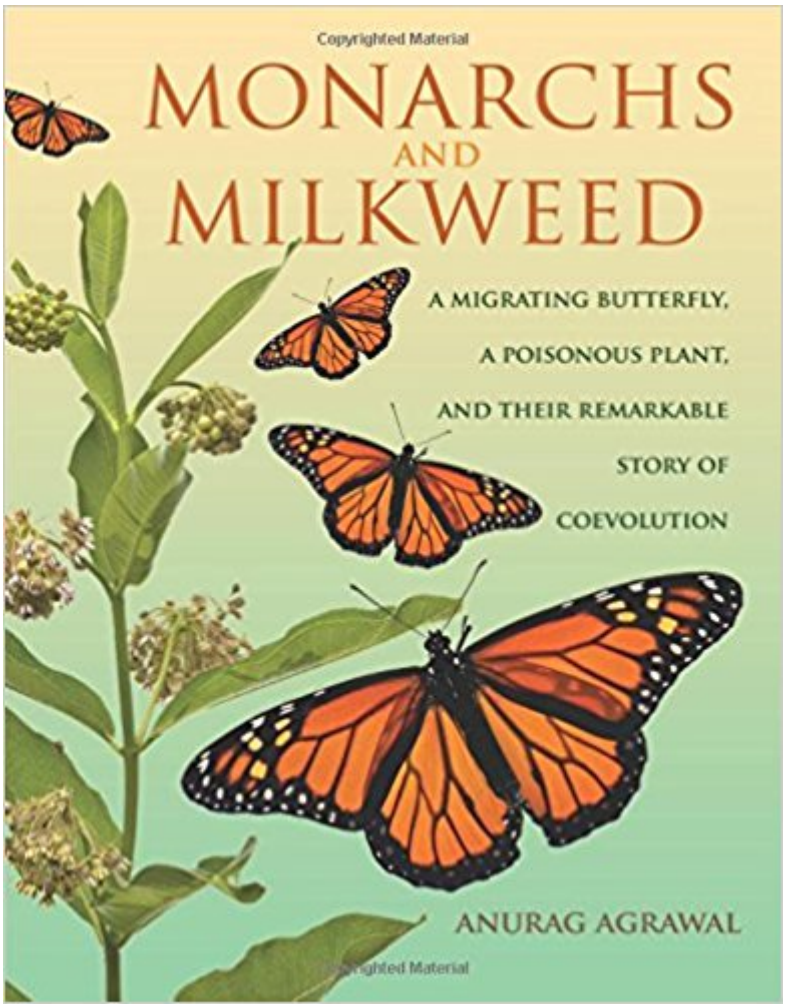
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Monarchs And Milkweed: A Migrating Butterfly, A Poisonous Plant, And Their Remarkable Story Of Coevolution



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Synopsis

The fascinating and complex evolutionary relationship of the monarch butterfly and the milkweed plantMonarch butterflies are one of nature's most recognizable creatures, known for their bright colors and epic annual migration from the United States and Canada to Mexico. Yet there is much more to the monarch than its distinctive presence and mythic journeying. In Monarchs and Milkweed, Anurag Agrawal presents a vivid investigation into how the monarch butterfly has evolved closely alongside the milkweedÃ¢â ¬â ¢a toxic plant named for the sticky white substance emitted when its leaves are damagedÃ¢â ¬â ¢and how this inextricable and intimate relationship has been like an arms race over the millennia, a battle of exploitation and defense between two fascinating species.The monarch life cycle begins each spring when it deposits eggs on milkweed leaves. But this dependency of monarchs on milkweeds as food is not reciprocated, and milkweeds do all they can to poison or thwart the young monarchs. Agrawal delves into major scientific discoveries, including his own pioneering research, and traces how plant poisons have not only shaped monarch-milkweed interactions but have also been culturally important for centuries. Agrawal presents current ideas regarding the recent decline in monarch populations, including habitat destruction, increased winter storms, and lack of milkweedÃ¢â ¬â ¢the last one a theory that the author rejects. He evaluates the current sustainability of monarchs and reveals a novel explanation for their plummeting numbers.Lavishly illustrated with more than eighty color photos and images, Monarchs and Milkweed takes readers on an unforgettable exploration of one of nature's most important and sophisticated evolutionary relationships.

