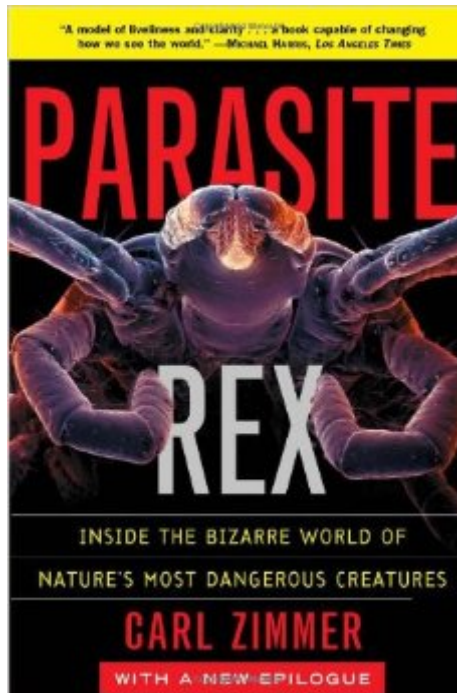


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# Parasite Rex: Inside The Bizarre World Of Nature's Most Dangerous Creatures



## Synopsis

> For centuries, parasites have lived in nightmares, horror stories, and the darkest shadows of science. In >, Carl Zimmer takes readers on a fantastic voyage into the secret universe of these extraordinary life-formsâ ”which are not only among the most highly evolved on Earth, but make up the majority of lifeâ™s diversity. Traveling from the steamy jungles of Costa Rica to the parasite-riddled war zone of southern Sudan, Zimmer introduces an array of amazing creatures that invade their hosts, prey on them from within, and control their behavior. He also vividly describes parasites that can change DNA, rewire the brain, make men more distrustful and women more outgoing, and turn hosts into the living dead. This comprehensive, gracefully written book brings parasites out into the open and uncovers what they can teach us all about the most fundamental survival tactics in the universeâ ”the laws of Parasite Rex.

## Book Information

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## Customer Reviews

This is one of those rare books that can totally alter how you look at the world. Read it and you begin seeing parasites in every skin blemish you have. See a cat catch a mouse and all you can do is think about all the parasites its about the ingest. You find yourself wanting to visit the parasite museum in Maryland to see all the horrible creatures you've been reading about. You begin thinking that Zimmer's right and that parasites have driven the evolution of the world. You begin wodering if Stephen King has read it and if so what novel he's writing. You begin wondering if there's thousands of little cysts in your brain and that your life goal of going on safari in Africa may need reevaluated.

You imagine what its like to extract a guinea worm from your leg. You question whether or not you will ever eat crab again. You wonder whether the reason you've been so hungry of late is because there's a sixty foot long tapeworm inside your intestines. It's a stunning book and an important one. Zimmer found something obvious that's been overlooked in biology and if he's right will change the way we view life. Survival of the individual will be changed to survival of the creature living inside the individual. For example, there is a parasite that gets inside a snail, takes it over, forces it climb a blade of grass and wait for a grazing cow to wander by and eat it. The cow is where the parasite wants to end up. The snail is just a vessel to reach the cow. The young of the parasite end up in cow pies which the snail eats and the cycle begins again. The complex world of flukes and tapeworms, of enslaved crabs and suicidal snails, of sleeping sickness and malaria, is like a car wreck: you want to turn away but you can't, you're compelled to look fearful of what you might see. As you explore the book you learn that these creatures are much more than revolting. I can't say you'll ever view them with sympathy, you can view them with respect -- and hopefully at a safe distance.

Once considered a "degenerate" form of life, parasites are being seen as important indicators of how evolution has progressed over 4 billion years. Zimmer credits them with being the driving force for biological diversity. He substantiates this claim with a sweeping, evocative survey of what is known today about parasites. That, he regretfully concedes, is little enough. What is known is that many early conceptions about parasites needed to be thrown aside as more information about this highly adaptable and widely variable range of organisms emerges. While we may recoil at the term "parasite", Zimmer identifies but one villain in this book. Ray Lankester, a devoted Edwardian-era evolutionist, postulated that parasites were a "regressive" form of organism. He thought they shed evolutionary advantages as they simplified their bodies through their life cycles. Lankester thus set the tone for generations - biologists avoided studying parasites as offering no additional information revealing evolution's processes. Zimmer explains that since parasites are predators, it was thought they ought to follow the patterns of other predators - stalking prey like lions, or following scent gradients like sharks. Instead, as more about them came to light, it was revealed how adaptive parasites are. Some, in fact, have developed the talent of making "prey" come to them. One fluke invades a snail early in its career. In an intermediate, but distinctive form, it then moves to an ant. Residing in the ant's brain, at some point it directs the ant to climb a grass stalk. There it waits for the grass, along with the ant and itself, to be eaten by a cow. The fluke cruises through the cow's stomach before taking up residence in the liver as adults, yet another body form. When the eggs are

produced, they return to the intestinal tract to be later deposited on the ground, awaited by the snails. Looking at each phase, residing in a different host, you would be inclined to see it as a separate species. This note is but one of the endless chorus of parasite adaptations Zimmer relates in this excellent book. He joins the refrain of older scientists lamenting the lack of upcoming researchers needed in parasite studies. Unlike the animals we see around us, most parasites have astonishingly varied body forms as they go through the phases of their life cycles. For years, this catalog of body plans was thought to display different species. Only recently has it been demonstrated that these creatures changed shape and function dramatically as they changed living environments. Identifying each stage, the invader's function there, the impact on the host and other elements requires long, patient and dedicated work. Those of us in the urban world think we can keep parasites at a distance, flooding our farms and wetlands with chemicals to fend them off. This is false confidence, Zimmer reminds us. Parasites are the most adaptable forms of life on the planet. They are as likely to promote change as respond to it. Zimmer cites Robin Dunbar's thesis that grooming for parasites ultimately allowed humans to develop speech and language. He explains how our immune systems and parasites enter a modus vivendi that allows the parasite and host alike to survive. Recognising how that process evolved could lead to better coexistence through "taming" the invaders. Coexistence with these minute creatures turns out to have many implications. It's now clear that the development of agriculture made human society vulnerable to invaders unknown on the savannah. Human bodies became less robust and mortality rates rose. How far back in time have they had influences on us and what are those? Zimmer suggests that some monkeys have developed "manners" in resource or mate competition. They scream and cavort, but don't scratch or bite rivals for fear of bloodworm infection. Others use particular leaves to clear digestive tracts of infestations. We hear of researchers seeking "genes for" schizophrenia, homosexuality, even "gods". Zimmer thinks we're looking in the wrong place. Instead, he urges, we should identify the "flukes for" these and other aspects of human behaviour and form. [Stephen A. Haines - Ottawa, Canada]

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