Marc Bekoff Ph.D.
Animal Emotions

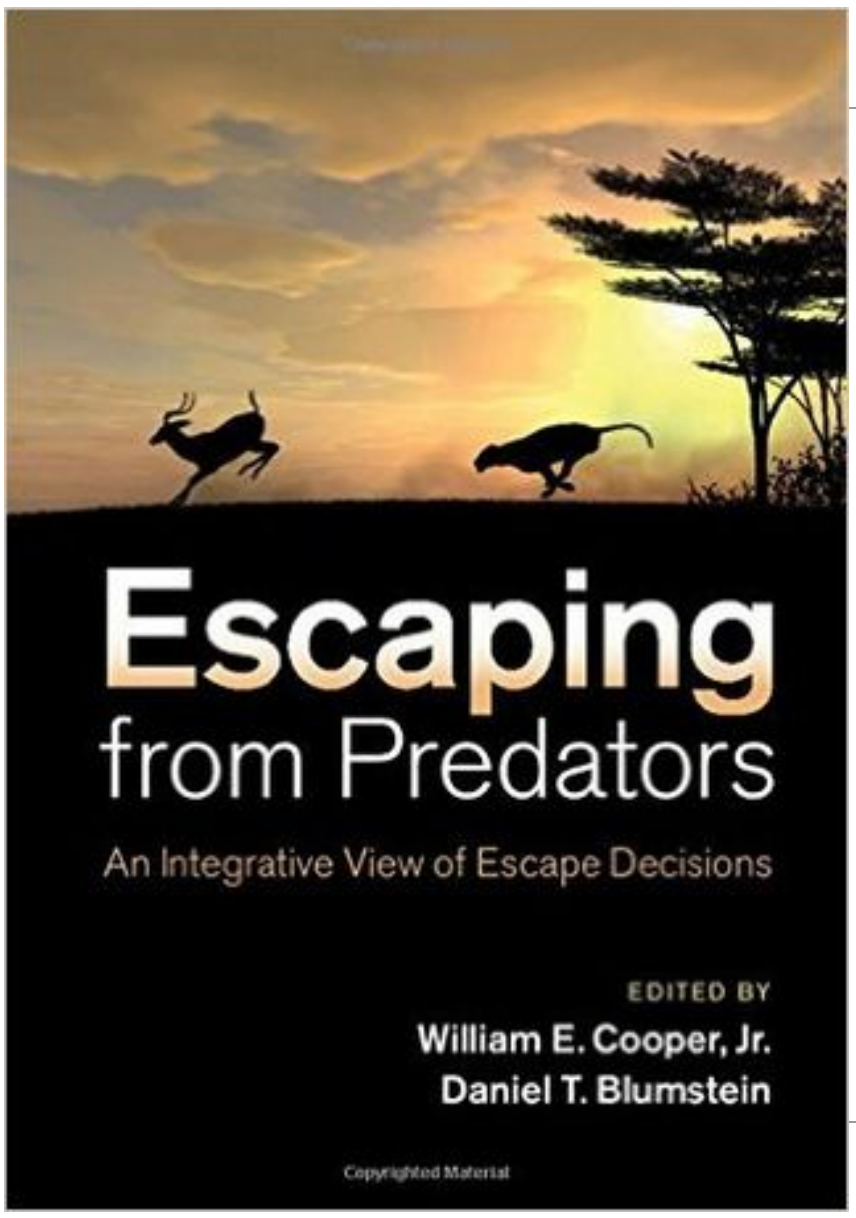
Research Shows How Animals Decide to Escape From Predators

A recent book summarizes what we know about decisions to avoid becoming a meal

Posted Oct 04, 2016

Experts weigh in about patterns of escape behavior displayed by a wide variety of animals

A recent book edited by **Drs. William Cooper, Jr.** and **Daniel Blumstein** (who was an undergraduate student of mine at the University of Colorado) called Escaping From Predators: An Integrative View of Escape Decisions caught my eye because while there has been a good deal of research on how predators catch prey, there has been less research on how prey escape from predators to avoid becoming a meal. And, much of this information is scattered and difficult to assemble into a coherent whole. *Escaping from Predators* provides an excellent synthesis of this material.



Source: With permission

The book's description reads:

> When a predator attacks, prey are faced with a series of 'if', 'when' and 'how' escape decisions - these critical questions are the foci of this book. Cooper and Blumstein bring together a balance of theory and empirical research to summarise over fifty years of scattered research and benchmark current thinking in the rapidly expanding literature on the behavioural ecology of escaping. The book consolidates current and new behaviour models with taxonomically divided empirical chapters that demonstrate the application of escape theory to different groups. The chapters integrate behaviour with physiology, genetics and evolution to lead the reader through the complex decisions faced by prey during a predator attack, examining how these decisions interact with life history and individual variation. The chapter on best practice field methodology and the ideas for future research presented throughout, ensure this volume is practical as well as informative.

Most fortunately, I was able to interview the prolific Dr. Blumstein about this forward-looking book to learn more about it.

Why did you and Dr. Cooper publish *Escaping From Predators*?

We are both fascinated by the diversity of escape behavior and had been collaborating on a number of large-scale reviews, comparative studies, and meta-analyses. We realized that there had been a pulse of research over the past decade or so and that escape behavior—in how it seamlessly integrated models, empirical studies

about taxa--mammals, birds, reptiles and amphibians, fishes, invertebrates--and relevant concepts about escape--sensory ecology, individuality, physiology, maternal effects, to name a few.

How does it build on your earlier work?