Book Information

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Customer Reviews

"A lively, highly informative introduction to significant research in ecology that highlights the importance of conserving our natural habitats."--Kirkus"This comprehensive and colorful illustrated study of monarch biology and behavior . . . offers another reason to admire the versatile insect: its long and successful symbiotic relationship with the otherwise toxic milkweed plant. . . . AgrawalÃ¢â ¬â„¢s book will appeal not only to butterfly enthusiasts but also to the environmentally aware and all readers who appreciate solidly written and accessible popular science."--Booklist"Epic is the only word to describe the annual journey of monarch butterflies. . . . AgrawalÃ¢â ¬â„¢s splendid book is no less epic, taking us from heart toxins and sodium pumps to climate change and illegal logging. This is important science about an iconic and sadly declining insect, made readable by enthusiastic, personal prose."--Richard Jones, BBC Wildlife Magazine"[Anurag AgrawalÃ¢â ¬â„¢s] book is a minutely detailed exploration of just about everything about [monarchs]: sex lives, dining habits, internal flight guidance and, in particular, their coevolving-but-competitive relationship with milkweed."--Nancy Szokan, Washington Post"Fantastic, readable, scientifically rich, detailed. . . . Monarchs and Milkweed is to date the coolest nature or science book IÃ¢â ¬â„¢ve seen so far this year."--Greg LadenÃ¢â ¬â„¢s Blog"AgrawalÃ¢â ¬â„¢s marvelous book is one of the most in--depth explorations of the process of co--evolution I have ever read. . . . What sets this book apart is two things: the superior quality of the writing and the range of scientific depth to which each topic is explored. Agrawal could give the recent grandmaster of science writing, Stephen Jay Gould, a proverbial run, and as a consequence, the book is highly accessible to everyone in a wide age range and from a variety of educational backgrounds."--NSTA Recommends"Science strongly indicates all living things evolved from a common ancestor to form the complex biosphere we inhabit on earth. Agrawal deftly plucks one strand from this web of life, the monarch butterfly, and elucidates reverberations that resonate from the dawn of time to the present and back and forth among life forms along the way. . . . Monarch life history on a toxic host laden with cardenolides and largely dependent on migrating vast distances to tiny overwintering sites and back again is the backbone of the book. . . . Color illustrations are abundantly informative, the main text font is eminently legible with a useful index, and the well bound paper stock bodes well for the physical longevity of the book."--Science Books & Film"Well-illustrated and informative."--The Cardinal

"Monarch butterflies are a familiar sight, but they have a hidden life of astonishing, beautiful complexity. In Monarchs and Milkweed, Anurag Agrawal offers an unprecedented tour of the lives of these insects, based on cutting-edge research into their evolution."--Carl Zimmer, coauthor of Evolution: Making Sense of Life"This is a gorgeously written and wonderfully illustrated synthesis of our rich knowledge of the evolutionary battle between the monarch butterfly and the common milkweed. It is also a fascinating account of the cast of biologists--including such pioneers as Lincoln Brower, Miriam Rothschild, and Fred and Nora UrquhartÃ¢â ¬â ¢who have probed the deep mysteries posed by this amazingly mobile insect and its famously poisonous host."Ã¢â ¬â ¢Thomas D. Seeley, author of Honeybee Democracy"With a narrative both interesting and well-told, Monarchs and Milkweed will appeal to a wide audience. From biochemical to evolutionary perspectives, this book brings the arms race of milkweeds and monarchs to new light, and shows how and why biology is fun. I recommend it highly."--Bernd Heinrich, author of One Wild Bird at a Time"When I studied monarchs in the 1950s, I never imagined they would become one of the most important experimental animals in biology. Jane Van Zandt Brower's pathbreaking work on their role in mimicry started to change my view, and helped Peter Raven and me to develop the field of coevolution. Now Anurag Agrawal, a world-class scientist, tells the monarch-milkweed coevolution story in a brilliant, readable book--one that underlines the vast improvement of our understanding of the living world during the last half-century."--Paul R. Ehrlich, coauthor of The Annihilation of Nature"It's impossible to imagine the world without monarch butterflies. But they face mounting challenges. This clear, fact-packed book looks at this astonishing and amazing insect and will make you want to cheer, Ã¢â ¬ËœLong live the monarch!'"--Carl Safina, author of Beyond Words: What Animals Think and Feel"This marvelous book looks at how plants and plant-feeding insects have coevolved and how scientists over the past century have painstakingly identified the processes that shape webs of interacting species. Beautifully describing ecological and evolutionary processes, this wonderfully enjoyable book is to be savored for the remarkable ways in which science unravels how life on earth has become so diverse."--John N. Thompson, University of California, Santa Cruz"Engagingly written, Monarchs and Milkweed is the best book on monarch biology that I have ever read."--Stephen B. Malcolm, Western Michigan University

