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Altri autori (Persone)	ShulmanR. G (Robert Gerson) RothmanD. L (Douglas L.)
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Nota di contenuto	Brain Energetics and Neuronal Activity; Contents; Contributors; Foreword; Section A: Background; 1 Introduction; 2 Energy Metabolism in Neural Tissues in vivo at Rest and in Functionally Altered States; 3 Techniques-MRS, fMRI, (13)C NMR, Indirect Detection of (13)C; 4 Metabolic Modeling Analysis of Brain Metabolism; Section B: Neuroenergetics and Activity; 5 Cerebral Energetics and Neurotransmitter Fluxes; 6 NMR Studies of the Metabolism and Energetics of GABA Neurotransmitter Pathways; 7 Neural Energy Consumption and the Representation of Mental Events 8 Imaging Cerebral Metabolic Rate of Oxygen Consumption (CMRO(2)) using (17)O NMR Approach at Ultrahigh Field9 Deriving Changes in CMR(O2) from Calibrated fMRI; 10 Relationship between CMR(O2) and Neuronal Activity; Section C: Clinical Beginnings; 11 NMR Studies of Bioenergetic Impairment in Human Epilepsy; 12 MRS Studies of the Role of Altered Glutamate and GABA Neurotransmitter Metabolism in the

Pathophysiology of Epilepsy; 13 The Role of Altered Energetics of Neurotransmitter Systems in Psychiatric Disease; Section D: Brain and Mind
14 Long-term Memory: Do Incremental Signals Reflect Engagement of Cognitive Processes? 15 Using fMRI to Study the Mind and Brain; 16 Brain and Mind: an NMR Perspective; 17 The Role of the NMR Baseline Signal in the Study of Consciousness: the Restless Brain; Index

Sommario/riassunto

This book is unique in linking in vivo ¹³C NMR measurements of neuronal activity and energetics with applications to functional imaging and certain disease states. It provides a fundamental neurochemical explanation of brain activity applicable to functional imaging, theories of neuronal activity and disease states, e.g. epilepsy, psychiatric diseases and developmental disorders. Novel and potentially controversial. Will inspire future research directions.

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Titolo

Occupancy estimation and modeling [[electronic resource]] : inferring patterns and dynamics of species / / Darryl I. MacKenzie ... [et al]

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Nota di contenuto

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INFERENCE ABOUT DYNAMICS AND CAUSATION; GENERATION OF SYSTEM DYNAMICS; STATICS AND PROCESS VS. PATTERN; 1.4. DISCUSSION; CHAPTER 2: Occupancy in Ecological Investigations; 2.1. GEOGRAPHIC RANGE; 2.2. HABITAT RELATIONSHIPS AND RESOURCE SELECTION; 2.3. METAPOPOPULATION DYNAMICS; INFERENCE BASED ON SINGLE-SEASON DATA; INFERENCE BASED ON MULTIPLE-SEASON DATA 2.4. LARGE-SCALE MONITORING 2.5. MULTISPECIES OCCUPANCY DATA; INFERENCE BASED ON STATIC OCCUPANCY PATTERNS; INFERENCE BASED ON OCCUPANCY DYNAMICS; 2.6. DISCUSSION; CHAPTER 3: Fundamental Principles of Statistical Inference; 3.1. DEFINITIONS AND KEY CONCEPTS; RANDOM VARIABLES, PROBABILITY DISTRIBUTIONS, AND THE LIKELIHOOD FUNCTION; EXPECTED VALUES; INTRODUCTION TO METHODS OF ESTIMATION; PROPERTIES OF POINT ESTIMATORS; Bias; Precision (Variance and Standard Error); Accuracy (Mean Squared Error); COMPUTER-INTENSIVE METHODS; 3.2. MAXIMUM LIKELIHOOD ESTIMATION METHODS; MAXIMUM LIKELIHOOD ESTIMATORS PROPERTIES OF MAXIMUM LIKELIHOOD ESTIMATORS VARIANCES, COVARIANCE (AND STANDARD ERROR) ESTIMATION; CONFIDENCE INTERVAL ESTIMATORS; 3.3. BAYESIAN METHODS OF ESTIMATION; THEORY; COMPUTING METHODS; 3.4. MODELING AUXILIARY VARIABLES; THE LOGIT LINK FUNCTION; ESTIMATION; 3.5. HYPOTHESIS TESTING; BACKGROUND AND DEFINITIONS; LIKELIHOOD RATIO TESTS; GOODNESS OF FIT TESTS; 3.6. MODEL SELECTION; THE AKAIKE INFORMATION CRITERION (AIC); GOODNESS OF FIT AND OVERDISPERSION; QUASI-AIC; MODEL AVERAGING AND MODEL SELECTION UNCERTAINTY; 3.7. DISCUSSION; CHAPTER 4: Single-species, Single-season Occupancy Models
4.1. THE SAMPLING SITUATION 4.2. ESTIMATION OF OCCUPANCY IF PROBABILITY OF DETECTION IS 1 OR KNOWN WITHOUT ERROR; 4.3. TWO-STEP AD HOC APPROACHES; GEISSLER-FULLER METHOD; AZUMA-BALDWIN-NOON METHOD; NICHOLS-KARANTH METHOD; 4.4. MODEL-BASED APPROACH; BUILDING A MODEL; ESTIMATION; Constant Detection Probability Model; Survey-specific Detection Probability Model; Probability of Occupancy Given Species Not Detected at a Site; EXAMPLE: BLUE-RIDGE TWO-LINED SALAMANDERS; MISSING OBSERVATIONS; COVARIATE MODELING; VIOLATIONS OF MODEL ASSUMPTIONS; ASSESSING MODEL FIT; EXAMPLES; Pronghorn Antelope Mahoenui Giant Weta 4.5. ESTIMATING OCCUPANCY FOR A FINITE POPULATION OR SMALL AREA; PREDICTION OF UNOBSERVED OCCUPANCY STATE; A BAYESIAN FORMULATION OF THE MODEL; BLUE-RIDGE TWO-LINED SALAMANDERS REVISITED; 4.6. DISCUSSION; CHAPTER 5: Single-species, Single-season Models with Heterogeneous Detection Probabilities; 5.1. SITE OCCUPANCY MODELS WITH HETEROGENEOUS DETECTION; GENERAL FORMULATION; FINITE MIXTURES; CONTINUOUS MIXTURES; ABUNDANCE MODELS; MODEL FIT; 5.2. EXAMPLE: BREEDING BIRD POINT COUNT DATA; 5.3. GENERALIZATIONS: COVARIATE EFFECTS; 5.4. EXAMPLE: ANURAN CALLING SURVEY DATA
5.5. ON THE IDENTIFIABILITY OF ?

Sommario/riassunto

Occupancy Estimation and Modeling is the first book to examine the latest methods in analyzing presence/absence data surveys. Using four classes of models (single-species, single-season; single-species, multiple season; multiple-species, single-season; and multiple-species, multiple-season), the authors discuss the practical sampling situation, present a likelihood-based model enabling direct estimation of the occupancy-related parameters while allowing for imperfect detectability, and make recommendations for designing studies using these models.* Provides authoritative insight
