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Titolo	Aeroecology / / edited by Phillip B. Chilson, Winifred F. Frick, Jeffrey F. Kelly, Felix Liechti
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ISBN	3-319-68576-7
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XV, 497 p. 119 illus., 95 illus. in color.)
Disciplina	573.798
Soggetti	Zoology Animal ecology Meteorology Bioinformatics Geoecology Environmental geology Animal Ecology Computational Biology/Bioinformatics Geoecology/Natural Processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Prologue/Foreword -- Background -- Chapter 1: A tutorial treatment of the boundary layer and lower free atmosphere -- Chapter 2: A general treatment on how air is habitat to a host of diverse species -- Chapter 3: Coupling of weather and biology, including impacts of weather on biological behavior -- Chapter 4: Flight physiology (insects, birds and bats) -- Chapter 5: Navigation / Orientation (insects, birds and bats) -- Chapter 6: Fundamentals of migration -- Chapter 7: A broader treatment of entomology in the context of aeroecology along with methods of observing and furthering our understanding of insects -- Mehtods of Observation -- Chapter 8: Historical overview of methodologies, field observations, banding acoustics, other methods -- Chapter 9: Overview of the central questions related to monitoring the movements of individuals and why a deeper and more exact understanding of animal behavior at the individual level -- Chapter 10:

Discussion of why thermal imaging techniques are needed and being used to track individuals and ensembles of individuals. Provide an overview of thermal imaging techniques for biological studies and how computer science is helping to visualize and model the results. Computer visualization of thermal data of bats -- Chapter 11: Transition from individual behavior to group behavior -- Chapter 12: Aeroecology and recent technological developments, ability to process, mosaick, and represent huge amounts of weather radar data in real time and create archives, resulting products represent for meteorologists and biologists, implementation of the Buler & Diehl algorithm, the prospects of Level III biological products -- Aeroecological case studies/Applications -- Chapter 13: Stop-over behavior of birds (and bats) and issues pertaining to land use -- Chapter 14: Linking population ecology to aeroecology -- Chapter 15: A general treatment of phenology and its significance -- Chapter 16: Aerosphere as a network connector -- Chapter 17: Interaction with human activities. An overview of aeroecological impacts: wind power, disease (if here then remove from chapter above and vice versa), aviation safety (aircraft / bird collisions), ecosystem services.

Sommario/riassunto

This book consists of a diverse collection of chapters that seeks to broaden our fundamental understanding of the ecological function and biological importance of the Earth’s lower atmosphere, which provides a huge living space for billions of animals moving within and across continents. Their migration, dispersal and foraging activities connect water and land habitats within and across continents. Drawing upon the wide-ranging experience of the authors, the book takes an inherently interdisciplinary approach that serves to introduce the reader to the topic of aeroecology, frame some of the basic biological questions that can be addressed within the context of aeroecology, and highlight several existing and emerging technologies that are being used to promote aeroecological studies. The book begins with several background chapters, that provide introduction into such topics as atmospheric science, the concept of the habitat, animal physiology, and methods of navigation. It then continues with a broad discussion of observational methods available to and used by aeroecologists. Finally, several targeted examples of aeroecological studies are presented. Following the development of the chapters, the reader is provided with a unifying framework for investigating how the dynamic properties of meteorological conditions at local, regional, and global scales affect the organisms that depend on the air for foraging and movement. Material presented in the book should be of interest to anyone wishing to gain a comprehensive understanding of the aerosphere itself and the myriad airborne organisms that inhabit and depend upon this environment for their existence. The material should be accessible to a diverse set of readers at all stages of training and across a range of research expertise.