

Solid Air

Invisible Killer:
Saving Billions of Birds from
Windows



with foreword by
Dr. David M. Bird

Daniel Klem, Jr.



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Photographs of window-killed birds from Fatal Light Awareness Program (FLAP).



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(800) 938-1114 Fax (800) 983-2262

www.hancockhouse.com info@hancockhouse.com

Solid Air

Invisible Killer:
Saving Billions of Birds from
Windows

Daniel Klem, Jr.

For my parents Daniel and Lillian Mary (Perlis), parents-in-law Angelo Michael and Patricia A. (Deitrick) Mucci, my wife Renee A. (Mucci) Klem, and our children Heather Anne, Robyn, and Danny.

Thankful for your continuous and unlimited support.

"A thorough, important, and ultimately hopeful review of everything that is known about bird window collisions, by the world's leading expert in the field. This book is filled with useful information that should help all of us tackle this insidious problem."

— DAVID ALLEN SIBLEY, ORNITHOLOGIST, ILLUSTRATOR
AND AUTHOR OF THE SIBLEY GUIDES TO BIRDS

It is not exaggeration or hyperbole to say that there is no one on the planet who has devoted as much time and effort studying the perilous relationship between birds and glass as Dr. Daniel Klem, Jr has and, consequently, few people can write as authoritatively and holistically about that relationship. *Solid Air* is an invaluable addition to the bird-glass collision literature and everyone—whether they are unfamiliar with the glass collision issue or already have an extensive background and understanding—will benefit from this immensely readable and absorbing book."

— JOHN ROWDEN, PHD SENIOR DIRECTOR, BIRD-FRIENDLY
COMMUNITIES, NATIONAL AUDUBON SOCIETY

"Having worked with Dr. Daniel Klem, Jr for many years to build awareness of bird collisions in North America, we are delighted to see his unparalleled expertise come to literary fruition. Dr. Klem has brought his signature charm to this book, along with a wealth of information about bird strikes, their cause, and what can be done to prevent them. At once technically thorough and down to earth, *Solid Air* is a must-read for bird conservationists and sustainably-minded building professionals."

— CHARLES ALEXANDER VICE-PRESIDENT OF
SALES AND MARKETING, WALKER GLASS

"The book is easy to read, accessible, and chronological. The reader is captivated by the unfolding story and the frustrations and mysteries explored by the author. *Solid Air* will appeal to the bird-watcher, scientist, conservationist, architect, and anyone who has ever heard that awful thud of a bird hitting a window. *Solid Air* reminds us this is a threat we can address and provides the tools to do so."

— LAURIE J. GOODRICH, PHD SARKIS ACOPIAN
DIRECTOR OF CONSERVATION SCIENCE, HAWK
MOUNTAIN SANCTUARY ASSOCIATION

"For architects, *Solid Air* is an essential contribution to the generalist knowledge that is critical to the creativity and competency of our profession."

— JULES DINGLE, PRINCIPAL, DIGSAU ARCHITECTURAL FIRM

"This is the book we have been waiting for. Daniel Klem has been the leading researcher on bird-window collisions throughout his long career, and thanks to him there is now widespread recognition of the magnitude and severity of the problem, and of measures that can reduce it."

— PROF. DAVID FRASER, ANIMAL WELFARE
PROGRAM, UNIV. OF BRITISH COLUMBIA

"If people were to follow Klem's guidance, the result would be hundreds of millions fewer bird collisions per year which would help stem the decline of our most vulnerable birds. For anyone interested in birds and bird conservation, as well as a rare insight into how scientists think and are motivated, this is a must-read."

— PAUL KERLINGER, PHD CAPE MAY, NJ AND
AUTHOR OF HOW BIRDS MIGRATE

"*Solid Air* is a must-read for any serious student of ornithology or anyone who cares deeply about bird populations. Dan Klem Jr.'s writing is thoroughly engaging as he takes the reader on three equal, interconnected journeys any one of which would be worth reading for their own sake. Purchase the book, read it, put knowledge into action and then share it with someone else who lives in a house with glass windows."

— PROF. JAMESON F. CHACE, DEPT. BIOL. & BIOMED.
SCIENCES, SALVE REGINA UNIVERSITY

"*Solid Air* makes the case: the discovery, the approaches to the problem, the tragic losses, the struggle for popular and the scientific concern, and the solutions available. Klem ultimately leaves us with the necessary tools to conquer this bird-and-glass issue. We only need to grasp the lessons and pursue the necessary changes."

— PAUL J. BAICICH, CO-EDITOR BIRDING COMMUNITY E-BULLETIN
AND REGULAR COLUMNIST FOR BIRD WATCHER'S DIGEST

"His writing is humble, personal, compelling and provides a stirring call to action for every one of us. A must-read for avian conservationists, architects, designers, glass manufacturers, community activists, and bird enthusiasts alike."

— MARY COOLIDGE, PORTLAND AUDUBON

"The concepts and guidelines outlined in this book must be part of every architect, designer, and planner's vocabulary and is critical to protecting our local and global ecosystems through responsible design and construction."

— KATE SCURLOCK, GWWO ARCHITECTS

Table of Contents

Foreword.....	12
Preface	16
Prologue.....	18
<i>Chapter 1: Humans Make Glass, Birds Hit Glass</i>	<i>23</i>
<i>Chapter 2: Why Birds Hit Windows</i>	<i>28</i>
<i>Chapter 3: How Big a Problem</i>	<i>34</i>
<i>Chapter 4: Scientific Evidence – Making the Case.....</i>	<i>42</i>
<i>Chapter 5: What Happens When Birds Strike Windows – Cause of Death, Injuries, Recuperation.....</i>	<i>68</i>
<i>Chapter 6: Valuing the Dead</i>	<i>75</i>
<i>Chapter 7: Why do We Care – the Services Birds Provide</i>	<i>77</i>
<i>Chapter 8: Getting the Word Out – Transforming Education into Action ...</i>	<i>81</i>
<i>Chapter 9: Solutions – Solving the Problem.....</i>	<i>107</i>
<i>Chapter 10: Legal Protection of the Vulnerable and Defenseless.....</i>	<i>134</i>
<i>Chapter 11: What Citizens Can do as Homeowners and Advocates</i>	<i>144</i>
<i>Chapter 12: Seeing the Invisible Threat – Overall Impact</i>	<i>152</i>
Resources.....	155
Bird-Window Collision Prevention and Cost	157
Bird-Window Collision Species by Geography	160
Bird Species Known to Strike Windows.....	162
Bibliography.....	163
Acknowledgments	199
Index	209
About the Author.....	221