anywhere in the world. Its value as a source of natural history information cannot be overstated.

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BOTANY

EVOLUTIONARY ECOLOGY OF PLANT-HERBIVORE INTERACTION.

Edited by Juan Núñez-Farfán and Pedro Luis Valverde. Cham (Switzerland) and New York: Springer. $169.99. xix + 376 p.; ill.; index. ISBN: 978-3-030-46011-2 (hc); 978-3-030-46012-9 (eb). 2020.

This excellent edited volume on plant–herbivore interactions arose out of the symposium Ecología Evolutiva de la Interaccións Planta-Herbívoros at the 2017 Congreso Mexicano de Ecología in León, Mexico. The book provides an introduction to an impressively broad range of topics, spanning scales from genomics and biochemistry up to communities and ecosystems. The focus is on the areas of expertise of the authors—their research topics, systems, and approaches—giving the volume the feel of an enjoyable chat with an outstanding group of scientists. Most of the chapters are reviews and syntheses, and many include case studies from the authors' research programs. A number of chapters focus on novel approaches, particularly applications of genomics, which will make it helpful for anyone looking for new tools and directions.

The book has 18 chapters organized into an introduction and four parts. The first part (Chapters 2–5) examines the evolution of plant defense with an emphasis on plant tolerance of herbivore damage, an understudied but crucial component of plant defense that is beginning to be better understood thanks to the research programs of many of the authors of this volume. Part II (Chapters 6–12) explores the role of community ecology in plant–herbivore interactions, a key perspective in a field often focused on uncovering mechanisms underlying pairwise interactions. The third part (Chapters 13–15) broadens the perspective still further by examining phylogenetic patterns and processes, and the final part (Chapters 16–18) merges patterns and molecular mechanisms by tackling genomics from both functional and macroecological perspectives. Clearly, this breadth of topics has something to offer every student of plant–herbivore interactions.

Of particular note, Chapter 2 is an enjoyably broad overview of plant trichomes in all of their glory and controversy, from synthesis to roles in ameliorating stresses. Chapter 6 reviews herbivory on cacti before diving into a fascinating case study using a *Myrtillocactus* cacti species in central Mexico. Illustrating the book's breadth, the following chapter pivots from cacti to microbes. This outstanding chapter identifies key gaps in our understanding of how plant-associated microbes influence insect performance and how insect-associated microbes influence plant defense, and then outlines two complementary approaches for filling these gaps. Chapter 13 is an exceptional synthesis that argues convincingly that an environment's bareness, the amount of unoccupied ground surrounding plants, has a major and underappreciated influence on the ecology and evolution of plant–herbivore interactions. The concept of bareness is related to the influential plant apparency hypothesis but, whereas apparency can be frustratingly vague, bareness is easily measured and integrates key abiotic variables. The volume ends with a superb chapter that reviews latitudinal and elevational gradients in plant-herbivore interactions for temperate trees. That alone would be useful and interesting, but the second half of the chapter is a tour de force that outlines many dissertations' worth of ideas for revolutionizing our understanding of large-scale plant defense gradients using genomics.

This would be a great book for a graduate seminar, laboratory group, or anyone looking to cover a diversity of plant–herbivore topics. It is an enjoyable reminder of or introduction to how varied the field is.

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ENGINEERING PLANTS FOR AGRICULTURE. *Cold Spring Harbor Perspectives in Biology.*

Edited by Pamela C. Ronald. Cold Spring Harbor (New York): Cold Spring Harbor Laboratory Press. $135.00. vii + 231 p.; ill.; index. ISBN: 9781621823124 (hc); 9781621823131 (eb). 2019.

Since the 1980s, a large body of innovative work has focused on engineering both transgenic and subgenic plants, largely with the goal of modifying disease and pest resistance or growth traits within ecologically and economically important plants to enhance production. This volume, edited by Pamela C. Ronald, a well-known plant pathologist and geneticist, includes 12 chapters authored by a variety of researchers predominantly at U.S.-based institutions, with others located in the U.K., India, Bangladesh, and Japan, and aims to share major advances in plant genetics over the past several decades for scholars outside of the immediate field.

Although some chapters lie firmly within the realm of plant science, and use technical language and acronyms that may elude nonbiologists, the