

everyone—from plants and insects to birds, beavers, and deer. He also encourages taking field notes of what was seen, who was with you, what the weather was like, and other details so they will not be lost to the shadows of memory as time passes. He emphasizes the importance of getting out regardless of the season and taking the path less traveled, when possible, to forge deeper connections with nature.

Discovering nature is enhanced when it is shared with others, and the author invited his family, friends, and various experts on different kinds of plants and animals to join him for field forays. Especially important to the story is the involvement of his grandchildren in many of the discoveries while afield. Gibbons proves that one need not go on a safari in Africa or to Yellowstone National Park to experience the wonders of nature: it is in our own backyards, waiting to be discovered, shared, and chronicled.

The author is not only a world-class ecologist but also a world-class storyteller as he proves yet again in this, his latest of many books. As I read *Salleyland* I kept drawing comparisons to Aldo Leopold's *A Sand County Almanac*, and his musings on ecology recall the writing style of that volume's famed author. If you do not know what to do when you retire, this book is for you. You too might just buy 35 acres of worthless swampland and find purpose in discovering all of the natural treasures it holds.

JEFFREY E. LOVICH, *Southwest Biological Science Center, U.S. Geological Survey, Flagstaff, Arizona*

DEAD ZONES: THE LOSS OF OXYGEN FROM RIVERS, LAKES, SEAS, AND THE OCEAN.

By David L. Kirchman. Oxford and New York: Oxford University Press. \$39.95. x + 217 p.; ill.; index. ISBN: 978-0-19-752037-6. 2021.

OCEAN ACIDIFICATION AND MARINE WILDLIFE: PHYSIOLOGICAL AND BEHAVIORAL IMPACTS.

By Guangxu Liu. Academic Press. Amsterdam (The Netherlands) and New York: Elsevier. \$119.50 (paper). x + 273 p.; ill.; index. ISBN: 978-0-12-822330-7. 2021.

METHODS FOR ECOLOGICAL RESEARCH ON TERRESTRIAL SMALL MAMMALS.

By Robert McCleery, Ara Monadjem, L. Mike Conner, James D. Austin, and Peter J. Taylor. Baltimore (Maryland): Johns Hopkins University Press. \$59.95. xi + 368 p.; ill.; index. ISBN: 9781421442112 (hc); 9781421442129 (eb). 2021.

The American Society of Mammalogists' website has two key definitions on its welcome banner: mammalogy—"a branch of zoology dealing with mammals";

and mammalogist—"a person with the best job in the world!" Both definitions are clearly operationalized in the recent volume, *Methods for Ecological Research on Terrestrial Small Mammals*, a practical and engaging guide for anyone who wants to study the ecology of small mammals.

Whereas natural history guides on terrestrial small mammals are plentiful, books on how to study them in nature are very limited and instead knowledge about fieldwork has been passed down informally from mentors and peers. This volume fills an important gap in that it offers a much-needed guide for how to conduct ethical and meaningful research on small mammals.

Complete with over 80 images, this book explains how to capture, mark, and study the secretive lives of small, terrestrial mammals. Key topics include capture, handling, identification, reproduction, demography, and taxonomy to behavior, diet, evolution, diseases, movements, and morphometrics.

Organized into 15 chapters, the text presents the pros and cons of the various pathways and tools available to researchers while explicitly mentioning follow-up resources for those who want a deeper dive into a particular method. For example, the authors refer readers to explicit statistical software (e.g., packages in R versus other tools) and seminal references for more specialized information on each topic. The illustrations and the use of case studies are also helpful.

The introduction outlines the taxa covered and the general approach for the volume. Chapters 2 and 3 cover passive and active monitoring techniques. The following chapter discusses sampling for genetics and disease studies as well natural history collections. Chapters 5 through 7 explain how to mark small mammals, record anatomical and reproductive features, and design trapping studies. Chapters 8 to 12 describe methods for studying movements, population demography, community structure, diets, and behavior. Finally, Chapters 13 to 15 focus on predator-mediated sampling of small mammals, ecological and taxonomic study of morphology, and genetic studies.

The volume would benefit from the inclusion of two additional topics. First, classic observational methods (i.e., binoculars, focal animal surveys) and modern technological advances (i.e., radio frequency identification (RFID) readers; see J. E. Smith and N. Pinter-Wollman. 2021. *Journal of Animal Ecology* 90:62–75) are important for inquiries about social dynamics, foraging decisions, and antipredator responses. Second, discussion of ways to measure stress physiology in small mammals (i.e., invasive versus minimally invasive approaches), including when species-specific validation is required (see M. J. Sheriff et al. 2011. *Oecologia* 166:869–887),

would build upon the wealth of information available in the text.

