

## STUDENT FEATURE: COLORING CELL BIOLOGY

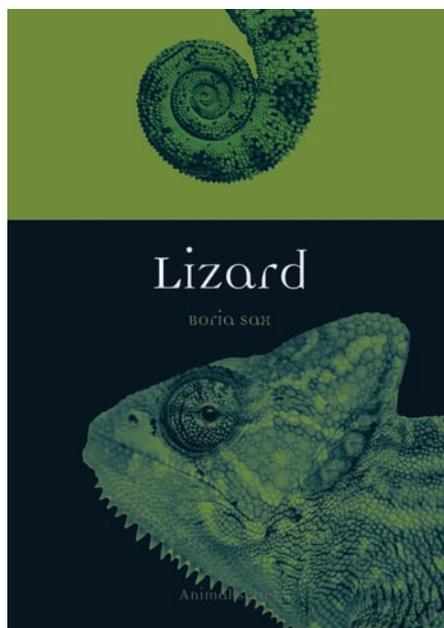
*Cellfies: A Cell Biology Coloring Book.* By Hannah Sage Yoder. CreateSpace Independent Publishing. (ISBN 1-722379-065). Soft Cover. \$16.99.

This book was selected as a special item for review for the holiday issue of our column, both because it is a beautifully rendered coloring book for cell biology and because it was created by a very talented 16-year-old high school student. The book itself is filled with stunning drawings of patterns and shapes of a wide variety of cells, making it useful in the classroom or for the science lover who also enjoys the calmness of coloring. In addition to the black and white pages, the author has included the full-color images of these cells that served as an inspiration for the coloring sheets, allowing for further discussion and exploration of the different cells and how we know what we do about cells. The reasonable cost of the book, the donation of a portion of the proceeds to STEM education, and the combination

of science and leisure make it a great holiday gift or classroom addition!



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## ANIMAL SERIES

*Lizard.* By Boria Sax, 2017. University of Chicago Press. (ISBN 978-1-78023-828-9). Soft Cover. \$19.95.

For many people, their main exposure to lizards is watching the clever television commercials featuring the Geico Gecko. A cartoon character that talks, he is consistent with real geckos, the only lizards with vocal cords. If that isn't enough, this captivating book offers considerable information about other unique features of geckos, which can scale vertical surfaces and walk upside down with no form of adhesive or suction cups.

Though lizards are considered reptiles, it is difficult to come up with a perfect definition of a reptile. Reptile taxonomy is constantly changing, and the author admits that there is not complete agreement among taxonomists as to how they are classified. Some even include crocodiles, alligators, caimans, and tuataras as lizards. Found on all continents except Antarctica, lizards are the largest group of reptiles at about 6000 species. Most are small slender animals, but Central America's green iguana can grow to 2m in length, and Indonesia's Komodo dragon checks in at about 3m in length. Lizards come in a variety of textures, colors, and patterns, and a number of them are able to change colors in certain circumstances. Some even cast off their tails, which continue to writhe, distracting their predators.

One of the most appealing features of this book is that it is packed with thought-provoking information on the adaptations and behaviors of selected reptile species. The frilled lizard of Australia frightens predators by expanding the size of ruffled skin around its head; the Asian flying dragon can spread out its skin and glide from tree to tree; shingleback skinks are viviparous, and the female abandons her offspring right after birth; the short-horned toad, actually a lizard, only consumes ants and distracts predators by squirting blood from its eyes; a few lizard species are capable of reproducing by parthenogenesis; and the eyes of a chameleon rotate and focus independently, enabling it to see almost everything in a 360° arc.

Lizards are compared with mythological species such as dragons and with extinct species such as dinosaurs. Dragons appear in the folklore of many human cultures, with the most significant mythological animal being the Asian dragon, depictions of which go back more than 3000 years. The oldest identifiable dragons are found in artifacts exhibiting demons and deities of ancient Mesopotamia. In some Western cultures, dragons are lizard-like creatures adorned with other animal features such as

feathers, wings, and beards, and they often appear in a variety of colors. Mythological stories of many lizard-like creatures provide fascinating insight into ancient and some contemporary human cultures.

Dinosaurs, of course, were real creatures, their fossils not having been discovered until long after dragons had become a part of human folklore. As these enormous reptile fossils became better known in the 1800s, they were given the name “dinosaurs,” meaning terrible lizards. Today, dinosaurs are no longer a recognized category, and many of those we acknowledge today were not necessarily closely related.

This colorful and lavishly illustrated book, while providing considerable information on the biology of lizards, is enriched with many connections to human culture—its art, religious practices, folklore, mythology, astrology, literature, history—and comparisons between reptile and human characteristics and behavior. Poet Alfred, Lord Tennyson, looked at dinosaurs as a “mirror image of humanity, with a blend of horror and sympathy.” The extinct megalania, an Australian lizard larger than the Komodo dragon, is thought to have eaten human beings. The Japanese motion picture’s Godzilla is a giant lizard modeled after *Tyrannosaurus rex*. Expanding on a concept of Carl Gustav Jung, Carl Sagan had the idea that our “fear of lizards might be part of our ‘collective unconscious.’” Commenting on the many aspects of lizards discussed in this book, the author still asks, “What is a lizard?” His answer: “it may be best just to say, ‘a lizard is a lizard.’”

