

# Contents

	<i>List of Contributors</i>	<i>page</i> viii
	<i>Preface</i>	xv
	<b>Introduction</b>	1
<b>Part I</b>	<b>Food Webs: Complexity and Stability</b>	7
1	<b>Food Webs versus Interaction Networks: Principles, Pitfalls, and Perspectives</b> Carsten F. Dormann and Nico Blüthgen	9
2	<b>What Kind of interaction-Type Diversity Matters for Community Stability?</b> Michio Kondoh and Akihiko Mougi	19
3	<b>Symmetry, Asymmetry, and Beyond: The Crucial Role of Interaction Strength in the Complexity–Stability Debate</b> Anje-Margriet Neutel and Michael A. S. Thorne	31
4	<b>Ecologically Effective Population Sizes and Functional Extinction of Species in Ecosystems</b> Bo Ebenman, Torbjörn Säterberg, and Stefan Sellman	45
5	<b>Merging Antagonistic and Mutualistic Bipartite Webs: A First Step to Integrate Interaction Diversity into Network Approaches</b> Elisa Thébault, Alix M. C. Sauve, and Colin Fontaine	62
6	<b>Toward Multiplex Ecological Networks: Accounting for Multiple Interaction Types to Understand Community Structure and Dynamics</b> Sonia Kéfi, Elisa Thébault, Anna Eklöf, Miguel Lurgi, Andrew J. Davis, Michio Kondoh, and Jennifer Adams Krumins	73
7	<b>Unpacking Resilience in Food Webs: An Emergent Property or a Sum of the Parts?</b> Ross M. Thompson and Richard Williams	88

<b>Part II</b>	<b>Food Webs: From Traits to Ecosystem Functioning</b>	105
<b>8</b>	<b>Integrating Food-Web and Trait-Based Ecology to Investigate Biomass–Trait Feedbacks</b>	107
	Ursula Gaedke and Toni Klauschies	
<b>9</b>	<b>Including the Life Cycle in Food Webs</b>	121
	Karin A. Nilsson, Amanda L. Caskenette, Christian Guill, Martin Hartvig, and Floor H. Soudijn	
<b>10</b>	<b>Importance of Trait-Related Flexibility for Food-Web Dynamics and the Maintenance of Biodiversity</b>	146
	Ursula Gaedke, Beatrix E. Beisner, Amrei Binzer, Amy Downing, Christian Guill, Toni Klauschies, Jan J. Kuiper, Floor H. Soudijn, and Wolf M. Mooij	
<b>11</b>	<b>Ecological Succession Investigated Through Food-Web Flow Networks</b>	164
	Antonio Bodini, Cristina Bondavalli, and Giampaolo Rossetti	
<b>12</b>	<b>Statistical Approaches for Inferring and Predicting Food-Web Architecture</b>	178
	Rudolf P. Rohr, Russell E. Naisbit, Christian Mazza, and Louis-Félix Bersier	
<b>13</b>	<b>Global Metawebs of Spider Predation Highlight Consequences of Land-Use Change for Terrestrial Predator–Prey Networks</b>	193
	Klaus Birkhofer, Eva Diehl, Volkmar Wolters, and Henrik G. Smith	
<b>14</b>	<b>Ecological Networks in Managed Ecosystems: Connecting Structure to Services</b>	214
	Christian Mulder, Valentina Sechi, Guy Woodward, and David Andrew Bohan	
<b>15</b>	<b>Trait-Based and Process-Oriented Modeling in Ecological Network Dynamics</b>	228
	Marco Scotti, Martin Hartvig, Kirk O. Winemiller, Yuanheng Li, Frank Jauker, Ferenc Jordán, and Carsten F. Dormann	
<b>16</b>	<b>Empirical Methods of Identifying and Quantifying Trophic Interactions for Constructing Soil Food-Web Models</b>	257
	Amber Heijboer, Liliane Ruess, Michael Traugott, Alexandre Jousset, and Peter C. de Ruiter	
<b>Part III</b>	<b>Food Webs and Environmental Sustainability</b>	287
<b>17</b>	<b>Integrating Species Interaction Networks and Biogeography</b>	289
	José M. Montoya and Núria Galiana	
<b>18</b>	<b>Food-Web Dynamics When Divergent Life-History Strategies Respond to Environmental Variation Differently: A Fisheries Ecology Perspective</b>	305
	Kirk O. Winemiller	

<b>19</b>	<b>Rare but Important: Perturbations to Uncommon Species Can Have a Large Impact on the Structure of Ecological Communities</b>	324
	Tomas Jonsson, Sofia Berg, Torbjörn Säterberg, Céline Hauzy, and Bo Ebenman	
<b>20</b>	<b>Food-Web Simulations: Stochastic Variability and Systems-Based Conservation</b>	342
	Ferenc Jordán, Marco Scotti, and Catherine M. Yule	
<b>21</b>	<b>An Individual-Based Simulation Model to Link Population, Community, and Metacommunity Dynamics</b>	352
	Marco Scotti and Ferenc Jordán	
<b>22</b>	<b>Structural Instability of Food Webs and Food-Web Models and Their Implications for Management</b>	372
	Axel G. Rossberg, Amanda L. Caskenette, and Louis-Félix Bersier	
<b>23</b>	<b>Linking Ecology and Epidemiology: The Case of Infected Resource</b>	384
	Sanja Selaković, Peter C. de Ruiter, and Hans Heesterbeek	
	<i>Index</i>	406

*See color plate section between pages 304 and 305.*