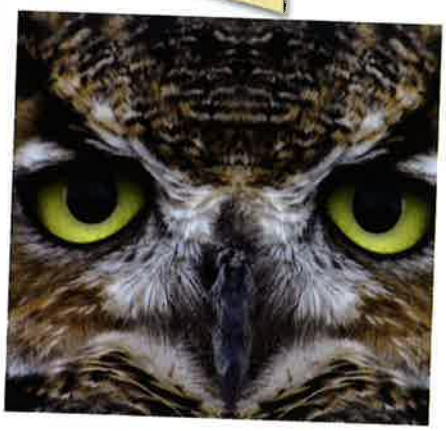
Even though some nocturnal animals, like owls and lemurs, have large eyes, many have poor eyesight. Therefore, they need to use one or more of their other senses to help them navigate through their habitat. These senses include touch, **echolocation** (in the case of bats and dolphins) and smell.

echolocation: see the Glossary, page 32.

Life Science

Owls' Eyes

An owl's large eyes face forward, just like human eyes, to give them good stereoscopic vision. But they are long-sighted so they cannot clearly focus on objects up close.



an owl's eyes face forward

stereoscopic vision: see the Glossary, page 32.

NIGHT OWLS

People are referred to as "night owls" when they prefer staying up late into the night.

Animals' Eyes at Night

Most nocturnal animals are less active during the day and inhabit darker places to reduce the amount of light entering their highly sensitive-to-light eyes. At night, their pupils increase in size to enhance their night vision. A special part of their eyes called the "tapetum lucidum" assists them to see at night.



a lemur

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The Tapetum Lucidum

The eye's tapetum lucidum reflects light back into the eye like a mirror. The tapetum lucidum improves the sight of nocturnal animals in low-light conditions. Refer to page 26 for the complete diagram of a shark's eye and its tapetum lucidum.



a diagram of a shark's eye showing the tapetum lucidum

Eyeshine

The eye's tapetum lucidum can also cause eyeshine that is visible to others when lights shine on animal eyes at night. Various colours of eyeshine include yellow, red, white and blue, depending on the animal species.

The helmet gecko's eyeshine is yellow.



a helmet gecko



Scientists in Sweden have studied a nocturnal gecko, the helmet gecko, and found that the structure of its eyes enables it to see colours at night. Its eyes are about 350 times more powerful than those of humans.

Q: DO HUMANS HAVE A TAPETUM LUCIDUM IN THEIR EYES?

A: No. This causes photographs of some people to end up with the red-eye effect, as light shines straight onto the back of the eye.



a photograph showing the red-eye effect

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3 Nocturnal Snakes

Snakes are cold-blooded reptiles, so they need the warmth of the Sun to create a enough body temperature to be active. However, many snakes do come out at night to hunt.



a species of milk snake

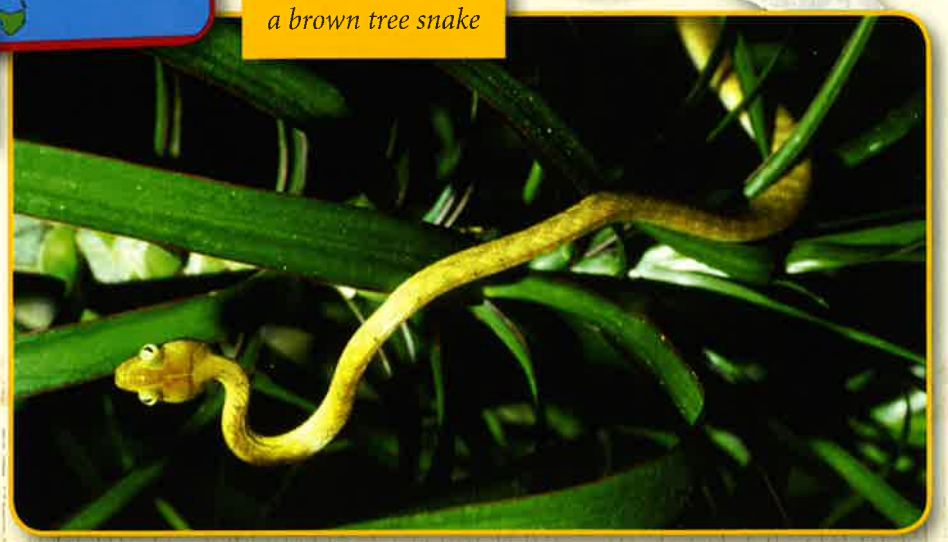
Two snakes that are nocturnal are the brown tree snake and the milk snake. The brown tree snake is found in Australia and Papua New Guinea, and some species of milk snake live in South America, the USA and Canada.



The red areas show where most of the brown tree snakes can be found.



a brown tree snake



Compare Two Nocturnal Snakes

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	Milk Snake	Brown Tree Snake
Habitat	Forests, valleys, mountains, near wetlands, outbuildings	Rainforest trees, rock crevices, caves, roof cavities
Size	Adults grow up to about 150 cm	Adults grow up to about 150 cm
Toxicity	Non-venomous	Can be venomous for children
Behaviour	Appear nervous and can become aggressive if startled	Very aggressive
Food	Small rodents, birds, frogs, lizards and other snakes	Birds, bird eggs, bats, frogs, small mammals and lizards
Common Misconceptions	They drink milk (no, they don't)	They always live in trees (no, they don't)
Pupil Shape	Eyes have round pupils	Eyes have vertical slit pupils

Diurnal Snake Eyes

Diurnal snakes usually have round-shaped pupils, like most diurnal creatures.



a diurnal snake's round-shaped pupils

Nocturnal Snake Eyes

Nocturnal snakes usually have vertical slit pupils that they can easily enlarge to absorb more light during the night.



a nocturnal snake's vertical slit pupils