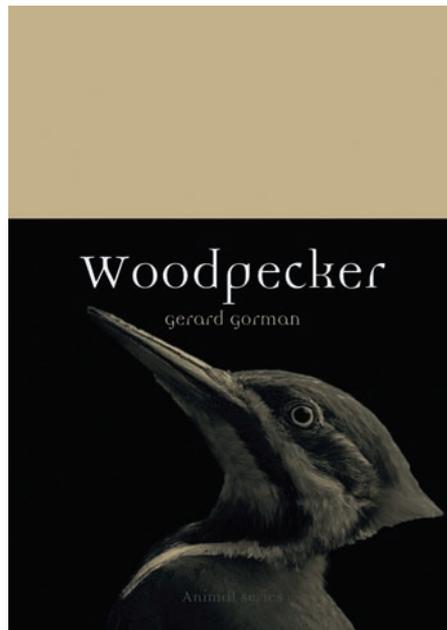
Part of Reaktion Books’ ambitious *Animal* series, which presents various animals from a natural and cultural history perspective, this exhaustively researched volume is appropriate for college or advanced high school readers. It would be a valuable addition to a classroom library. It is profusely illustrated with captivating photographs and also includes a timeline of lizards, extensive end note documentation of the text, a bibliography, a list of associations and websites, and an index.



**Woodpecker.** By Gerard Gorman, 2017. University of Chicago Press. (ISBN 978-1-78023-829-6). Soft Cover. \$19.95.

Sometimes, when people are outdoors, they hear the rapid-fire tapping of a woodpecker on a nearby tree. Woodpeckers actually communicate by drumming their bills on trees. Of course, they are also using this process to make a hole in the tree.

There are several kinds of woodpeckers, most of them stocky, short-legged birds with strong tails and dagger-like bills. In appearance, many are rather plain, whereas others display a variety



of colors, some almost gaudy. Woodpeckers are diurnal, and though a few are migratory, most are sedentary, living the majority of their lives in one place. Most species are monogamous, but a few live communally.

Woodpeckers are found in many environments all over the world, their greatest diversity being in South America. They are also found in many emblems and coats of arms, as well on postage stamps of numerous countries. Ecologists refer to woodpeckers as “keystone species,” organisms playing a major role in an ecosystem, helping to sustain its structure, and affecting other organisms in the environment. They are also known as “indicator species,” whose presence demonstrates environmental quality. Many woodpecker species are becoming scarce and endangered due to deforestation in several areas of the world.

Woodpeckers are spoken of as “unrivaled master carpenters of the avian world.” They excavate holes in trees for nest sites, and they chop into bark and wood to locate prey. The Ainu people of Hokkaido refer to the woodpecker as a boat-making bird, their folklore stating that woodpeckers taught people how to make canoes by hollowing out logs. Some Central American tribes believe that people who excel at making canoes are “touched by the woodpecker.” The reason that woodpeckers make such outstanding carpenters lies in their anatomical adaptations: a chisel-tipped bill made of hard but flexible impact-absorbing bone that is attached on the lower part of a thick skull structured to prevent the shock of drumming from impacting the brain. Many other skeletal, muscular, and sensory adaptations assist in reducing the force of impact. Woodpecker skull adaptations are being

studied to see what can be learned that would be useful in helmet design for athletes.

Woodpeckers are also compared to drummers. Like some ancient peoples whose use of drumming communicated information, woodpeckers, which can’t sing like other birds, communicate with rivals and potential mates using rhythmic drumming sounds.

Most know that in Roman mythology the infants Romulus and Remus, founders of Rome, were nursed by a mother wolf. But how many of us have heard that it was a woodpecker who fed them by dropping food into their mouths? Woodpeckers are also a significant part of interesting myths and folk tales in Persia, Greece, Mesopotamia, indigenous America, and other cultures, often being associated with fertility rites, deities, religions, and magic.

Readers of this book will find many fascinating woodpecker stories: their intelligence in their use of anvils to work on food items; their use in predicting weather and why they are sometimes called “rainbirds”; the manner in which they caused a month-long postponement of a launch of the Discovery Space Shuttle; and the reason a pesky woodpecker inspired cartoonist Walter Lantz during his honeymoon to create Woody Woodpecker, the world’s best known woodpecker, who is also a Hollywood Walk of Fame star.

The author summarizes woodpeckers as “a complex subject, portrayed as both kind and cruel, clever and naïve, harbingers of good and bad luck, and associated with life as well as death.”

Part of Reaktion Books’ ambitious *Animal* series, which presents various animals from a natural and cultural history perspective, this exhaustively researched volume is appropriate for college or advanced high school readers. It would be a valuable addition to a classroom library. It is profusely illustrated with captivating photographs and includes a timeline of woodpeckers, a list of woodpeckers mentioned in the text, extensive end note documentation of the text, a bibliography, a list of associations and websites, and an index.



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#### EDIBLE SERIES

**Shrimp—A Global History.** By Yvette Florio Lane, 2017. University of Chicago Press. (ISBN 978-1-78023-849-4). Hard Cover. \$19.95.

Shrimp Scampi. Fried Shrimp. Shrimp Cocktail. They sound so scrumptious, but this isn’t