Overall, this is an excellent book that should stand the test of time, helping to inspire current and future mammalogists to thrive while pursuing “the best job in the world.”

JENNIFER E. SMITH, *Biology, University of Wisconsin, Eau Claire, Wisconsin*



EVOLUTION

THE PARROT IN THE MIRROR: HOW EVOLVING TO BE LIKE BIRDS MADE US HUMAN.

By Antone Martinho-Truswell. Oxford and New York: Oxford University Press. \$24.95. vii + 213 p. + 5 pl.; ill.; index. ISBN: 978-0-19-884610-9. 2022.

Without being condescending, I am not quite sure where I stand on *The Parrot in the Mirror* by Antone Martinho-Truswell. It is a book devoted to the thesis that humans have evolved in the same direction as birds and for many of the same reasons. I am afraid it got off on the wrong foot with me, for on page 2 we are told, airily, that parrots are humans' favorite birds. Not me. I emigrated to Canada when I was 22, encountered the hitherto-unknown red-winged black-bird, and it was love at first sight. Lest that sounds very sexist, for it is only the male who has that gorgeous slash of red (and band of yellow) on its very black wings, having had a tiger mother, my affection went out equally to the somewhat drab female, for it was clearly mom who did all of the hard work while we daft boys gaddled about on the edge of lakes.

The author is a serious scientist and, to be fair, he does a well-balanced job as he argues for his central claim about our similarity to the birds. He makes four points. Birds are relatively long-lived compared to other animals of their size (mice and rats, for instance). The same is true of humans compared to other mammals—chimpanzees, for example, not to mention those somewhat farther afield like dogs. Essentially, the cause is that birds can hop—more accurately, fly—out of danger. We too can hop—more accurately, plan our way—out of danger.

Second, for all of the jokes about bird brains—which Martinho-Truswell does not find very funny—comparatively, birds have pretty big brains, as do humans. More importantly, gram for gram, or pound for pound, birds and humans have very efficient brains. If you are going to live a long time, then you are going to need street smarts as one might say—although, in the case of birds, one might well

say “tree smarts.” Those wretched parrots make a star appearance here but, to be fair, crows seem to be creditable runners-up.

Third, generally speaking, birds and humans demand a lot of parental care. Birds do not hatch and then fly right from the nest, catching insects and feeding themselves. Humans likewise take their time developing and maturing. This leads to all sorts of interesting consequences, such as the need for males to get involved and, unlike many mammals, for parents to work as partners. Too often it is “wham, bam, thank you ma’am” and onto the next potential mate. The author suggests that here we do find a bird/human difference, for we unlike them have developed a moral sense about cheating on partners.

Finally, birds like humans are into social learning. We are told about the way in which birds learned to pierce the metal foil tops of milk bottles, passing on this information, thus availing all of the rich bounty to be found within. It is of course the mark of humans that we are also into social learning. Vocalization, too. Birds are pretty good at singing and some of the songs are very complex. They are also terrific means of passing on information. And, like humans, they have to learn to do this. There are no genes for learning Latin or mating calls that make it all effort free.

One can see why this book was written—convergent evolution. Illustrations of the ways in which similar challenges lead to similar solutions. And, at this level, I must say it is a pretty entertaining read. Perhaps in the end, though, I am a bit condescending. I am not entirely convinced that we get the deepest of insights. There are still so many differences between humans and birds—even when they are parrots—I fear the worth of the conclusions is somewhat exaggerated.

MICHAEL RUSE, *Philosophy, University of Guelph, Guelph, Ontario, Canada*

THE FAILURES OF MATHEMATICAL ANTI-EVOLUTIONISM.

By Jason Rosenhouse. Cambridge and New York: Cambridge University Press. \$74.99 (hardcover); \$39.99 (paper). xv + 292 p.; ill.; index. ISBN: 9781108842303 (hc); 9781108820448 (pb); 9781108907149 (eb). 2022.

Is civilization at the terminal stage of a long period of enlightenment? You might think so as we are bombarded daily with fabrication and distortion from antivaxxers, conspiracy theorists, climate science deniers, and quack health fanatics. In the privacy of one's home it may be acceptable to hold all sorts of crazy beliefs, but when the promoters of such beliefs attempt to influence public policy, alter school curricula and, ultimately, undermine what ought to be