

Quantifying The Evolution Of Early Life

[DOWNLOAD HERE](#)

1;Dedication;6 2;Foreword;10 3;Preface;12 4;Contents;16 5;Contributors;18 6;Part I Numerical Methods;22 6.1;Chapter 1: Ordination Methods and the Evaluation of Ediacaran Communities;23 6.1.1;1.1 Introduction;24 6.1.2;1.2 Dataset Summary;25 6.1.3;1.3 Data Standardization;26 6.1.4;1.4 Ordination Methods;26 6.1.4.1;1.4.1 Principal Components Analysis (PCA);26 6.1.4.2;1.4.2 Correspondence and Detrended Correspondence Analysis (CA/DCA);30 6.1.4.3;1.4.3 Non-Metric Multidimensional Scaling (NMDS);33 6.1.5;1.5 Comparison and Interpretation of Results;36 6.1.6;1.6 Conclusion;39 6.1.7;References;40 6.2;Chapter 2: Exploratory Multivariate Techniques and Their Utility for Understanding Ancient Ecosystems;42 6.2.1;2.1 Introduction;43 6.2.2;2.2 Characterization of Data;45 6.2.3;2.3 Common Multivariate Ordinations;47 6.2.3.1;2.3.1 Principal Components Analysis;47 6.2.3.2;2.3.2 Principal Coordinates Analysis;53 6.2.3.3;2.3.3 Non-Metric Multidimensional Scaling;54 6.2.3.4;2.3.4 Detrended Correspondence Analysis;59 6.2.3.5;2.3.5 Discriminant Analysis and Canonical Variate Analysis;61 6.2.4;2.4 Conclusions;64 6.2.5;Acknowledgments;64 6.2.6;References;64 6.3;Chapter 3: Morphometrics in the Study of Ediacaran Fossil Forms;68 6.3.1;3.1 Introduction;69 6.3.2;3.2 Definitions and Terminology;70 6.3.2.1;3.2.1 Size, Shape, and Form;71 6.3.2.2;3.2.2 Isometry and Allometry;72 6.3.2.3;3.2.3 Discrete, Categorical, and Continuous Variables;72 6.3.3;3.3 Scale of Morphometric Studies;73 6.3.3.1;3.3.1 Assemblage-Level;73 6.3.3.2;3.3.2 Taxon-Level;74 6.3.3.3;3.3.3 Species-Level;74 6.3.4;3.4 Morphometric Datasets;74 6.3.4.1;3.4.1 Traditional Morphometric Dataset: Charniodiscus;75 6.3.4.1.1;3.4.1.1 Traditional Morphometric Data Analysis;75 6.3.4.1.2;3.4.1.2 Principal Components Analysis (PCA);76 6.3.4.1.3;3.4.1.3 Principal Coordinates Analysis (PCO);79 6.3.4.1.4;3.4.1.4 Loading Plots;79 6.3.4.1.5;3.4.1.5 Non-Metric Multidimensional Scaling (nMDS);80 6.3.4.1.6;3.4.1.6 How to Pick Which Analysis to Use?;81 6.3.4.2;3.4.2 Geometric Morphometric Dataset: Charnia;81 6.3.4.2.1;3.4.2.1 Geometric Morphometric Data Analysis;81 6.3.4.2.2;3.4.2.2 Landmark Data Collection and Superposition Methods;83 6.3.4.2.3;3.4.2.3 Charnia Modularity;85 6.3.5;3.5 Conclusions;87 6.3.6;References;89 6.4;Chapter 4: Analyzing Predation from the Dawn of the Phanerozoic;91 6.4.1;4.1 Introduction;92 6.4.1.1;4.1.1 Predation and the Cambrian Explosion;92

6.4.1.2;4.1.2 A Brief Review of Cambrian Predation;93 6.4.2;4.2 Measuring Predation;99 6.4.2.1;4.2.1
Traces in Sediment of Predatory Behavior;100 6.4.2.2;4.2.2 Traces of Predation on the Prey
Skeleton;101 6.4.2.3;4.2.3 Crushing Traces;106 6.4.2.4;4.2.4 Drilling Traces;107 6.4.2.5;4.2.5
Stereotypy;107 6.4.3;4.3 Data and Statistics;109 6.4.3.1;4.3.1 Organizing the Data;109 6.4.3.2;4.3.2
Statistical Tests;111 6.4.3.3;4.3.3 Predation Traces as Landmarks;115 6.4.3.4;4.3.4 Predation
Frequencies;118 6.4.4;4.4 Cambrian Considerations;121 6.4.5;References;123 6.5;Chapter 5: Ecospace
Utilization During the Ediacaran Radiation and the Cambrian Eco-explosion;128 6.5.1;5.1
Introduction;129 6.5.2;5.2 Theoretical Ecospace;130 6.5.3;5.3 Paleoecology of Ediacaran Animals;132
6.5.4;5.4 Ecospace Occupation During the Ediacaran;133 6.5.5;5.5 Comparing Diversification in Ecology,
Taxonomy, and Morphology During the Ediacaran Period;136 6.5.6;5.6 Trends in Ecospace Utilization
from the Ediacaran to the Phanerozoic;137 6.5.6.1;5.6.1 Quantitative Tests;141 6.5.6.2;5.6.2 Ecological
Change in the Cambrian Explosion: Tiering, Motility, Feeding;143 6.5.6.3;5.6.3 A Comment on
Ediacaran-Phanerozoic Trends;144 6.5.7;5.7 Future Work;144 6.5.8;5.8 Conclusions;145
6.5.9;References;146 6.6;Chapter 6: Quantifying Bioturbation in Ediacaran and Cambrian Rocks;151
6.6.1;6.1 Introduction;152 6.6.2;6.2 Semi-Quantitative Methods;153 6.6.2.1;6.2.1 Ichnofabric Indices
(Droser and Bottjer 1986);154 6.6.2.2;6.2.2 EAN/ISBN : 9789400706804 Publisher(s): Springer, Berlin,
Springer Science & Business Media Discussed keywords: Palontology Format: ePub/PDF Author(s):
Laflamme, Marc - Schiffbauer, James D. - Dornbos, Stephen Q.

[DOWNLOAD HERE](#)

Similar manuals:

[Quantifying The Evolution Of Early Life](#)