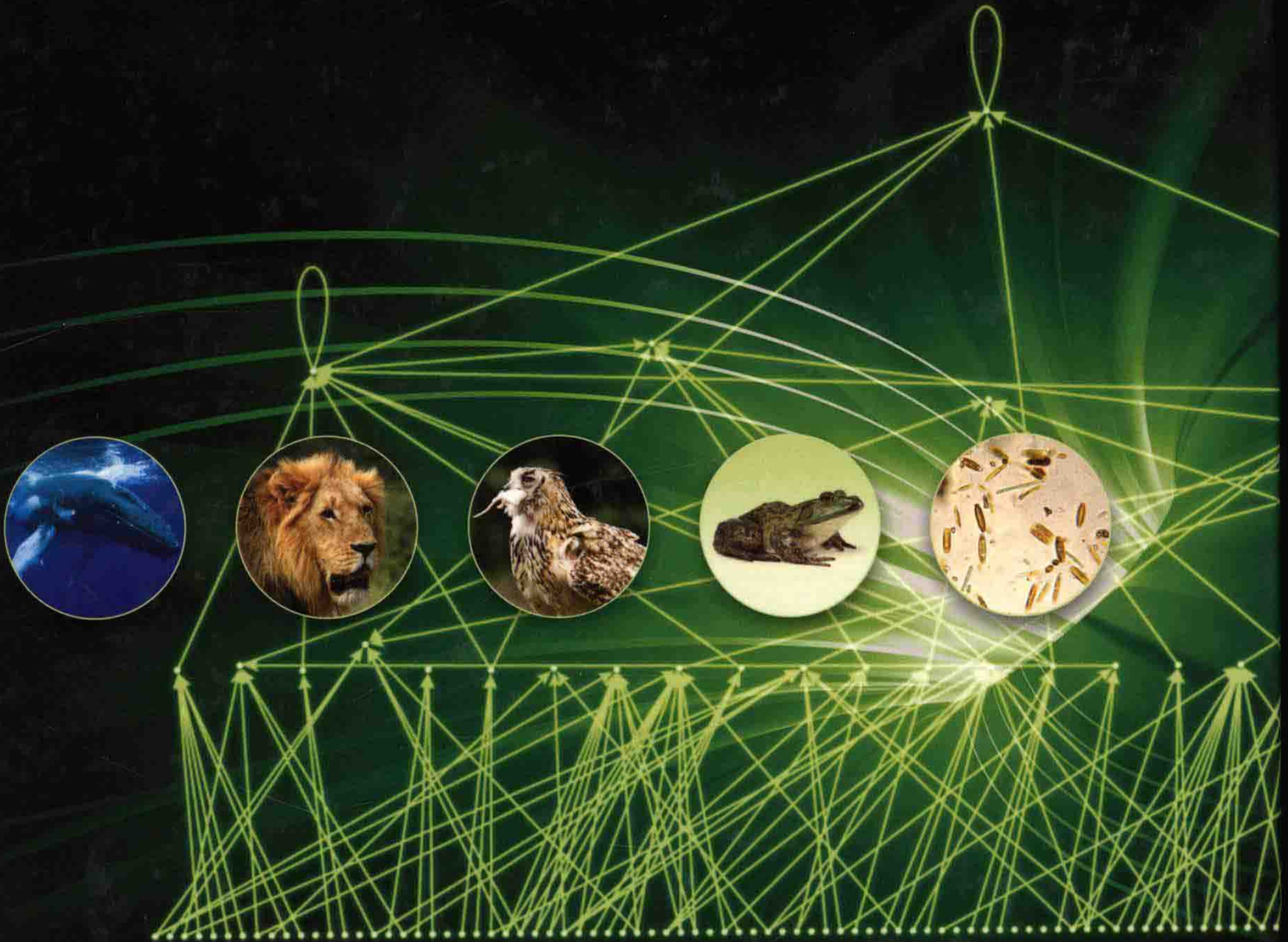


AXEL G. ROSSBERG

FOOD WEBS
and Biodiversity

Foundations · Models · Data



WILEY Blackwell

Food Webs and Biodiversity

Foundations, Models, Data

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Food Webs and Biodiversity

To you

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A. G. R.

List of Symbols

Symbol	Meaning
α	Competition matrix (overlaps)
a	Base attack rate
\mathbf{A}	Link-strength matrix
B_j	Biomass of species j
$B(M)$	Species size spectrum
$B(m)$	Community size spectrum
\mathbf{b}	Vector of biomasses of all species
c	Competition coefficient
C	Connectance, interaction probability
\mathbf{C}	Competition matrix
\bar{D}	Mean dietary diversity
D_ϵ	Trophic niche-space dimensionality
D_r	Number of vulnerability traits
D_c	Number of foraging traits
D_j	Dietary diversity of species j
\mathbf{f}_j	Vector of foraging traits of species j
$f(t)$	Momentary linear growth rate
$f(\mathbf{b})$	Density-dependent linear growth rate
f_{jk}	Functional response
F^*	Baseline foraging trait
\mathbf{G}	Community interaction matrix
H	Harvesting rate
h	Harvesting resistance
i	Imaginary unit, $(-1)^{1/2}$
I	Interaction strength
\mathbf{I}	Identity matrix
\mathbf{J}	Jacobian matrix
K	Carrying capacity
l	Trophic level
\mathbf{L}	Lowering matrix or short for \mathbf{L}_j
\mathbf{L}_j	Transition matrix of stage-structured population j
m	Individual body mass

(Continued)

(Continued)

Symbol	Meaning
M	Species (adult or maximal) body mass
v	Diet partitioning exponent
\mathbf{n}_j	Population structure of species j
N_j	Numerical abundance of species j
p_{jk}	Biomass proportion of j in diet of k
\mathbf{P}	Projector onto community targeted by consumers
$q(\mathbf{v}, \mathbf{f})$	Pseudo-Euclidean squared distance between \mathbf{v} and \mathbf{f}
\mathbf{Q}	Projector onto community of consumers
ρ_j	Respiration rate of consumer species j
r	Invasion fitness
r_{jk}	$= p_{jk}/(1 - p_{jk})$, diet ratio
\mathbb{R}	The set of real numbers
\mathbb{R}_+	The set of non-negative real numbers
\mathbb{R}^n	The set of n -component vectors of real numbers
\mathbf{R}	Raising matrix
σ	Spread of a log-normal distribution
σ_j	Signature of pseudo-Euclidean geometry
σ_j	Scaled linear growth rate of species j
s_j	Linear growth rate (production) of species j
s_{jk}, s_{jkl}	Switching similarity
S	Species richness
S_c	Consumer species richness
S_r	Resource species richness
\mathbf{S}	Matrix with signature of geometry σ_j on diagonal
t	Population-dynamical time
\mathbf{t}_j	Characterization of phenotype of species j
T	Evolutionary time (species added)
\mathbf{v}_j	Reproductive values of species j by stage
\mathbf{v}_j	Vector of vulnerability traits of species j
V^*	Baseline vulnerability trait
\mathbf{w}_j	Unit population structure of species j
$Z_c(p)$	Diet partitioning function
Z	Link density

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