I love Anurag Agrawal's Monarch and Milkweeds book! Written in a friendly, readable style, Agrawal describes the surprisingly one-way relationship between two remarkable organisms, one benefiting and one constantly fine tuning and evolving new ways to protect itself. He explains in a clear, engaging way what is known and what is about to be known and what remains to be discovered in

the field of monarch and milkweed interactions. The book is a wonderful blend of the history and biography of past and present monarch/milkweed researchers and their discoveries and the biology and chemical ecology involved within the context of the natural history of both monarchs and milkweed. It is a "stranger than fiction" detailing of fantastic ways each living thing seeks to survive, eat and reproduce successfully and how one’s success spurs the loser to change tactics. The photographs and graphics are superb. Even the tiny monarch at the beginning of each chapter is a pleasure to watch as it grows and changes as the book unfolds.Fireflies, Glow-worms, and Lightning Bugs: Identification and Natural History of the Fireflies of the Eastern and Central United States and Canada (Wormsloe Foundation Nature Book Ser.)

If you are an appassionato of the fabled Monarch butterfly, or even of butterflies in general, you won’t want to pass up this book. Written by a renowned scientist who has studied this beautiful organism for years, it’s a clearly written and up-to-date account of what we know and what we don’t know about this mysterious beauty. Monarch caterpillars are destined by evolution to eat only milkweed plants -- yet those same milkweed plants are poisonous to the caterpillars. They have no choice in the matter. Once you get over the emotional pathos of this coupling -- what you require to survive will most likely kill you -- you’ll be hooked on reading about the seemingly endless strategies that the caterpillars have evolved in order to survive their ordeal. Who knew that caterpillars would have to face such grueling tests of their ability to persevere?The book is written so as to be friendly to the lay reader and is extremely well-illustrated. If you are looking for authoritative texts on the basic biology of these lightweight, ephemeral beings that fly all thousands of miles to a special place in Mexico where they can safely winter, this is a book you will want to own. Thanks to the scientist for taking the time to write it.

This book is a real page-turner. Anurag Agrawal does a phenomenal job presenting a fascinating story about iconic monarch butterflies and milkweeds and more broadly about ecology.The book covers a wide range of topics: how milkweeds protects themselves from monarchs, arms race between monarchs and milkweed, how the monarchs in turn defend themselves from their enemies, monarch butterfly migration, and the conservation of monarchs to name a few. All of these topics are put in a wider scientific context by bringing in chemistry, history of medicine, ecological theories, evolutionary theories, etc.The book is written in clear prose, making it accessible to wide readers. Agrawal digests years of scientific studies into a coherent narrative that the readers can sequester with ease. The book digs deep into the biology, but Agrawal does it with care so the readers can

follow him.Many factors make this book uniquely engaging. For example, Agrawal weaves scientific studies with personal anecdotes. The book presents a window of opportunity for the readers to see researchers as both scientists as well as ordinary human beings. The story behind the discovery of the monarch overwintering sites is my personal favorite.Both scientists and non-scientists will learn new things from the book. The book is beautiful, and I highly recommend it to everyone.

This is the best book on monarchs that has so far been published, ontheir ecology, and the conservation of their remarkable migration between central Mexico and the northern United States and southern Canada. Agrawal gives a lively and readable introduction to how monarchs and poisonous milkweeds coevolved in an arms race that allows the insects to sequester the plants' poison to discourage predators. (The viceroy and other butterflies similar to monarchs take advantage of this in a remarkable example of evolved mimicry.) He then goes on to discuss the complex problem of conserving the monarchs' migration which is under threat because the wintering populations in Mexico are getting progressively smaller. Against the idea that the cause of the monarchs' decline is the disappearance of milkweeds in the breeding regions of the Midwest he conviningly presents the possibility that mortality during the Fall migration through Texas and the southern U.S. may be the critical factor.

This book is a classic. I've learned so much and it was such a nice read. The humor and insight that Agrawal uses to translate scientific research and complex ideas in evolution and ecology make this a great book for everyone!!! It's a must read if you have any interest in the butterflies or want to better understand a beautiful relationship that's taking place in you backyard!!

My copy of this book was delivered today and I'm excited to dig in now that we are at the height of milkweed and monarch season. It's beautifully and generously illustrated with very clean and informative graphics and photographs and it's comprehensive relative to the many fascinating chemical ecological dimensions of milkweeds and their distinctive suites of insect associates.

This book strikes the perfect balance -- it contains in-depth scientific information presented in a clear, conversational, easy-to-read manner. The author is engaging. The illustrations are charming. The science is fascinating. Who knew that pretty little creatures could create so much natural drama. So glad I read this.

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