Both of us have a long history of studying escape behavior—for Bill mostly in lizards, for me mostly in birds, but also detailed studies in marmots and some studies in lizards and fishes. We've been conducting both meta-analyses and comparative studies for a number of years and we've been collaborating on studies that move the theory of escape behavior forward. The basic theory is simple—escape is a behavioral response that is sensitive to both the costs of remaining and the benefits of escaping. Animals don't typically escape *immediately* upon detecting a predator (although one of my hypotheses—called Flush Early and Avoid the Rush—*fear*—suggests that many escape soon after so as to reduce on-going monitoring costs) and there are many factors that influence how long they wait after detecting a predator.

Why is it an important topic for people interested in animal behavior, behavioral ecology, and evolutionary biology?

Aside from how the field takes a Tinbergian approach [ethologist Niko Tinbergen shared the 1973 Nobel Prize in Physiology or Medicine with Konrad Lorenz and Karl von Frisch] and is so wonderfully integrative, all animals must survive in a predator rich environment and escape behavior is one of those activities that has led to a remarkable variety of behavioral and morphological adaptations. Escape behavior is integrative and also illustrates compensation, whereby individuals that are 'slow' may modify their escape behavior to compensate for their speed. Escape behavior is easily studied and also has profound implications for understanding how animals coexist with humans—some are tolerant while others are not and escape behavior gives us quantifiable metrics of tolerance.

Why should non-researchers care about this general topic?

Because escape behavior gives us a window on how animals perceive us—as scary or not—and in so doing, lets us better reduce our impacts on nonhumans should we desire to do so. And, because animals have come up with a variety of effective ways to survive living in a risky world. This should inspire us that there is not simply one way; a thought that has many implications in the currently highly charged political environment.

What are your major messages?

Escape behavior illustrates very nicely how animals trade-off costs and benefits of escape and by doing so minimize the costs of escaping and the probability of surviving.

What are some important lines of research for the future?

We need to get a better idea of how to properly quantify the fitness costs of escaping or not and do a better job estimating the exact relationships between say flight initiation distance and the benefits and costs of escaping. This is quite difficult.

Is there anything else you'd like to share with readers?

Much of the book focuses on flight initiation distance because there are pretty good comparative data sets with data from many individuals and species. However, the amount of time animals hide in response to being threatened follows the same logic. The book provides a variety of examples and approaches that will help readers who have not really thought much about escape before to see it all around them. The book should open up people's eyes to the wonders in nature that surround us all.

***Escaping From Predators* should open up people's eyes to the wonders in nature that surround us all**

conservation behavior, and conservation biology. Lay readers also will get a lot out of it.

How different animals avoid becoming a meal is a fascinating topic that deserves close attention and *Escaping From Predators* opens the door for future inquiries.

Marc Bekoff's latest books are Jasper's Story: Saving Moon Bears (with Jill Robinson), Ignoring Nature No More: The Case for Compassionate Conservation, Why Dogs Hump and Bees Get Depressed: The Fascinating Science of Animal Intelligence, Emotions, Friendship, and Conservation, Rewilding Our Hearts: Building Pathways of Compassion and Coexistence, and The Jane Effect: Celebrating Jane Goodall (edited with Dale Peterson). The Animals' Agenda: Freedom, Compassion, and Coexistence in the Human Age (with Jessica Pierce) will be published in early 2017.

About the Author

Marc Bekoff, Ph.D., is professor emeritus of ecology and evolutionary biology at the University of Colorado, Boulder.

View Author Profile

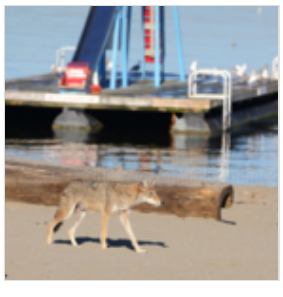
More Posts

Animal Reflections: Do Mirror Images Mirror Self Awareness?

What do self-directed movements guided by a mirror image really mean?

Papa Goose: A Real Life "Fly Away Home" With Feisty Goslings

An interview with "father goose" Michael Quetting, author of "Papa Goose."



Can Clever Animals' Cognitive Skills Be Maladaptive?

Cognitive abilities such as behavioral flexibility may work against individuals.

Continue Reading

Why Don't Victims of Sexual Harassment Come Forward Sooner?

Why People Lose Interest in You

The Secret of Getting Along With People

5 Tricks for Low Self-Confidence

Find a Therapist

Get the help you need from a therapist near you–a FREE service from Psychology Today.

City or Zip

Cities:

Atlanta, GA
Austin, TX
Baltimore, MD
Boston, MA
Brooklyn, NY
Charlotte, NC
Chicago, IL
Columbus, OH
Dallas, TX
Denver, CO
Detroit, MI
Houston, TX
Indianapolis, IN
Jacksonville, FL
Las Vegas, NV
Los Angeles, CA
Louisville, KY
Memphis, TN
Miami, FL
Milwaukee, WI
Minneapolis, MN
Nashville, TN
New York, NY
Oakland, CA
Omaha, NE
Philadelphia, PA
Phoenix, AZ
Pittsburgh, PA
Portland, OR
Raleigh, NC
Sacramento, CA
Saint Louis, MO
San Antonio, TX
San Diego, CA
San Francisco, CA
San Jose, CA
Seattle, WA
Tucson, AZ
Washington, DC

Are you a Therapist?
Get Listed Today

More Like This

German Babies Cry Differently From French Babies, Research Shows

How to Escape from Bad Decisions

Deciding where, what, and with whom to eat: We can learn a lot from birds

It Takes a Wise Bird to Show the Way

The Cow's Nose Shows How They're Feeling About Life

Recent Issues

US

Subscribe Today!